FIELD GUIDE OF
ORDER AMPHIPODA
(Malacostraca, Crustacea)
OF KUWAIT

Faiza Y Al-Yamani
Manal Al-Kandari
Igor Polikarpov
and
Vladimir Grintsov

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ORDER AMPHIPODA

(Malacostraca, Crustacea)

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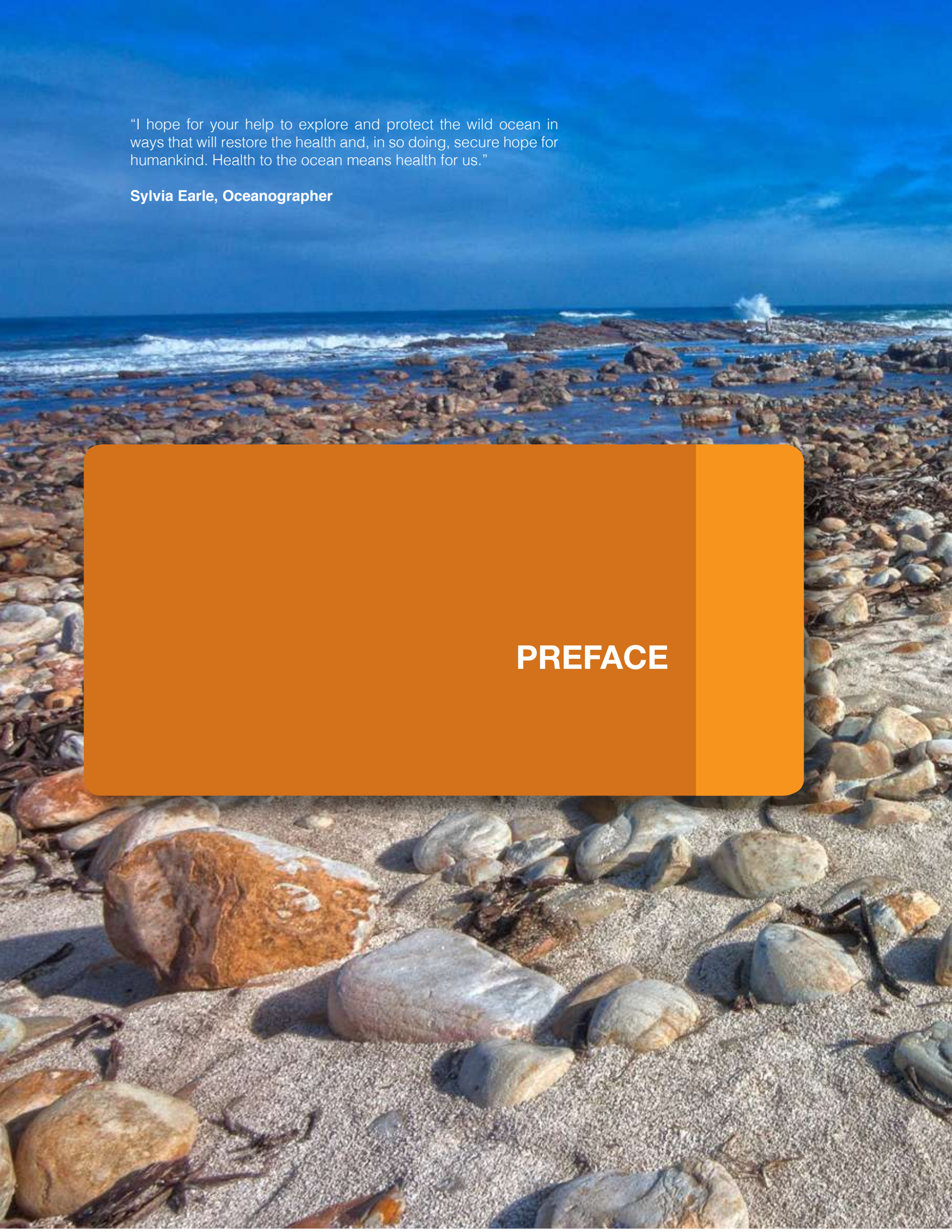
List of Amphipoda Species Encountered during Surveys along Kuwait's Coast in 2012-2016



"I hope for your help to explore and protect the wild ocean in ways that will restore the health and, in so doing, secure hope for humankind. Health to the ocean means health for us."

Sylvia Earle, Oceanographer

PREFACE

The guidebook on the amphipods of Kuwait's marine environment provides detailed information about the representatives of the taxonomic class Malacostraca, obtained during the extensive investigations of intertidal and subtidal areas along Kuwait's coasts during 2012-2016. The guide contains the descriptions of sampling methods and laboratory procedures for the identification of amphipods and provides information about their morphology and taxonomically important features of their body parts. All of the species included in this guide are illustrated by colored photographs, and the descriptions of most species are supplemented with scientific drawing notes.

A total of 73 species of the order Amphipoda were identified and included in the guidebook. Of these, 60 species are considered to be new records for Kuwait and 55 species are recorded for the first time for the Arabian Gulf, whereas 19 species are considered as the first description of the new for science species.

This first amphipod guide is not exhaustive nor unalterable as some new species are expected to be added to the taxonomic list of Amphipoda of Kuwait during future studies, especially in subtidal habitats. However, this book gives valuable background information about the taxonomic variability of this important order of crustaceans and makes available the basic methods for studying amphipod taxonomy, which will be helpful to students and researchers.

"I can't imagine anything more important than air, water, soil, energy and biodiversity. These are the things that keep us alive."

David Suzuki

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The authors express their sincere gratitude to Kuwait Institute for Scientific Research (KISR) for funding this research study and for printing this guidebook.

ABSTRACT

FIELD GUIDE OF ORDER AMPHIPODA (Malacostraca, Crustacea) OF KUWAIT

The guidebook on the amphipods of Kuwait presents information about their taxonomic class Malacostraca. Samples were obtained during the extensive investigations of intertidal and subtidal areas along Kuwait's coasts during the period of 2012-2016. The guide contains descriptions of sampling methods and laboratory procedures for the identification of amphipods, and provides information about morphology and taxonomically important features of their body parts. All of the species included in this guide are illustrated by colored photographs, and the descriptions of most species are supplemented with scientific drawings notes.

A total of 73 species of the order Amphipoda were included in the guidebook. Of these 60 species are considered to be new records for Kuwait and 55 species are recorded for the first time for the Arabian Gulf, whereas 19 species are considered new for science and the first description for these species is included in this guidebook.

INTRODUCTION

The marine environment of Kuwait is diverse and composed of various coastal habitats (Jones, 1986; Al-Yamani et al., 2004), which provide homes to numerous marine animals and plants, living under one of the harshest environmental conditions in the World Ocean. The mean annual temperature of Kuwait's surface water is 23.8 ºC, with the maximum recorded in July and August, when seawater temperature ranges from 30.5 ºC to 36 ºC in the shallow waters of Kuwait Bay; the minimum temperature coincides with the months of January and February (10-14 ºC). The mean annual salinity of Kuwait's waters is 41.6 psu; however, it could reach up to 45 psu (Al-Yamani et al., 2004). Kuwait's semidiurnal tides' heights are from 3.5 to 4 m.

The Amphipoda fauna of the Arabian Gulf, including Kuwait was not thoroughly studied. Only nine taxonomic publications contain taxonomic information about amphipods for this region of the Indian Ocean, including the description of new species. The first particular list of the amphipods' taxa from the Arabian Gulf based on the extensive collections from Saudi Arabia's shore from Ras Al-Mish'ab near Kuwait in the north to the Gulf of Salwah near Qatar in the south, has been published by Basson and coauthors in 1977. In this book the authors have listed 45 taxa (identified to families or genera only) related to five types of intertidal habitats, including sandy beaches (23 taxa), rocky beaches (6 taxa), mudflats (2 taxa), sandflats (5 taxa), and rocks (9 taxa) (Basson et al., 1977). Later, Barnard and Thomas (1984) described a new amphipod species, *Siphonoecetes* (syn. *Orientoecetes*) *arabicus*, from Dhahran city (Saudi Arabia).

The third publication was by Jones (1986), who published a field guide of the seashores of Kuwait and the Arabian Gulf. In this book, eight common Amphipoda species have been listed among other intertidal plants and animals.

In 1986, Salman described a new marine amphipod species, *Parhyale basrensis*, from the Shatt Al-Arab River (Abu-Al-Kaseeb, Iraq) (Salman, 1986), and later, in 1990, Salman and Jabbar found and described a new amphipod species, *Cheiriphotis williamsoni*, and redescribed the known species *C. megacheles* (Giles, 1885) from two localities in Iraqi waters of the northwestern Arabian Gulf, namely, Khor Abdullah and Khor Al-Zubair (Salman and Jabbar, 1990).

Much later, in 2013, Momtazi and Sari described three new species of Caprellids from the Arabian Gulf and the Gulf of Oman, namely, *Metaprotella macoranicus*, *Monoliropus kazemii*, and *Pseudaeginella hormozensis* (Momtazi and Sari, 2013). In 2014, the description of one new amphipod species, *Melita persia*, and the redescription of the known amphipod *Elasmopus menurte* Barnard, 1974 from Qeshm Island, Iran have been published (Momtazi et al., 2014). In 2015 Myers and Momtazi described a new amphipod *Elasmopus alkhiranensis* from five Arabian Gulf localities including Khiran (Kuwait) in the northwestern Gulf, Chapahn Village near Bushehr (Iran) in the central Gulf, Qeshm Island, Chiruyeh Village (near Kish Island), and Abu Musa Island in the eastern Gulf near the entrance to the Strait of Hormuz (Myers and Momtazi, 2015). In the same year, Lowry and Momtazi described one new amphipod, *Talorchestia qeshm*, from Qeshm Island, Iran (Lowry and Momtazi, 2015).

Very recently, Myers and Nithyanandan (2016) described seven new for science species of amphipods from Khiran (Kuwait), namely, *Bemlos acuticoxa*, *Laticorophium bifurcatum*, *Protohyale arabica*, *Ceradocus* (*Denticeradocus*) *alama*, *Maera irregularis*, *Latigammaropsis pseudojassa*, and *Podocerus mamlahensis*. Four amphipod species were firstly recorded from the Arabian Gulf (*Ampithoe ramondi* Audouin, 1826; *Grandidierella bonnieroides* Stephensen, 1948; *Dulichiella fresnelii* Audouin, 1826; *Photis hawaiensis* J.L. Barnard, 1955) and one new species was recorded for Kuwait, namely, *Elasmopus alkhiranensis* Myers & Momtazi, 2015 (Myers and Nithyanandan, 2016)

A detailed knowledge about amphipods' fauna is essential, because these animals are an important component of all marine ecosystems, both as grazers of algae and as important food source for crustaceans, fish, and other animals. This Guide represents the most recent and wide-scale investigation of amphipods in the Arabian Gulf and Kuwait with 73 species descriptions, including 19 species considered as new for science. This book can be considered as a reference for future biodiversity studies, for scientific species identification, and for marine biology university students.

MATERIALS AND METHODS

Sampling

Samples were collected during March–April 2012, November 2012 – January 2013 (Table 1), and 2014 – 2016 (Table 2) from different locations (Figs. 1 and 2), including intertidal and subtidal zones, floating and fixed piers (such as concrete blocks), and along the coastline of Kuwait, including islands. A total of 557 qualitative samples were collected.

In the intertidal zone, samples were collected from high, mid, and low zones. All samples from the intertidal zone piers (with biofouling communities) were transferred into plastic bags with ziplocks. The subtidal samples were collected during snorkeling at a depth range of 1-3 m, as well as by using a speedboat and rectangular dredge (KC Denmark A/S, Silkeborg, Denmark; Figs. 3 – 6) from Salmiya area (26 March 2012), Qaruh Island area (4 April 2012), Kuwait Bay area (4 December 2012), Auha Island area (23 December 2012), and Al-Bida'a area (30 December 2012).

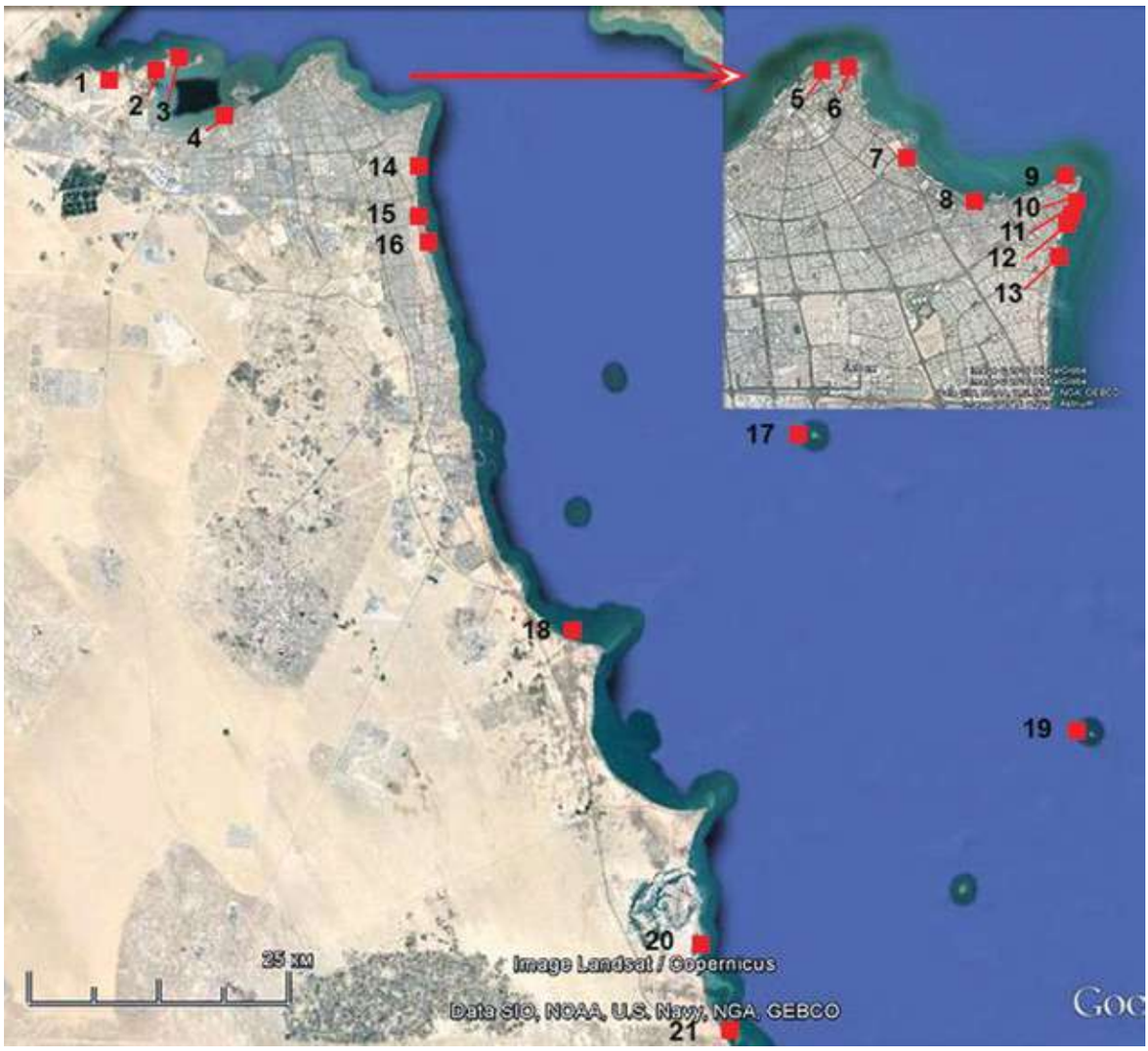

Fig. 1. Map of Kuwait's coastline with sampling sites visited during November 2012 – January 2013. Numbers on the map indicate locations: 1 – Al-Judailiat (West Doha); 2 – Doha Port; 3 – Aushairij (East Doha); 4 – Shuwaikh beach; 5 – Souq Sharq Marina; 6 – Kuwait Tower's Marina; 7 – Turtle Island beach; 8 – Al-Sha'ab Marina; 9 – Ras Al-Ard Marina; 10 – KISR's Salmiya Marina; 11 – Rescue Center Marina; 12 – Salmiya town beach; 13 – Al-Bida'a beach; 14 – Salwa beach; 15 – Fintas; 16 – Funaitees; 17 – Kubbar Island; 18 – Julai'a beach; 19 – Qaruh Island; 20 – Al-Khiran; 21 – Al-Nuwaiseeb. Map Imagery: Google Earth, 3 February 2017.

Fig. 2. Map of Kuwait's coastline with sampling sites visited during 2014-2016: 1 – Umm Al-Shajar (Boubyan Island); 2 – Al-Maghasel (Khor Al-Subiyah); 3 – Al-Shumaimah (Khor Al-Subiyah); 4 – Boubyan Island; 5 – Miskan Island; 6 – Failaka Island (northwestern part); 7 – Failaka Island (southern part); 8 – Failaka Island (eastern part 1); 9 – Failaka Island (eastern part 2); 10 – Auha Island; 11 – Al-Judailiat (West Doha); 12 – Al-Aushairij (East Doha); 13 – Umm Al-Namil Island; 14 – Al-Sha'ab; 15 – Ras Ajuza (Kuwait Bay); 16 – Al-Salam Beach (Kuwait Bay); 17– Al-Messilah Beach; 18 – Al-Funatees; 19 – Abu Halifa; 20 – Al-Mangaf; 21 – Kubbar Island; 22 – Masfat Al-Ahmadi; 23 – Mina Abdullah; 24 – Ras Al-Julaia'a beach; 25 – Qaruh Island; 26 – Ras Al-Zour; 27 – Umm Al-Maradim Island; 28 – Al-Khiran Island; 29 – Al-Nuwaiseeb Island. Map Imagery: Google Earth, 3 February 2017.

Table 1.
Locations of Sampling Sites during March–April, 2012 and November 2012 –January 2013

Date of Sampling	Location
11 March 2012; 13 March 2012; 19 March 2012; 25 March 2012; 2 March 2012	KISR's Salmiya Marina area
12 March 2012; 26 March 2012	Salmiya town beach area
12 March 2012	Al-Bida'a area
14 March 2012	Turtle Island beach area
22 March 2012	East Doha area
25 March 2012	Rescue Center Marina, Salmiya area
26 March 2012	Ras Al-Ard Marina area 1
30 March 2012	Al-Judailiat area 1 (West Doha)
30 March 2012	Al-Judailiat area 2 (West Doha)
01 April 2012	Qaruh Island
02 April 2012	Ras Al-Ard Marina area 2
04 April 2012	Funaitees tidal zone
04 April 2012	Julai'a beach
25 November 2012	Julai'a beach area
25 November 2012	Khiran area
28 November 2012	Nuwaiseeb area
19 November 2012; 09 December 2012	KISR's Salmiya Marina area
20 November 2012; 05 December 2012	Salmiya town beach area
02 December 2012	Kubbar Island area
05 December 2012	Aushairij area (East Doha)
11 December 2012	Rescue Center Marina area
15 December 2012	Al-Bida'a beach area
17 December 2012	Souq Sharq Marina area
18 December 2012	Kuwait Tower's Marina area
19 December 2012	Al-Sha'ab Marina area
31 December 2012	Fintas beach area
03 January 2013	Shuwaikh beach
05 January 2013	West Doha area
07 January 2013	Salwa beach area
08 January 2013	Doha port area

Table 2.
Locations of Sampling Sites during 2013–2016.

Date of Sampling	Transect Name
08 December 2013	Ras Ajuza (Kuwait Bay area)
09 December 2013	Al-Salam beach (Kuwait Bay area)
18 December 2013	Al-Messilah beach area
19 December 2013	Al-Funaitees beach area
04 January 2014	Abu Halifa area
19 January 2014	Al-Sha'ab area
01 February 2014	Al-Mangaf beach area
02 February 2014	Al-Judailiat (West Doha)
03 February 2014	Al-Aushairij (East Doha)
16 February 2014	Mina Abdullah area
17 February 2014	Ras Al-Julai'a area
03 March 2014	Al-Khiran area
04 March 2014	Al-Nuwaiseeb area
09 November 2014	Kubbar Island area
10 November 2014	Qaruh Island area
11 November 2014	Umm Al-Maradim Island area
23 November 2014	Al-Maghasel (Khor Al-Subiyah area)
24 November 2014	Al-Shumaimah (Khor Al-Subiyah area)
10 December 2014	Masfat Al-Ahmadi area
22 December 2014	Failaka Island (northwest area)
23 December 2014	Failaka Island (south area)
24 December 2014	Failaka Island (east 1 area)
24 December 2014	Failaka Island (east 2 area)
29 December 2015	Umm Al-Shajar (Boubyan Island area)
08 January 2015	Ras Al-Zour area
24 January 2015	Boubyan Island
10 February 2016	Auha Island area
24 February 2016	Umm Al-Namil Island
11 March 2016	Miskan Island area

Fig. 3. The KC rectangular bottom dredge No. 19.600 used for collection of subtidal algae and stones (www.kc-denmark.dk).

Fig. 4. Bottom dredge, on the boat's deck preparing for deployment.

Fig. 5. Sample inside the dredge bag.

Fig. 6. Closes look at the sample in the bucket.

Intertidal Zone

Samples were collected from each location and habitat. Three samples were collected from each type of habitat. All types of sampled habitats were photographed. The important features of sampling sites for each type of habitat were different (features were recorded in the field notebook).

Hard Substrates

Rocks, pebbles and, dead corals (Figs. 7 and 8). The procedure for the estimation of this type of habitat includes two steps:

a) Collection of separate stones, rocks, dead corals or groups of rocks or dead corals;
b) Distinguishing of the predominating types of communities outside and inside the areas with stones, rocks or dead corals (Algae, Anthozoa, Polychaeta, Mollusca, Cirripedia, Bryozoa, Spongia, Hydroidea and Ascidiacea).

Soft Substrates

Gravel and shells:

a) Combination of gravel and shells area – prevalence of gravel or shells was recorded;
b) Combination of dead shells or live mollusks (if shells prevail or a habitat does not include gravel).

Sand and shells (Fig. 9):

Combination of sand and shells – prevalence of sand or shells was recorded.

Mud, sand and clay:

Combination of mud, sand and clay – prevalence of mud, sand or clay was recorded.

Algae and Sponges Habitats for Amphipoda.

The procedure for examining this type of habitat (Fig. 10) includes two steps:

a) Recording the substratum type where algae or sponges are growing (rocks, stones, gravel and sand);
b) Recording the proportions between *Sargassum* spp. and other algae in the sampled area.

Fig. 7. Estimation of Amphipoda specimens' distribution between rocks on the upper intertidal zone (East Doha area).

Fig. 8. Sampling of Amphipoda collection from rocks (East Doha area).

Fig. 9. Collection of the sandy sediments with Amphipoda (East Doha).

Artificial Constructions (Floating Piers)
Samples from different pier constructions were collected using a scraper. Each sample was collected into separate bags to separate the types of biofouling communities (with prevalence of Algae, Anthozoa, Polychaeta, Mollusca, Cirripedia, Bryozoa, Spongia, Hydroidea and Ascidiacea).

Laboratory Samples Analysis

Sorting and fixation of amphipods. All samples were placed into plastic bins with fresh potable water for 5 – 10 minutes. Hard substrates, such as rocks and stones, as well as macroalgae, were shaked out well into the bins. Soft substrates, such as sand, were sorted out by hands. After this procedure, freshwater was added to amphipod specimens and poured through the sieve, which is made of plankton net gauze with a mesh size of 0.5 mm. Amphipods were then collected gently from the sieve by fine forceps and placed into jars containing 75% ethanol solution.

Identification procedure. Specimens from the jars were placed into Bogorov counting chamber or a Petri dish. Amphipods in the counting chamber or Petri dish were carefully examined and photographed using stereomicroscope Leica S6D, and compound microscope Leica DM 2500, equipped with Leica DFC 450 digital photographic cameras. Specimens were identified, and then placed into jars filled with freshly prepared 75% ethanol solution.

Taxonomic treatment. Taxonomic descriptions of the Amphipoda species and zoological line drawings (Figs. ZP-1 – ZP-53) were prepared by Dr. Vladimir Grintsov. The classification of amphipods into taxonomic groups and verification of currently accepted taxonomic names followed World Register of Marine Species (WoRMS Editorial Board, 2019).

Fig. 10. Collecting sponges in plastic bags (Al-Nuwaiseeb area).

TYPICAL HABITATS OF AMPHIPODA ON THE INTERTIDAL ZONE OF KUWAIT'S COAST

Kuwait Bay, 5.01.2013

Fig. 11. Fragments of rocks, cobbles, and stones together with muddy sand on the intertidal zone of Kuwait Bay.

Fig. 12. Mud at the lower intertidal zone of Kuwait Bay**.**

Fig. 13. Cobbles with oysters on the muddy intertidal zone of Kuwait Bay.

West Doha, 5.01.2013

Fig. 14. Separate cobbles and stones on the sandy lower intertidal zone of West Doha.

Fig. 15. Massive coralliform colonies of the blue coral-worm *Spirobranchus kraussii* (Serpulidae, Polychaeta) on the sandy beach of West Doha.

East Doha, 5.12.2012

Fig. 16. Separate cobbles and stones on the muddy habitat of East Doha.

Fig. 17. Boulders, cobbles, stones, and fragments of concrete constructions and pipes together with sand at the upper intertidal zone of East Doha.

Fig. 18. Cobbles with massive coralliform colonies of the blue coral-worm *Spirobranchus kraussii* (Serpulidae, Polychaeta) on the sandy beach of East Doha.

Salmiya beach, 31.12.2012

Fig. **19.** Rocky reef with scattered boulders on the lower intertidal zone at Salmiya beach**.**

Fig. 20. Fragments of rocks, scattered boulders, and cobbles at the sandy Salmiya beach.

Fig. 21. Cobbles and stones with macroalgae (*Padina* sp.) on the sandy Salmiya beach.

Al-Bida'a, 12.03.2012

Fig. 22. Cobbles and stones' reef at the sandy lower intertidal zone of Al-Bida'a.

Fig. 23. Massive coralliform colonies of the blue coral-worm *Spirobranchus kraussii* (Serpulidae, Polychaeta) on boulders, cobbles, and stones on the lower intertidal zone at Al-Bida'a.

Fig. 24. Scattered cobbles and stones on the muddy sand of the lower intertidal zone at Al-Bida'a.

Salwa beach, 7.12.2013

Fig. 25. Rocky reef with boulders on the lower intertidal zone at Salwa beach.

Fig. 26. Scattered massive boulders at the sandy Salwa beach.

Al-Khiran, 25.11.2012

Fig. 27. Sandy beach at Al-Khiran.

Fig. 28. Fragments of rocks, boulders and exploded concrete on the sandy shore of Al-Khiran.

Al-Nuwaiseeb, 28.11.2012

Fig. 29. Boulders at the sandy beach of Al-Nuwaiseeb.

MORPHOLOGY OF AMPHIPODS
(AFTER BARNARD AND KARAMAN, 1991, MODIFIED)

Amphipods, like tanaids and isopods, lack a carapace covering the thorax, and hence, the seven definitive thoracic segments (pereonites) are visible. Specimens from the order Amphipoda may be recognized by their possession of three pairs of pleopods and two or three pairs of uropods on the pleon (abdomen). The fairly consistent presence of at least six pairs of thoracic appendages, five-plus pairs of gills, and four pairs of brood lamellae in females are definitive characteristics of Amphipoda.

Amphipod generally has the head about as long as 1.5 pereonites, but it varies in different families and their genera from much shorter than the first pereonite to as long as the first three pereonites combined.

The absence of eyes is rarely of taxonomic concern other than at the species level. The presence and/or condition of the cephalic rostrum is only occasionally conservative at the familial level.

Antennae – the head bears two pairs of antennae. The first three articles of the first pair are known as the peduncle, the remaining smaller articles are the flagellum. The callynophore may be present in the male and female or only in the male. It is located medially and usually contains many transverse rows of aesthetascs, which group together to form a brush. Many species have an accessory flagellum. The second antennae bear five peduncular articles, followed by a single flagellum. The flagella of both antennal pairs may bear, especially in males, sensory appendages, such as aesthetascs and calceoli.

The mouthparts are highly variable intergenerically and their morphology is important for classification. They composed of the following structures:
Upper lip – a single lobe or flap anterior to the mouth. Occasionally both epistome and upper lip are produced together but occasionally they are fully amalgamated.

Lower lip – a bilaterally symmetrical complex forming a partition behind the mouth. Also known as a labium, the lower lip is composed of at least a pair of lateral lobes, having their lateral extremities produced, often acutely and often bearing apicomedially a tiny cusp enclosing the meatus of a salivary duct.

Mandibles – a pair of appendages attached lateral by to the mouth; with the upper and lower lips, they form a box around the mouth, permitting buccal closure. Mandibles generally have their anterodistal ends (incisors) cut into a series of teeth for biting; just proximal to the distal teeth may be an articulated process, also toothed, the lacinia mobilis (accessory plate) which may occur on only one or none of the mandibles. A molar with a grinding surface often occurs on the medioventral surface of the mandible. It may be ridged and toothed (triturative), or smooth, or completely absent. Most Amphipoda have a 3-articulate palp attached to the dorsolateral surface of the mandible, the palp being used to clean the bases of the antennae. Its absence is moderately frequent and often of familial importance, but its reduction to one or two articles is uncommon.

First maxillae – these are situated posterior to the lower lip. This pair of appendages is small, each bearing a medial free lobe, an outer lobe with heavy spines, and attached to the outer lobe a palp composed of one or two articles, occasionally reduced in size or absent.

Second maxillae – these are two pairs of lobes behind the first maxillae, each composed of simple medial and lateral plates, occasionally reduced to one plate or absent, rarely with the outer lobe attached to the inner by a basal geniculation or extension. The presence or absence of an oblique row of setae on the dorsal face of the inner plate often has strong taxonomic significance.

Maxillipeds – one pair of appendages posterior to the maxillae, each side of the maxilliped is formed of an inner (proximal) lobe, an outer (distal) lobe and a palp of two to four articles, rarely absent in Amphipods.

Pereion (thorax) – almost invariably bears seven pairs of legs. Thoracic appendages have seven articles – coxae, basis, ischium, merus, carpus, propodus, and dactylus. The first two pairs are called gnathopods and usually are prehensile, having the seventh article (dactyl) folded back on the sixth article (propodus, hand, or palmar article). Rarely in gnathopod 1 there is sexual dimorphism but the male often has greatly enlarged second gnathopods. Females have oostegites – the medial surfaces of coxae 2 to 5 (or 3 to 4 only) carry brood lamellae (oostegites).

Pleopods – are paired biramous appendages on the first three segments of the pleon, the rami multisegmented and strongly setose.

Urosome have three pairs of uropods. Occasionally, armaments on uropods 1 to 2 are used to facilitate ecdysis of anterior appendages. In many Amphipoda, the third uropods still bear 'swimming'setae and may be used for paddling or as rudders. Males especially have natatory third uropods.

Telson – a flap attached to the sixth pleonite above the anus. It is of primary taxonomic value, depending on whether it is cleft into two lobes, fused into a single flap, elongated, fleshy, or ornate.

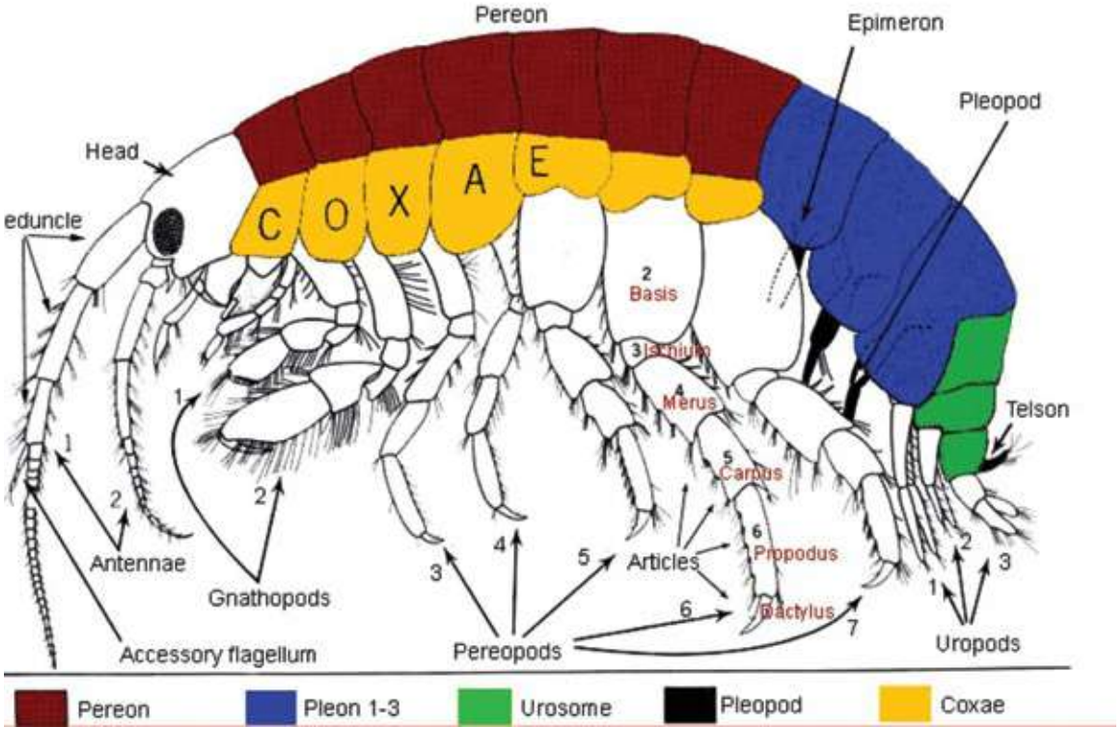

Fig. 30. General morphology of amphipod (after Barnard and Karaman, 1991; modified).

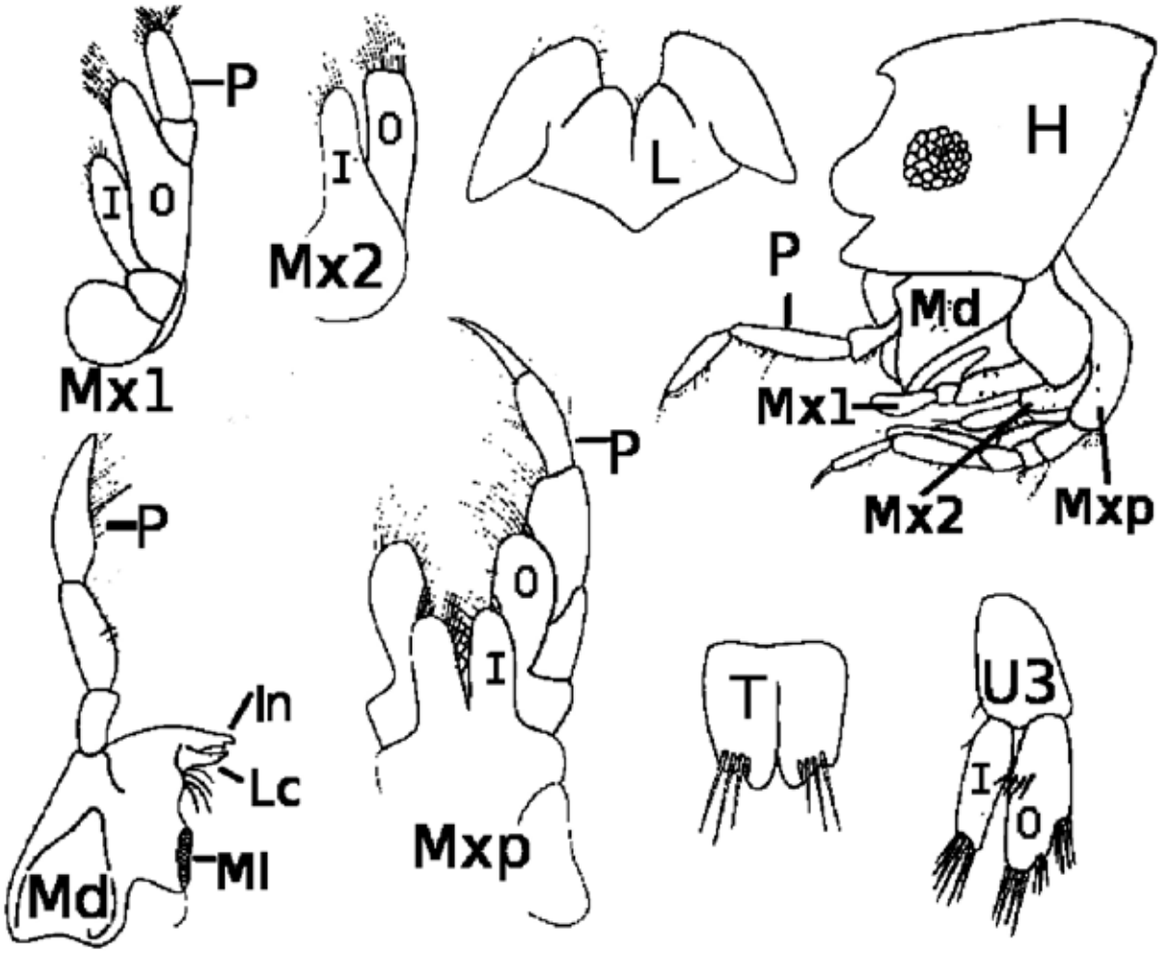

Fig. 31. Mouthparts (after Barnard and Karaman, 1991; modified).

Designation: H — head; I — inner; In — incisor; L — labium; Lc — lacinia mobilis; Md — mandible; Ml — molar; Mx1 — maxilla 1; Mx2 — maxilla 2; Mxp — maxilliped; O — outer; P — palp; T — telson; U3 — uropod 3.

GLOSSARY
(AFTER BARNARD AND KARAMAN, 1991, MODIFIED)

Accessory flagellum: The secondary ramus of antenna 1, often absent or vestigial, and attached medially to peduncular article 3.

Article: The segment of an appendage (see segment).

Basis, basipodite: Article 2 of a pereonal (see *pereon*) appendage.

Calceolus, calceoli: A small globular, linguiform or helmet-shaped, articulate sense organ on antennae; of rare occurrence in marine Gammaridea and most often seen in Eusiridae and Lysiannassidae.

Carpus: Article 5 of a thoracic appendage (gnathopod, pereopod).

Chela: Immovable finger of *prehensile* appendage.

Chelate: Descriptive of the palm of a gnathopod protruding as an immovable finger on which the dactyl closes.

Compressed: Flattened from side to side.

Corneal lens: A biconvex cuticular body occurring directly in or on the cephalic cuticle (particularly in Ampeliscidae).

Coxa, coxal plate: Article 1 of a pereonal appendage, expanded into a lateral lamella.

Cuticular lens: A brightly shining circular or ovate thickening of the cuticle on the head; one assumes the lens focuses light on the brain or pigment surrounding parts of the brain; common in Ampeliscidae.

Dactyl, dactylus: Talon-like terminal article of gnathopods, pereopods (article 7), or maxillipeds (articles 3 or 4).

Dentate: A margin with tooth-like projections.

Dispariramous: Uropod 3 with rami unequal either in length, shape, or armament.

Epistome: The anterior surface of the head above the labrum; this area is often extended ventrally to appear as a part of the labrum and may be anteriorly produced as a cusp or lobe.

Flagellum: The distal part of either antenna 1 or 2; on antenna 1 it commences with article 4, on antenna 2 with article 6; because basal peduncular articles of antenna 2 are often difficult to resolve, the juncture may be recognized between the elongated final peduncular article and the shortened first flagellar article, which is followed by similar short articles; on antenna 2, however, article 1 of the flagellum is occasionally elongated and apparently composed of nonsegregated (thus conjoint) daughter articles.

Foliaceous: Broadened, leaf-like; applied especially to plates or lobes of mouthparts and rami of uropod 3.

Gnathopod: One member of the first two pairs of free thoracic appendages; these appendages differ in function and usually in appearance from following pereopods; often called pereopods.

Hand: Article 6 or propodus of a gnathopod or pereopod.

Incisor: The anterior apical part of the mandible usually formed into a toothed chewing edge or untoothed chopping plate.

Inferior: Applicable to various comparisons between morphological parts which have 2 or more kinds of substates; for example, a pereopod may be smaller than another, in which case the term 'smaller' applies; a pereopod may be less setose than another, in which case 'more sparsely setose' applies; if a pereopod is both smaller and more sparsely setose than another, the shorthand term 'inferior' applies. The opposite of inferior is often 'superior' but we prefer to use the term 'dominant'.

Ischium: Article 3 of a pereonal appendage.

Lacinia mobilis: An articulated accessory plate proximal to the mandibular incisor, often absent or missing on either left or right mandibles, occasionally indistinguishable from a spine of the spine rows.

Lanceolate: Shaped like a lance; narrow but tapering apical, occasionally tapering basal.

Lower lip (*labium*): A fleshy complex posterior to the mandibles, always composed of at least one pair of lobes (outer), often with a medioproximal pair of inner lobes; the lateroproximal ends of the outer lobes are often attenuated as alae and are denoted as mandibular lobes.

Mandible: The anterior movable appendage of the buccal group; usually composed of a body bearing a distal incisor, a lacinia mobilis, spine row, molar, and 3-articulate palp.

Maxilla 1: A pair of cephalic appendages posterior to the lower lip; for taxonomic purposes only three parts of each member are named: the medial lobe (plate) usually bearing marginal setae, the lateral and larger lobe (plate) bearing terminal spines, and, attached to the outer lobe, a palp usually composed of two articles but occasionally absent.

Maxilla 2: A pair of cephalic appendages posterior to maxilla 1; for taxonomic purposes each member is recognized as a pair of lobes (plates) medial and lateral, usually strongly setose.

Maxillipeds: The posteriormost pair of 'cephalic' appendages, representing the primitive first thoracic segment now amalgamated with the head but in amphipod taxonomy not included in the sequential numbering of thoracic appendages; for taxonomic purposes recognized as a pair of basally amalgamated appendages, each member composed of a proximal (inner) plate, a distal (outer) plate, and a palp of four articles, rarely reduced to 3 or 2 articles or absent.

Merus: Article 4 of a pereonal appendage.

Molar: A process of the mandible, located on the midmedial margin; when typically developed it is a medium-sized, subcylindrical body with a surface of ridges and teeth used for grinding (triturative). It evolves in 2 directions: becoming larger, less triturative and finally smooth and pubescent; becoming smaller, less triturative and finally smooth or pubescent or spiny and finally disappearing.

Ommatidia: Terms applying to the parts of the subintegumentary compound eye, not to be confused with the cornea1 lenses on the integument of Ampeliscidae.

Palm: A posterior surface or margin of article 6 of a gnathopod or pereopod on which article 7 (dactyl) closes for the purpose of prehension; usually recognizable because of the expansion of article 6 or by the occurrence of special spines or ornamentation and usually with a proximal defining limit marked by a change in marginal slope or occurrence of special spines.

Palp: Terminal articles of a buccal appendage, in Amphipoda occurring only on mandibles, first maxillae, and maxillipeds as the stenopodous terminal articles distal to the expanded outer plates or the main body.

Peduncle: The basal articles of a fundamentally biramous appendage; in Amphipoda applied to antennae, pleopods, and uropods; antenna 1 with three peduncular articles, antenna 2 with five peduncular articles (But appendage not biramous); pleopods with one definitive peduncular article but remnants of others occurring proximally; uropods each with one peduncular article.

Pereon: The complex of seven free thoracic segments bearing gnathopods and pereopods, not including the maxillipeds.

Pereonite: A segment of the *pereon*.

Pereopod: A walking, grasping, standing, or feeding appendage attached to a pereonite; normally composed of seven articles, including coxa; in Amphipoda, the first two pairs are often termed as gnathopods and only the last five pairs of thoracic legs are called pereopods.

Plate: A flattened lobe on an article of a maxilla or maxilliped.

Pleon: The abdomen (of six free segments in Gammaridea, rarely with some segments coalesced).

Pleonite: A segment of the pleon.

Prehensile: Adapted for seizing or grasping; applicable to but rarely used for gammaridean pereopods; especially useful in denoting pereopods of cyphocarids *Isaea*, *Pleonexes,* etc., which are either subhelate or helate, or have distinct spinose palms or nonskid surfaces indicating their use in grasping. Scarcely prehensile is a subjective opinion denoting that a weak degree of prehensility is present.

Propodus: Article 6 of a pereonal appendage.

Pubescent: Furnished with elongated, hair-like extensions sufficiently dense to be noticeable as a taxonomic feature. 'Hairy' is a misuse of this condition. Sometimes misapplied to the clusters of aesthetascs.

Segment: Compartmentalised division of the body or soma. Often misapplied to a division of an appendage; the preferred word for a division of an appendage is 'article'.

Seta: A bristle; a weakly articulate chitinous extension supplied with nerve canal; in amphipods, the word is restricted to such projections, which are flexible.

Simple: Used in Amphipod taxonomy to denote the absence of spines or setae on appendages; or the occurrence of but a single article in the ramus of a uropod; or especially to the absence of a palm on a gnathopod or pereopod. Distinction between subchelate and simple is often weak.

Spine: A thick inflexible seta. Not used in amphipods in the same way as in a Decapoda where spine refers to what is called tooth or denticle in amphipods.

Subchelate: Article 6 of gnathopod or pereopod having a distal palm against which article 7 closes; a prehensile condition in which the palm is not produced to form a finger; intermediate in condition between chelate and simple. Often marked by the presence of defining spine or tooth at the proximal end of palm. Complexly subchelate or complexly chelate are terms referring to the formation of a false chela by the protrusion of teeth, cusps, or lobes from articles other than the sixth and upon which article 7 impinges to form a prehensile condition; occurring especially in Aoridae, Corophiidae and Leucothoidae.

Telson: A flap dorsal to the anus attached to pleonite 6, primitively bilobed in our concept of the basic amphipod, but usually in Amphipoda with bases coalesced and often with lobes completely coalesced to form a single plate.

Tooth: A non-articulated extension of a margin. Plural is 'teeth'. Often misapplied to tooth-like spines.

Triturative: Descriptive of the rasp-like surface of a mandibular molar composed of teeth, ridges, and cusps.

Upper lip (*labrum*): A fleshy lobe attached to the anterior cephalic margin in front of the mandibles; occasionally the anterior surface of the labrum protrudes as a lobe or cusp; often the cephalic area to which the labrum is attached is recognizable as an 'epistome' and may also be lobed; or both labrum and epistome may be indistinguishable and produced together as a single lobe.

Uropod: One member of the three pairs of terminal pleonal appendages, each formed of a peduncle and two rami.

Urosome: The complex of pleonites 4, 5, and 6, carrying uropods, and telson.

Urosomite: A segment of the urosome.

LIST OF ABBREVIATIONS

A1 and A2	antennae 1 and 2
acc.fl.	accessory flagellum
Cox1, Cox2, Cox3, Cox4, Cox5, Cox6, and Cox7	coxae 1, 2, 3, 4, 5, 6 , and 7
Ep1, Ep2, and Ep3	epimeral plates 1, 2, and 3
Gn1 and Gn2	gnathopods 1 and 2
L	labium
Lbr	labrum
Md	mandible
Mx1 and Mx2	maxillae 1 and 2
Mxp	maxilliped
P3, P4, P5, P6, and P7	pereopodes 3, 4, 5, 6, and 7
Pl1, Pl2, and Pl3	pleosomite 1, 2, and 3
Per1, Per2, Per3, Per4, Per5, Per6, and Per7	pereonite 1, 2, 3, 4, 5, 6, and 7
T	telson
U1, U2, and U3	uropods 1, 2, and 3
Us1, Us2, and Us3	urosomite 1, 2, and 3

INTERTIDAL SURVEY: COORDINATES OF LOCATIONS, SAMPLING DATES, AND SPECIES ENCOUNTERED

Al-Bida'a area
Collection date: 26 March 2012.
Coordinates: 29°18' N; 48°05' E
Species:
Globosolembos indicus (Ledoyer, 1967).

Al-Khiran area
Collection dates: 26 April 2012; 25 November 2012.
Coordinates: 28°37'48" N; 48°23'30" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Apolochus sp. 2 cf. *menehune*;
Ampithoe sp. 2 cf. *kava*;
Biancolina sp.;
Colomastix sp. 1;
Colomastix sp. 2;
Cyproidea sp. cf. *serratipalma*;
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ischyrocerus sp.;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Maxillipius rectitelson Ledoyer, 1973;
Megaluropus excavatus Ledoyer, 1979;
Megaluropus sp. cf. *monasteriensis*;
Metaprotella macoranicus Momtazi & Sari, 2013;
Protohyale arabica Myers & Nithyanandan, 2016;
Stenothoe gallensis Walker, 1904.

Collection date: 05 January 2015.
Coordinates: 29°38'49" N; 48°23'28" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Ampithoe sp. 2 cf. *kava*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cymadusa setosa (Haswell, 1879);
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Indischnopus herdmani (Walker, 1904);
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Latigammaropsis sp.;
Melphisana madagascarensis Ledoyer, 1984;
Metaprotella macoranicus Momtazi & Sari, 2013;
Orchomenella sp.;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Protohyale arabica Myers & Nithyanandan, 2016;
Socarnoides sp.; *Urothoe* sp. 1.

Al-Maghasel area (Khor Al-Subiyah)
Collection date: 23 November 2014.
Coordinates: 29°44'28" N; 48°05'47" E
Species:
Brolgus sp. cf. *mamak*;
Byblis sp.;
Ericthonius sp. cf. *forbesii*;
Grandidierella gilesi Chilton, 1921.

Al-Mangaf area
Collection date: 01 February 2014.
Coordinates: 29°06'12" N; 48°08'21" E
Species:
Urothoe sp. 1.

Al-Nuwaiseeb area
Collection date: 28 November 2012.
Coordinates: 28°32'50" N; 48°25'22"
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 4 cf. *rubella*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Colomastix sp. 1;
Colomastix sp. 2;
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Grandidierella gilesi Chilton, 1921;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Megaluropus excavatus Ledoyer, 1979;
Megaluropus sp. cf. *monasteriensis*;
Melita persia Momtazi & Sari, 2014;
Melphisana madagascarensis Ledoyer, 1984;
Metaprotella macoranicus Momtazi & Sari, 2013;
Neomegamphopus sp.;
Orchomenella sp.;
Parhyale basrensis Salman, 1986;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 2 cf. *bifurcata*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Protohyale arabica Myers & Nithyanandan, 2016;
Stenothoe gallensis Walker, 1904.

Collection date: 07 January 2015.
Coordinates: 28°34'47" N; 48°24'22"
Species:
Abdia latipalpus (Walker & Scott, 1903);
Apolochus sp. 1 cf. *kailua*;
Ampithoe sp. 2 cf. *kava*;
Ampithoe ramondi Audouin, 1826;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Brolgus sp. cf. *mamak*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cymadusa setosa (Haswell, 1879);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Grandidierella sp;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Maera irregularis Myers & Nithyanandan, 2016;
Melphisana madagascarensis Ledoyer, 1984;
Orchomenella sp.;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Parhyale basrensis Salman, 1986;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Protohyale arabica Myers & Nithyanandan, 2016;
Urothoe sp. 1.

Al-Salam beach area
Collection date: 09 December 2013.
Coordinates: 29°21'40" N; 47°57'13" E
Species:
Cymadusa setosa (Haswell, 1879);
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Deutella sp.;
Ericthonius sp. cf. *forbesii*;
Grandidierella sp.

Al-Sha'ab Marina (biofouling) area
Collection date: 19 December 2012.
Coordinates: 29°20'38" N; 48°02'57" E
Species:
Ampithoe ramondi Audouin, 1826;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Maera irregularis Myers & Nithyanandan, 2016.

Al-Sha'ab area
Collection date: 19 January 2014.
Coordinates: 29°21'59" N; 48°01'21" E
Species:
Urothoe sp. 1;
Urothoe sp. 2 cf. *intermedia*.

Al-Shumaimah area (Khor Al-Subiyah)
Collection date: 24 November 2014.
Coordinates: 29°39'26" N; 48°07'54" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 2 cf. *menehune*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Brolgus sp. cf. *mamak*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Ericthonius sp. cf. *forbesii*;
Grandidierella gilesi Chilton, 1921;
Grandidierella sp.;
Idunella demersalis (Sivaprakasam, 1972);
Laetmatophilus sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Maera irregularis Myers & Nithyanandan, 2016;
Podocerus mamlahensis Myers & Nithyanandan, 2016.

Auha Island area
Collection date: 10 February 2016.
Coordinates: 29°22'49" N; 48°26'23" E
Species:
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Ampithoe sp. 2 cf. *kava*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Colomastix sp. 2;
Cymadusa setosa (Haswell, 1879);
Deutella sp.;
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Idunella demersalis (Sivaprakasam, 1972);
Ischyrocerus sp.;
Laetmatophilus sp.;
Latigammaropsis sp. 2 cf. *atlantica*;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Melita persia Momtazi & Sari, 2014;

Melphisana madagascarensis Ledoyer, 1984;
Neomegamphopus sp.;
Orchomenella sp.;
Paradexamine sp. 1 cf. *latifolia*;
Perioculodes sp. 1;
Perioculodes sp. 2 cf. *megapleon*;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 2 cf. *bifurcata*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Socarnoides sp.;
Stenothoe gallensis Walker, 1904;
Urothoe sp. 2 cf. *intermedia*.

Turtle Island beach area
Collection date: 14 March 2012.
Coordinates: 29°21'14" N; 48°01'49" E
Species:
Ampithoe sp. 2 cf. *kava*;
Ischyrocerus sp.

Boubyan Island
Collection date: 24 January 2015.
Coordinates: 29°38'03" N; 48°18'14" E
Species:
Dulichiella fresnelii (Audouin, 1826);
Urothoe sp. 1.

East Doha area (Aushairij)
Collection date: 22 April 2012.
Coordinates: 29°23'22" N; 47°50'15" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 6 cf. *taynamensis*;
Cymadusa setosa (Haswell, 1879);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Parhyale basrensis Salman, 1986;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984).

Collection date: 05 February 2015.
Coordinates: 29°23'20"N; 47°49'45"E
Species:
Cymadusa setosa (Haswell, 1879);
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Melita persia Momtazi & Sari, 2014;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984).

Doha port area
Collection date: 08 January 2013.
Coordinates: 29°22'14"N; 47°48'10"E
Species:
Parhyale basrensis Salman, 1986.

Failaka Island area
Collection date: 22 December 2014.
Coordinates: 29°28'20" N; 48°17'55" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Ampithoe sp. 2 cf. *kava*;
Brolgus sp. cf. *mamak*;
Cymadusa setosa (Haswell, 1879);
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Melita persia Momtazi & Sari, 2014;
Paradexamine sp. 1 cf. *latifolia*;
Parhyale basrensis Salman, 1986;
Socarnoides sp.

Collection date: 23 December 2014.
Coordinates: 29°25'61" N; 48°20'30" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Apolochus sp. 1 cf. *kailua*;
Ampithoe sp. 2 cf. *kava*;
Ampithoe sp.;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Brolgus sp. cf. *mamak*;
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Melita persia Momtazi & Sari, 2014;
Neomegamphopus sp.;
Paradexamine sp. 1 cf. *latifolia*;
Parhyale basrensis Salman, 1986.

Collection date: 24 December 2014.
Coordinates: 29°23'25" N; 48°23'58" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;

Ampithoe sp. 2 cf. *kava*;
Ampithoe sp.;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Dulichiella fresnelii (Audouin, 1826);
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Idunella demersalis (Sivaprakasam, 1972);
Laetmatophilus sp.;
Leucothoe gracilis (Haswell, 1879);
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Melita persia Momtazi & Sari, 2014;
Neomegamphopus sp.;
Paradexamine sp. 1 cf. *latifolia*;
Parhyale basrensis Salman, 1986;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*;
Socarnoides sp.;
Urothoe sp. 1.

Collection date: 25 December 2014.
Coordinates: 29°23'47" N; 48°24'36" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp.1 cf. *kailua*;
Ampithoe sp. 2 cf. *kava*;
Ampithoe ramondi Audouin, 1826;
Ampithoe sp.;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Laetmatophilus sp.;
Leucothoe gracilis (Haswell, 1879);
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Megaluropus excavatus Ledoyer, 1979;
Megaluropus sp. cf. *monasteriensis*;
Paradexamine sp. 1 cf. *latifolia*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*;
Socarnoides sp.;
Urothoe sp. 1.

Funaitees area
Collection date: 04 April 2012.
Coordinates: 29°12'30" N; 48°06'36" E.
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 6 cf. *taynamensis*;
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Deutella sp.;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Globosolembos indicus (Ledoyer, 1967);
Latigammaropsis sp. 2 cf. *atlantica*;
Maera irregularis Myers & Nithyanandan, 2016;
Megaluropus excavatus Ledoyer, 1979;
Megaluropus sp. cf. *monasteriensis*;
Orchomenella sp.;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Perioculodes sp. 1;
Perioculodes sp. 2 cf. *megapleon*;
Photis sp. 1;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984);
Urothoe sp. 1;
Urothoe sp. 2 cf. *intermedia*.

Souk Sharq Marina area (biofouling)
Collection date: 18 December 2012.
Coordinates: 29°23'12" N; 47°58'51" E
Species:
Ampithoe ramondi Audouin, 1826;
Maera irregularis Myers & Nithyanandan, 2016.

KISR'S Salmiya Marina area (biofouling)
Collection date: 11 March 2012; 13 March 2012; 19 March 2012; 25 March 2012; 27. March 2012.
Coordinates: 29°20'46" N; 48°06'03" E
Species:
Ampithoe ramondi Audouin, 1826;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Maera irregularis Myers & Nithyanandan, 2016.

Kubbar Island area
Collection date: 02 December 2012.
Coordinates: 29°04'16" N; 48°29'32" E
Species:
Abdia latipalpus (Walker & Scott, 1903).

Collection date: 09 November 2014.
Coordinates: 29°04'27" N; 48°29'33" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 4 cf. *rubella*;
Ampithoe ramondi Audouin, 1826;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Megaluropus sp. cf. *monasteriensis*;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Parhyale basrensis Salman, 1986;
Socarnoides sp.

Kuwait Tower's Marina area (biofouling)
Collection date: 18 December 2012.
Coordinates: 29°22'42" N; 48°00'25" E
Species:
Ampithoe ramondi Audouin, 1826;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Maera irregularis Myers & Nithyanandan, 2016.

Masfat Al-Ahmadi area
Collection date: 10 December 2014.
Coordinates: 29°04'33" N; 48°08'40" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*.

Mina Abdullah area
Collection date: 16 February 2014.
Coordinates: 29°00'04" N; 48°09'52" E
Species:
Urothoe sp. 1.

Miskan Island area
Collection date: 11 March 2016.
Coordinates: 29°28'01" N; 48°15'14" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Ampithoe sp. 2 cf. *kava*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Brolgus sp. cf. *mamak*;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Colomastix sp. 2;
Cymadusa setosa (Haswell, 1879);
Deutella sp.;
Dulichiella fresnelii (Audouin, 1826);
Ericthonius sp. cf. *forbesii*;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Ischyrocerus sp.;
Laetmatophilus sp.;
Leucothoe sp. cf. *richiardii*;
Maera irregularis Myers & Nithyanandan, 2016;
Maxillipius rectitelson Ledoyer, 1973;
Megaluropus excavatus Ledoyer, 1979;
Melphisana madagascarensis Ledoyer, 1984;
Paradexamine sp. 1 cf. *latifolia*;
Perioculodes sp. 1;
Perioculodes sp. 2 cf. *megapleon*;
Photis hawaiensis J.L. Barnard, 1955;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Stenothoe gallensis Walker, 1904.

Qaruh Island area
Collection date: 10 November 2014.
Coordinates: 28°49'01" N; 48°46'32" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Brolgus sp. cf. *mamak*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;

Elasmopus alkhiranensis Myers & Momtazi, 2015;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Idunella demersalis (Sivaprakasam, 1972);
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Parhyale basrensis Salman, 1986;
Socarnoides sp.

Ras Al-Zour area
Collection date: 08 January 2015.
Coordinates: 28°44'31" N; 48°22'58" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 2 cf. *menehune*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cymadusa setosa (Haswell, 1879);
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Laetmatophilus sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Latigammaropsis sp.;
Melita persia Momtazi & Sari, 2014;
Melphisana madagascarensis Ledoyer, 1984;
Metaprotella macoranicus Momtasi & Sari, 2013;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Socarnoides sp.

Ras-Ajuza area
Collection date: 06 January 2015.
Coordinates: 29°23'35" N; 47°59'43" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe sp. 2 cf. *kava*;
Ampithoe ramondi Audouin, 1826;
Brolgus sp. cf. *mamak*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cymadusa setosa (Haswell, 1879);
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Latigammaropsis sp.;
Maera irregularis Myers & Nithyanandan, 2016;
Megaluropus excavatus Ledoyer, 1979;
Melita persia Momtazi & Sari, 2014;
Paradexamine sp. 1 cf. *latifolia*;
Parhyale basrensis Salman, 1986;
Podocerus mamlahensis Myers & Nithyanandan, 2016.

Ras Al-Ard Marina area (biofouling)
Collection date: 26 March 2012.
Coordinates: 29°21'01" N; 48°05'57" E
Species:
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Laticorophium bifurcatum Myers & Nithyanandan, 2016.

Ras Al-Julai'a area
Collection date: 25 November 2012.
Coordinates: 28°53'1"N; 48°16'41"E
Species:
Melita persia Momtazi & Sari, 2014.

Collection date: 17 February 2014.
Coordinates: 28°49'29" N; 48°16'50" E
Species:
Urothoe sp. 1.

Rescue Center Marina area (biofouling)
Collection date: 7 December 2012.
Coordinates: 29°20'34" N; 48°05'59" E
Species:
Ampithoe ramondi Audouin, 1826;
Cymadusa setosa (Haswell, 1879);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Maera irregularis Myers & Nithyanandan, 2016.

Salmiya town beach area
Collection dates: 12 April 2012; 26 April 2012.
Coordinates: 29°20'40" N; 48°5'39" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampithoe ramondi Audouin, 1826;
Cymadusa setosa (Haswell, 1879);
Parhyale basrensis Salman, 1986;
Photis sp. 3 cf. *viuda*.

Salwa beach area
Collection date: 07 January 2013.
Coordinates: 29°16'30"N; 48°05'24"E
Species:
Melita persia Momtazi & Sari, 2014;
Parhyale basrensis Salman, 1986.

Umm Al-Namil Island area
Collection date: 24 February 2016.
Coordinates: 29°22'38" N; 47°51'32" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 4 cf. *rubella*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis sp. cf. *walkeri*;
Cymadusa setosa (Haswell, 1879);
Deutella sp.;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Leucothoe sp. cf. *richiardii*;
Paradexamine sp. 1 cf. *latifolia*;
Parhyale basrensis Salman, 1986;
Photis hawaiensis J.L. Barnard, 1955;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Stenothoe gallensis Walker, 1904.

Umm Al-Maradim Island area
Collection date: 12 November 2014.
Coordinates: 28°40'42" N; 48°38'60" E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella sp.;
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016;
Leucothoe gracilis (Haswell, 1879);
Maera irregularis Myers & Nithyanandan, 2016;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Paranamixis sp. cf. *ledoyeri*;
Parhyale basrensis Salman, 1986;
Socarnoides sp.

Umm Al-Shajar area
Collection date: 28 December 2015.
Coordinates: 29°54'31"N; 48°01'39"E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Brolgus sp. cf. *mamak*;
Cheiriphotis megacheles (Giles, 1885);
Cheiriphotis sp. cf. *walkeri*;
Deutella sp.;
Ericthonius sp. cf. *forbesii*;
Grandidierella gilesi Chilton, 1921;
Grandidierella sp.;
Maera irregularis Myers & Nithyanandan, 2016;
Perioculodes sp. 1;
Photis hawaiensis J.L. Barnard, 1955;
Podocerus mamlahensis Myers & Nithyanandan, 2016.

West Doha area (Al-Judailiat)
Collection date: 05 January 2013.
Coordinates: 29°22'31" N; 47°45'32" E
Species:
Ampelisca sp. 4 cf. *rubella*;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Parhyale basrensis Salman, 1986;
Orientoecetes arabicus (Barnard & Thomas, 1984).

Collection date: 04 February 2015.
Coordinates: 29°22'32"N; 47°45'34"E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Cheiriphotis sp. cf. *walkeri*;
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Ericthonius sp. cf. *forbesii*;
Grandidierella sp.;
Laticorophium bifurcatum Myers & Nithyanandan, 2016;
Parhyale basrensis Salman, 1986;
Orientoecetes arabicus (Barnard & Thomas, 1984).

SUBTIDAL SURVEY: COORDINATES OF LOCATIONS, SAMPLING DATES, SAMPLED DEPTH, AND SPECIES ENCOUNTERED (DREDGE)

Auha Island area
Collection date: 23 December 2012.
Depth: 7 m.
Coordinates:
Start 29°23'25" N, 48°27'55" E;
End 29°23'26" N, 48°27'57" E
Species:
Ampithoe sp. 1;
Ampithoe sp. 2 cf. *kava*;
Bemlos acuticoxa Myers & Nithyanandan, 2016;
Biancolina sp.;
Brolgus sp. cf. *mamak*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cyproidea sp. cf. *serratipalma*;
Dulichiella fresnelii (Audouin, 1826);
Elasmopus alkhiranensis Myers & Momtazi, 2015;
Idunella demersalis (Sivaprakasam, 1972);
Indischnopus herdmani (Walker, 1904);
Ischyrocerus sp.;
Latigammaropsis sp. 1;
Maxillipius rectitelson Ledoyer, 1973;
Paradexamine sp. 1 cf. *latifolia*;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1; *Photis* sp. 2 cf. *bifurcata*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Protohyale Arabica Myers & Nithyanandan, 2016;
Socarnoides sp.;
Stenothoe gallensis Walker, 1904;
Stenothoe sp. cf. *aucklandicus*.

Depth: 9 m.
Coordinates:
Start 29°22'54" N, 48°28'15" E;
End 29°22'55" N, 48°28'19" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 1;
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Cheiriphotis megacheles (Giles, 1885);
Deutella sp.;
Dulichiella fresnelii (Audouin, 1826);
Eriopisella sp.;
Laetmatophilus sp.;
Latigammaropsis sp. 1;
Leucothoe sp. cf. *richiardii*;
Melphisana madagascarensis Ledoyer, 1984;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 3 cf. *viuda*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Stenothoe sp. cf. *aucklandicus*.

Depth: 10 m.
Coordinates:
Start 29°23'18" N, 48°28'24" E;
End 29°23'15" N, 48°28'27" E
Species:
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Photis sp. 3 cf. *viuda*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Stenothoe sp. cf. *aucklandicus*.

Depth: 12 m.
Coordinates:
Start 29°23'21" N, 48°28'48" E;
End 29°23'19" N, 48°28'51" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Byblis sp.;
Laetmatophilus sp.;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Pontocrates sp. cf. *arenarius*.

Depth: 16 m.
Coordinates:
Start 29°24'16" N, 48°30'14" E;
End 29°24'13" N, 48°30'14" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 1;
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Byblis sp.;
Laetmatophilus sp.;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 3 cf. *viuda*;
Podocerus mamlahensis Myers & Nithyanandan, 2016.

Al-Bida'a area
Collection date: 30 December 2012.
Depth: 4 m.
Coordinates: Start 29°19'21" N, 48°05'42" E; End 29°19'23" N, 48°05'41" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Deutella sp.;
Perioculodes sp. 1;
Perioculodes sp. 2 cf. *megapleon*;
Perioculodes sp. 3 cf. *serra*;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984);
Urothoe sp. 2 cf. *intermedia*.

Depth: 6 m.
Coordinates: Start 29°19'19" N, 48°05'40" E; End 29°19'20" N, 48°05'43" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 3 cf. *misakiensis*;
Indischnopus herdmani (Walker, 1904);
Megaluropus excavatus Ledoyer, 1979;
Perioculodes sp. 2 cf. *megapleon*;
Perioculodes sp. 3 cf. *serra*;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984);
Urothoe sp. 2 cf. *intermedia*.

Depth: 8 m.
Coordinates: Start 29°19'19" N, 48°05'43" E; End 29°19'22" N, 48°05'45" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Cheiriphotis megacheles (Giles, 1885);
Idunella demersalis (Sivaprakasam, 1972);
Indischnopus herdmani (Walker, 1904);
Megaluropus excavatus Ledoyer, 1979;
Perioculodes sp. 2 cf. *megapleon*;
Perioculodes sp. 3 cf. *serra*;
Pontocrates sp. cf. *arenarius*;
Orientoecetes arabicus (Barnard & Thomas, 1984);
Socarnoides sp;
Urothoe sp. 2 cf. *intermedia*.

Depth: 10 m.
Coordinates: Start 29°19'15" N, 48°05'48" E; End 29°19'18" N, 48°05'50" E
Species:
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Cheiriphotis megacheles (Giles, 1885);
Deutella sp.;
Globosolembos indicus (Ledoyer, 1967);
Grandidierella gilesi Chilton, 1921;
Idunella demersalis (Sivaprakasam, 1972);
Laetmatophilus sp.;
Latigammaropsis sp. 2 cf. *atlantica*;
Leucothoe gracilis (Haswell, 1879);
Megaluropus excavatus Ledoyer, 1979;
Melphisana madagascarensis Ledoyer, 1984;
Neomegamphopus sp.;
Paradexamine sp. 1 cf. *latifolia*;
Perioculodes sp. 1;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 2 cf. *bifurcata*;
Podocerus mamlahensis Myers & Nithyanandan, 2016.

Depth: 12 m.
Coordinates: Start 29°19'00" N, 48°05'04" E; End 29°19'90" N, 48°05'04" E
Species:
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;
Cheiriphotis megacheles (Giles, 1885);
Deutella sp.;
Globosolembos indicus (Ledoyer, 1967);
Laetmatophilus sp.;
Latigammaropsis sp. 2 cf. *atlantica*;
Melphisana madagascarensis Ledoyer, 1984;
Neomegamphopus sp.;
Perioculodes sp. 1;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 2 cf. *bifurcata*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*;
Stenothoe gallensis Walker, 1904;
Stenothoe sp. cf. *aucklandicus*;
Urothoe sp. 2 cf. *intermedia*.

Depth: 16 m.
Coordinates: Start 29°18'59" N, 48°06'07" E; End 29°19'05" N, 48°06'08" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 1;
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Apolochus sp. 1 cf. *kailua*;
Ceradocus (*Denticeradocus*) *alama* Myers & Nithyanandan, 2016;

Cheiriphotis megacheles (Giles, 1885);
Deutella sp.;
Grandidierella gilesi Chilton, 1921;
Laetmatophilus sp.;
Latigammaropsis sp. 2 cf. *atlantica*;
Melphisana madagascarensis Ledoyer, 1984;
Perioculodes sp. 1;
Photis hawaiensis J.L. Barnard, 1955;
Photis sp. 1;
Photis sp. 3 cf. *viuda*;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*.

Salmiya area
Collection date: 26 March 2012.
Depth: 5 m.
Coordinates: 29°20'46" N; 48°06'03" E
Species:
Brolgus sp. cf. *mamak*;
Indischnopus herdmani (Walker, 1904).

Kuwait Bay area
Collection date: 04 December 2012.
Depth: 1 m.
Coordinates: Start 29°30'3" N, 47°53'03" E;
End 29°30'35" N, 47°53'05" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Eriopisa sp. cf. *elongata*;
Eriopisella sp.

Depth: 2 m.
Coordinates: Start 29°30'07" N, 47° 53'33" E;
End 29° 30'10" N, 47° 53'33" E
Species:
Eriopisa sp. cf. *elongata*;
Eriopisella sp.
Depth: 3 m.
Coordinates:
Start 29°29'35" N, 47°54'02" E;
End 29°29'40" N, 47°54'07" E
Species:
Ampelisca sp. 2 cf. *brevicornis*;
Eriopisa sp. cf. *elongata*;
Eriopisella sp.;
Perioculodes sp. 2 cf. *megapleon*;
Photis sp. 1;
Pontocrates sp. cf. *arenarius*.

Depth: 4.6 m.
Coordinates: Start 29° 28'51" N, 47° 54'48" E;
End 29° 28'57" N, 47° 54'45" E
Species:
Ampelisca sp. 1;
Ampelisca sp. 2 cf. *brevicornis*;
Brolgus sp. cf. *mamak*;
Byblis sp.;
Deutella sp.;
Idunella demersalis (Sivaprakasam, 1972);
Perioculodes sp. 1.

Depth: 7 m.
Coordinates: Start 29°28'04" N, 47°56'08" E;
End 29°28'10" N, 47°56'70" E
Species:
Ampelisca euroa Lowry & Poore, 1985;
Ampelisca sp. 1;
Ampelisca sp. 2 cf. *brevicornis*;
Ampelisca sp. 3 cf. *misakiensis*;
Ampelisca sp. 4 cf. *rubella*;
Brolgus sp. cf. *mamak*;
Byblis sp.;
Cheiriphotis sp. cf. *walkeri*;
Globosolembos indicus (Ledoyer, 1967);
Perioculodes sp. 1;
Perioculodes sp. 2 cf. *megapleon*;
Perioculodes sp. 3 cf. *serra*;
Photis sp. 1;
Photis sp. 3 cf. *viuda*;
Urothoe sp. 1.

Qaruh Island area
Collection date: 04 April 2012.
Depth: 10 m.
Coordinates: 28°49' N; 48°46' E
Species:
Abdia latipalpus (Walker & Scott, 1903);
Ampelisca sp. 6 cf. *tulearensis*;
Apolochus sp. 1 cf. *kailua*;
Apolochus sp. 2 cf. *menehune*;
Ampithoe ramondi Audouin, 1826;
Cheirocratus sp.;
Deutella sp.;
Globosolembos indicus (Ledoyer, 1967);
Latigammaropsis sp. 2 cf. *atlantica*;
Megaluropus sp. cf. *monasteriensis*;
Paradexamine sp. 1 cf. *latifolia*;
Paradexamine sp. 2 cf. *orientalis*;
Paranamixis sp. cf. *ledoyeri*;
Perioculodes sp. 2 cf. *megapleon*;
Photis sp. 1;
Podocerus mamlahensis Myers & Nithyanandan, 2016;
Pontocrates sp. cf. *arenarius*;
Socarnoides sp.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca euroa Lowry & Poore, 1985
Plates 1 and 2, and Fig. ZP-1.
Occurrence: Salmiya town beach area, East Doha area, Al-Bida'a area, Auha Island area, Kuwait Bay area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, and muddysand.
Diagnosis (Lowry & Poore, 1985). Female, 6.4 mm head about 1.3 times as long as deep, with short rostrum and oblique anteroventral margin; 2 pairs of eyes, each with a cuticular lens. A1 almost as long as A2, peduncular article 2, 1.3 times as long as article 1. A2 at least half as long as body. Md palp, second article swollen and long, third article is slender. Cox1 – Cox3 with a little posterodistal incision. P4, merus about 2.8 times as long as broad. P7, posterior margin of basis gently rounded, ventral margin transverse, straight, lined with plumose setae, exceeding two-thirds along ischium, ischium twice the length of merus; merus and carpus without anterior or posterior lobes and subequal in length; propodus not inflated about twice as long as broad and subequal in length to merus and carpus combined. Ep1 with posteroventral corner rounded. Ep2 and Ep3, posteroventral corners each with acutely projecting tooth. Us1 with a low crest abruptly cut off posteriorly; urosomites 2–3 with a shallow sinus. U2, rami subequal, each with a dorsal row of minute spines. U3, rami lanceolate, subequal in length; inner ramus with short plumose setae along the inner margin; outer ramus with short spines along the inner and outer margins. T 1.5 times as long as broad, cleft about 0.7 times length, with a row of short dorsal spines and a pair of short apical setae on each lobe.
Male specimens were not found in our investigations.

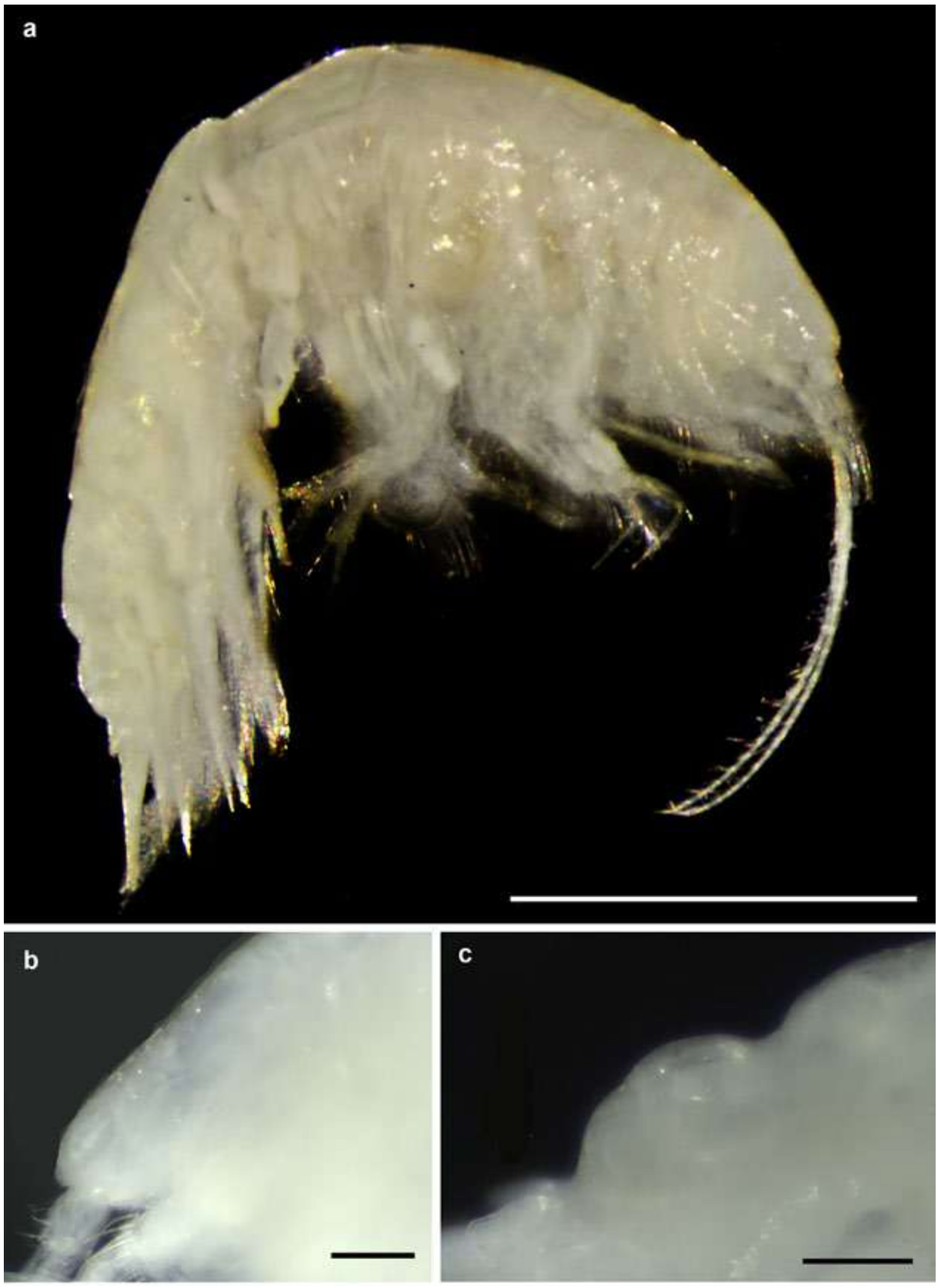

Plate 1. *Ampelisca euroa*, Kuwait Bay. Female: a – habitus; b – head; c – urosome. Scale lines: a – 2 mm; b and c – 0.2 mm.

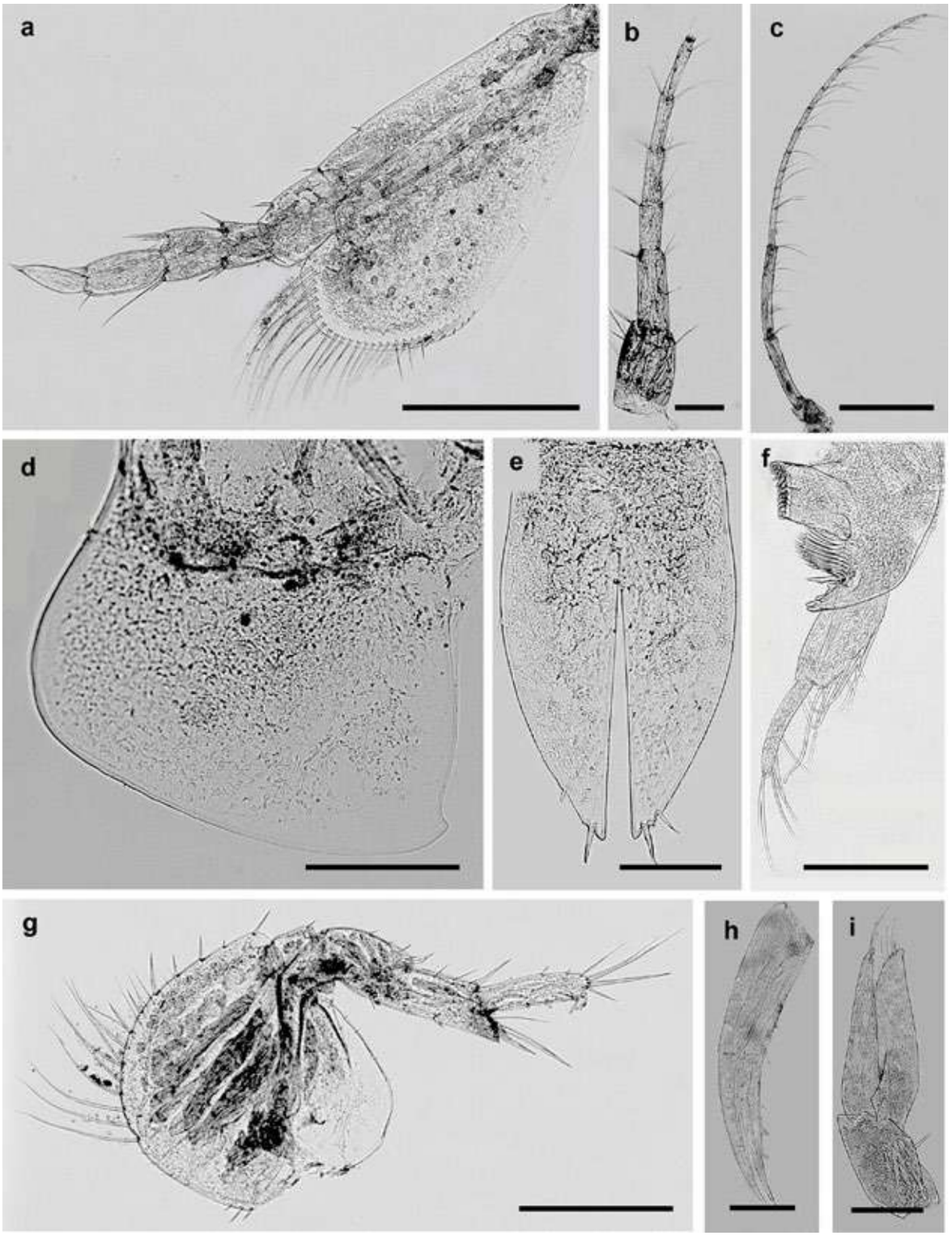

Plate 2. *Ampelisca euroa*, Kuwait Bay. Female: a – pereopod 7; b – antenna 1; c – antenna 2; d – epimer 3; e – telson; f – mandible; g – pereopod 6; h – uropod 1; i – uropod 3. Scale lines: a, c, and g – 0.5 mm; d, f, h, and i – 0.2 mm; b and e – 0.1 mm.

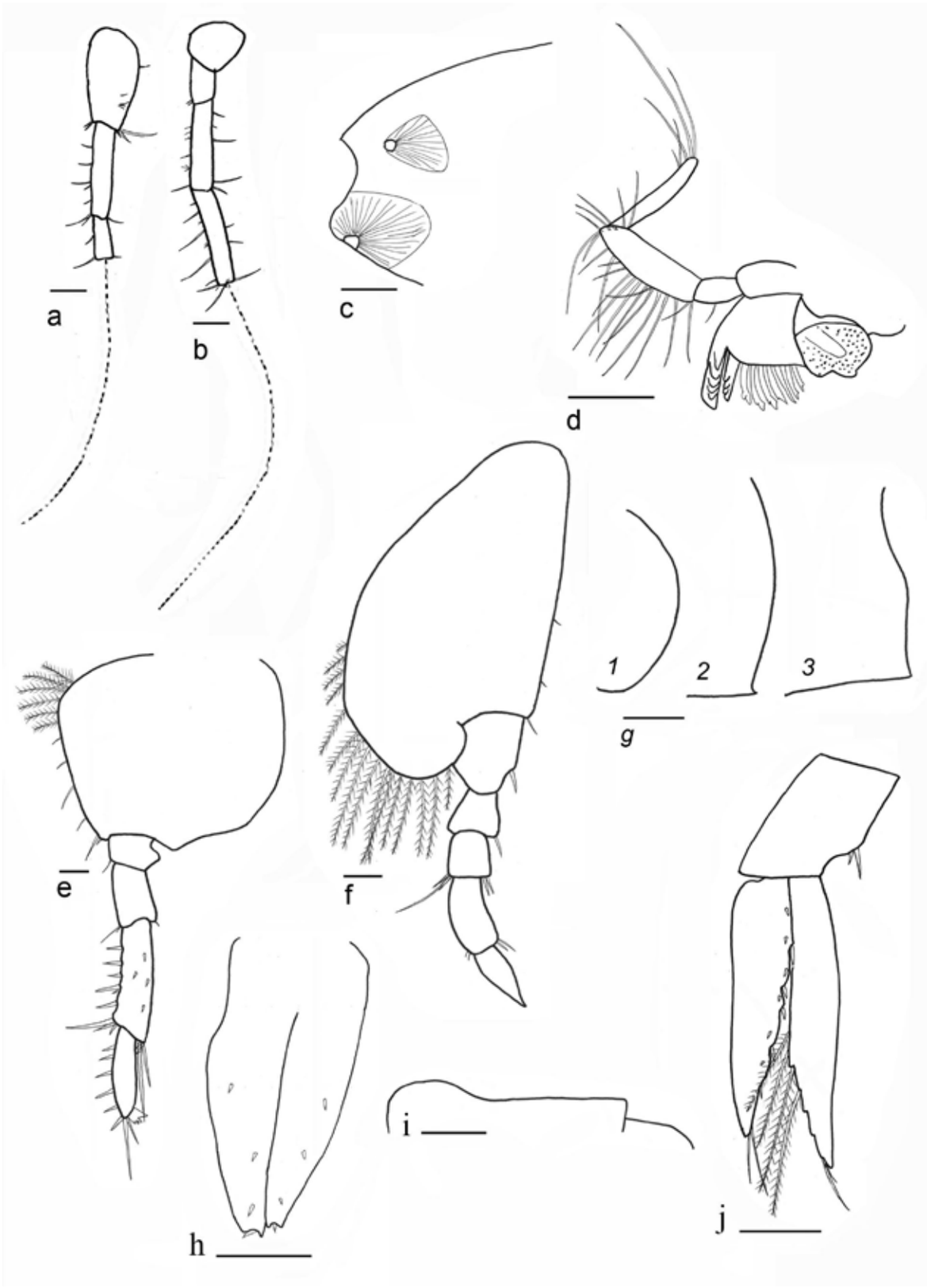

Fig. ZP-1. *Ampelisca euroa*, Kuwait Bay. Female: a – antenna 1; b – antenna 2; c – head; d –mandible; e – pereopod 6; f – pereopod 7; g – epimer 1 – 3; h – telson; i – urosome; j – uropod 3. Scale lines – 0.1 mm. Designations: 1, 2, and 3 – epimers 1 – 3.

Family Ampeliscidae
Genus *Ampelisca*

***Ampelisca* sp. 1**
Plates 3 – 5 and Fig. ZP-2.
Occurrence: Al-Bida'a area, Auha Island area, and Kuwait Bay area.
Subtidal Zone.
Habitats: muddy sand, sand, shells, and mud.

Description. Male, 3.6 mm. Head with oblique anteroventral margin. Eyes missing. A1 reaching to the distal end of A2 peduncle; flagellum 6-segmented: peduncular article 1 and 2 equal. A2 shorter than half of body length: flagellum 10-segmented with 2 fine curved spines on the distal end, article 4 and 5 peduncle are equal. Md palp article 2 and 3 equal. Gn1 with not very long basis, ischium 2/3 of the length of propodus, carpus and propodus equal with setae on the ventral margin; dactylus 1/2 the length of propodus. Gn2 similar in form to Gn1 but longer; ischium 1/2 the length of merus, propodus 1/2 the length of carpus, ventral margin of propodus and carpus with rows of setae, dactylus 1/2 the length of propodus. P3 with coxa rectangular, basis cylindrical, ischium very short, merus large with some plumose setae on the ventrally distal margin and 2 plumose setae on the dorsally distal margin; dactylus longer than propodus. P4 similar to P3, coxa rectangular but broader than P3. P5, basis armed with a row of plumose setae on the dorsal margin. Carpus with produced posteroventral corners; dactylus with serrate appendices. P6 similar in form to P5, but basis nearly quadrangular with some of plumose setae on the dorsal margin. P7 lateral expansion of basis broad, distal margin oblique with plumose setae, reaching to ischium distal end: ischium near to square, propodus oval; dactylus stick form, ending in a sharp point. Us1 with a high carina, Us2+Us3 with a sinus. U1 rami slightly shorter than peduncle. U2 slightly shorter than peduncle with minute spines. U3 with dorsal broad lanceolate rami, longer than peduncle, with plumose setae. T deeply cleft with 1 lateral seta and 2 distal setae.
Female is similar to male.

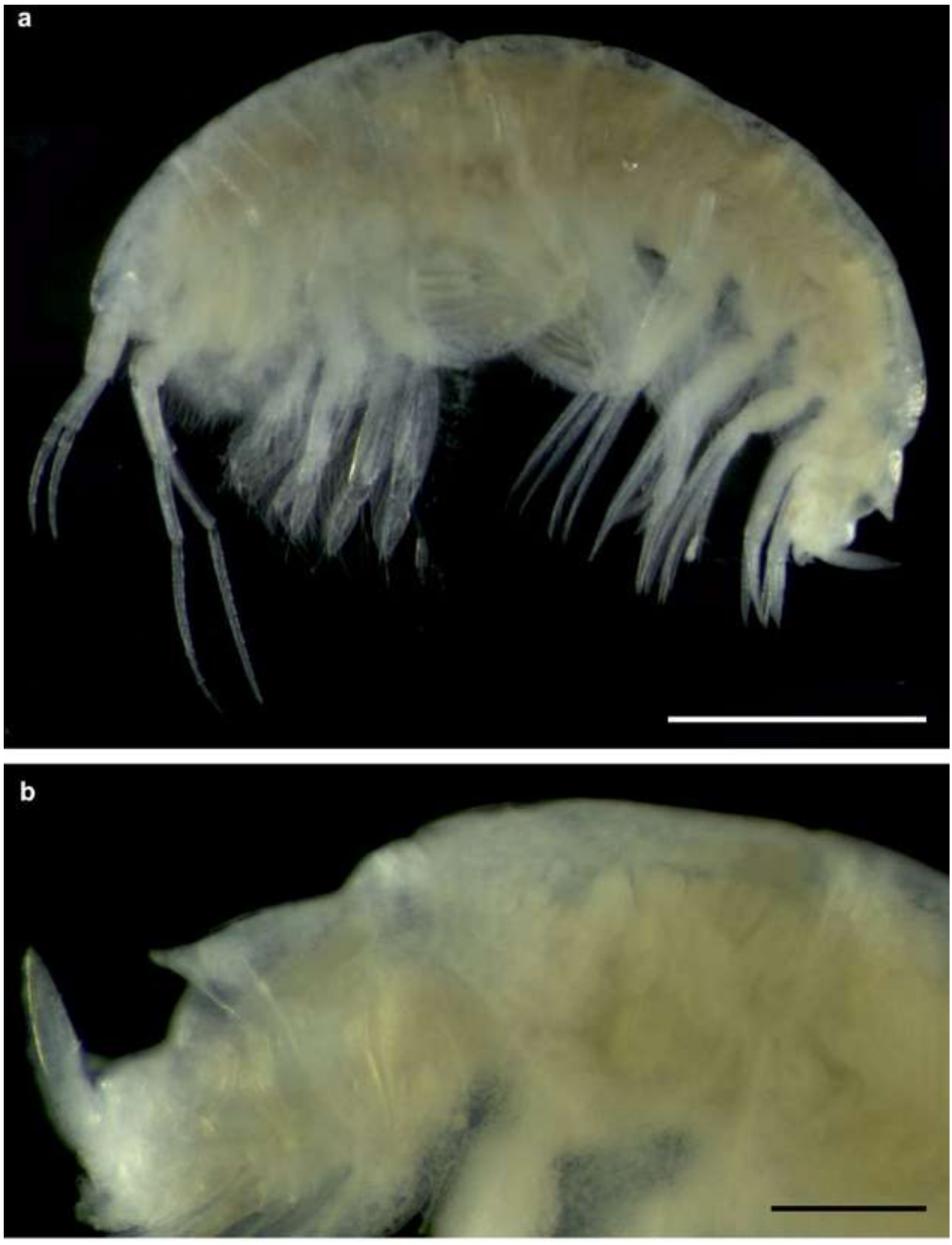

Plate 3. *Ampelisca* sp. 1, Kuwait Bay. Female: a – habitus; b – urosome. Scale lines: a – 1 mm; b and c – 0.2 mm.

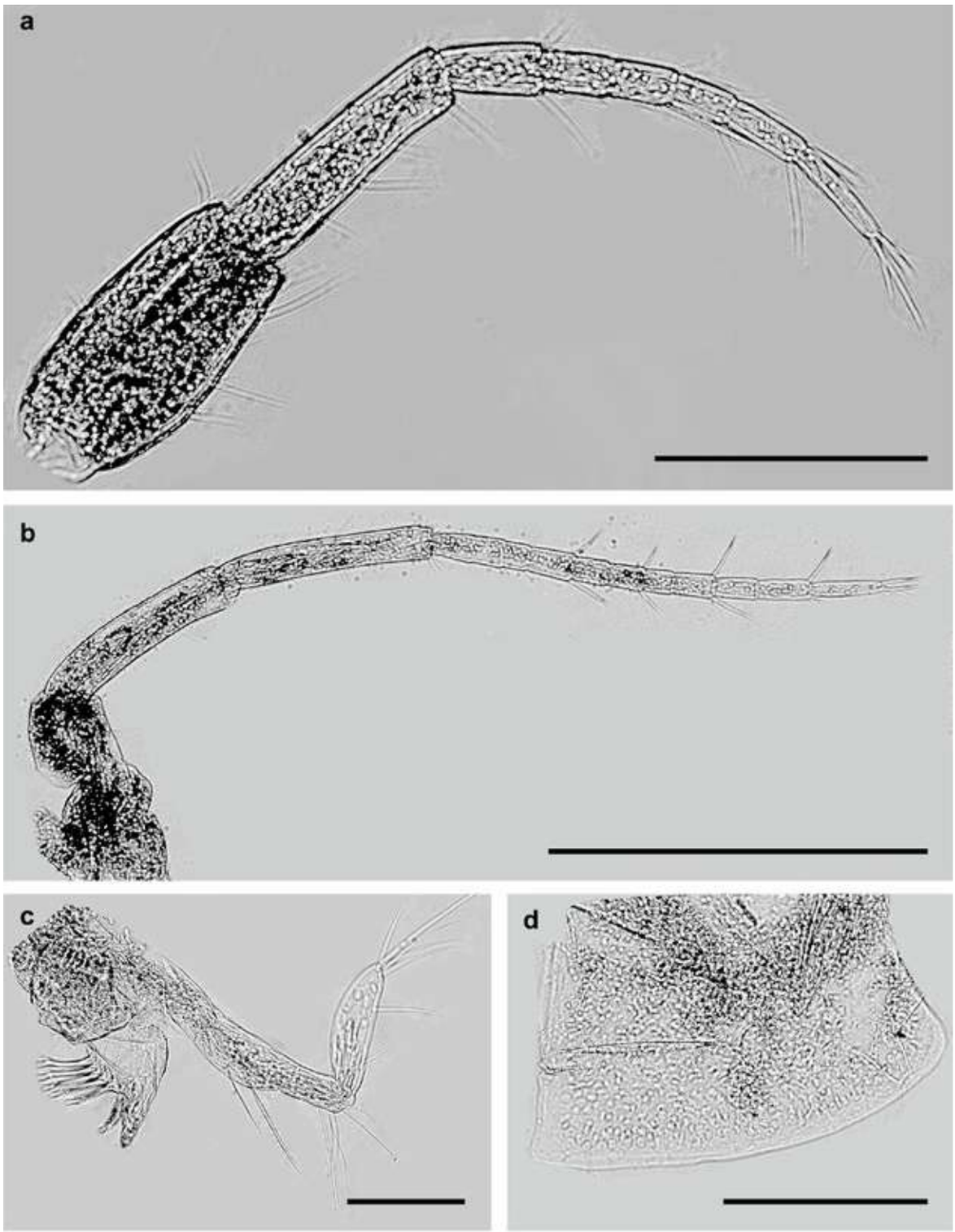

Plate 4. *Ampelisca* sp. 1, Kuwait Bay. Female: a – antenna 1; b – antenna 2; c – mandible; d – epimer 3. Scale lines: b – 0.5 mm; a and d – 0.2 mm; c – 0.1 mm.

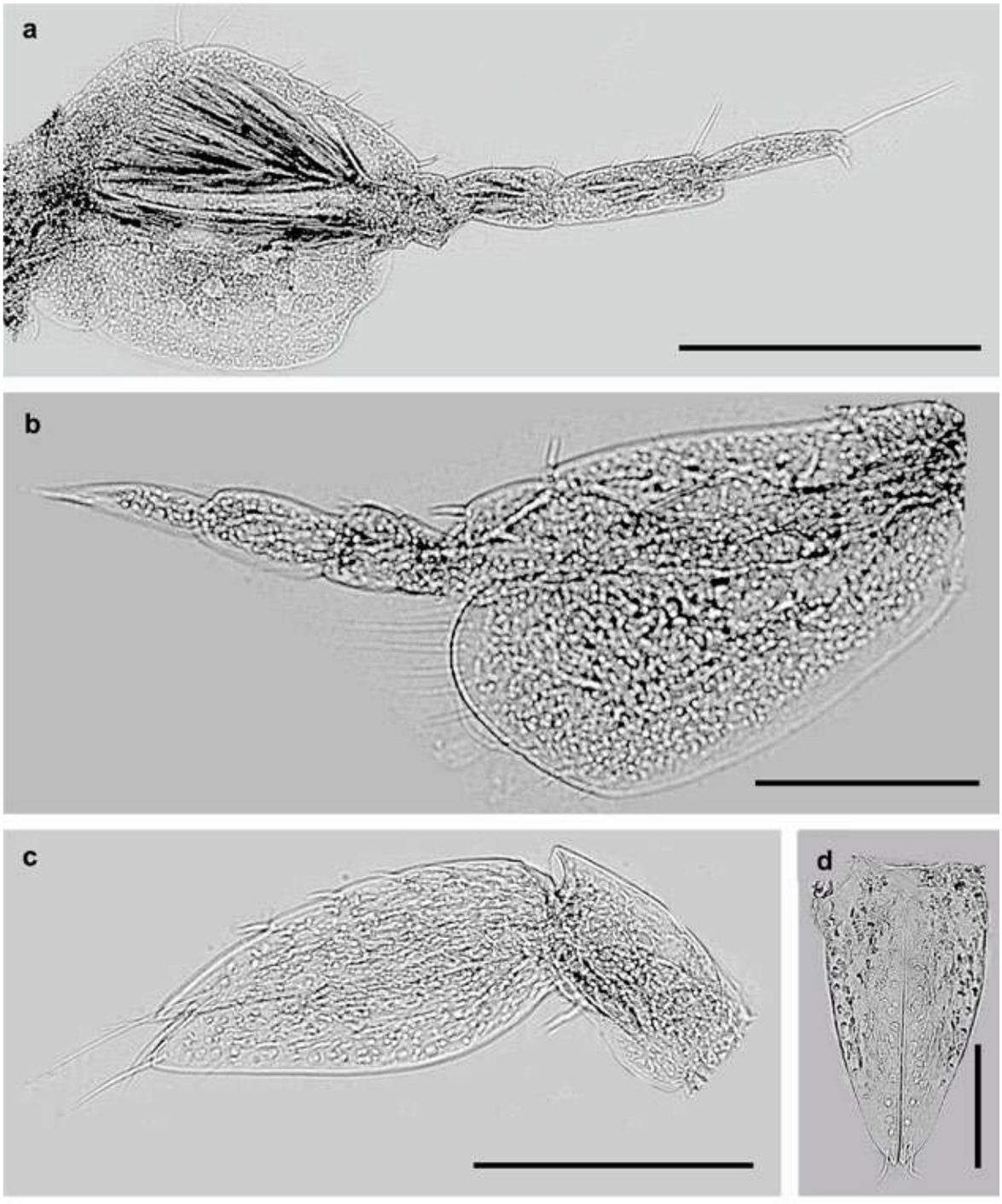

Plate 5. *Ampelisca* sp. 1, Kuwait Bay. Female: a – pereopod 6; b – pereopod 7; c – uropod 3; d – telson. Scale lines: a and b – 0.5 mm; c – 0.2 mm; d – 0.1 mm.

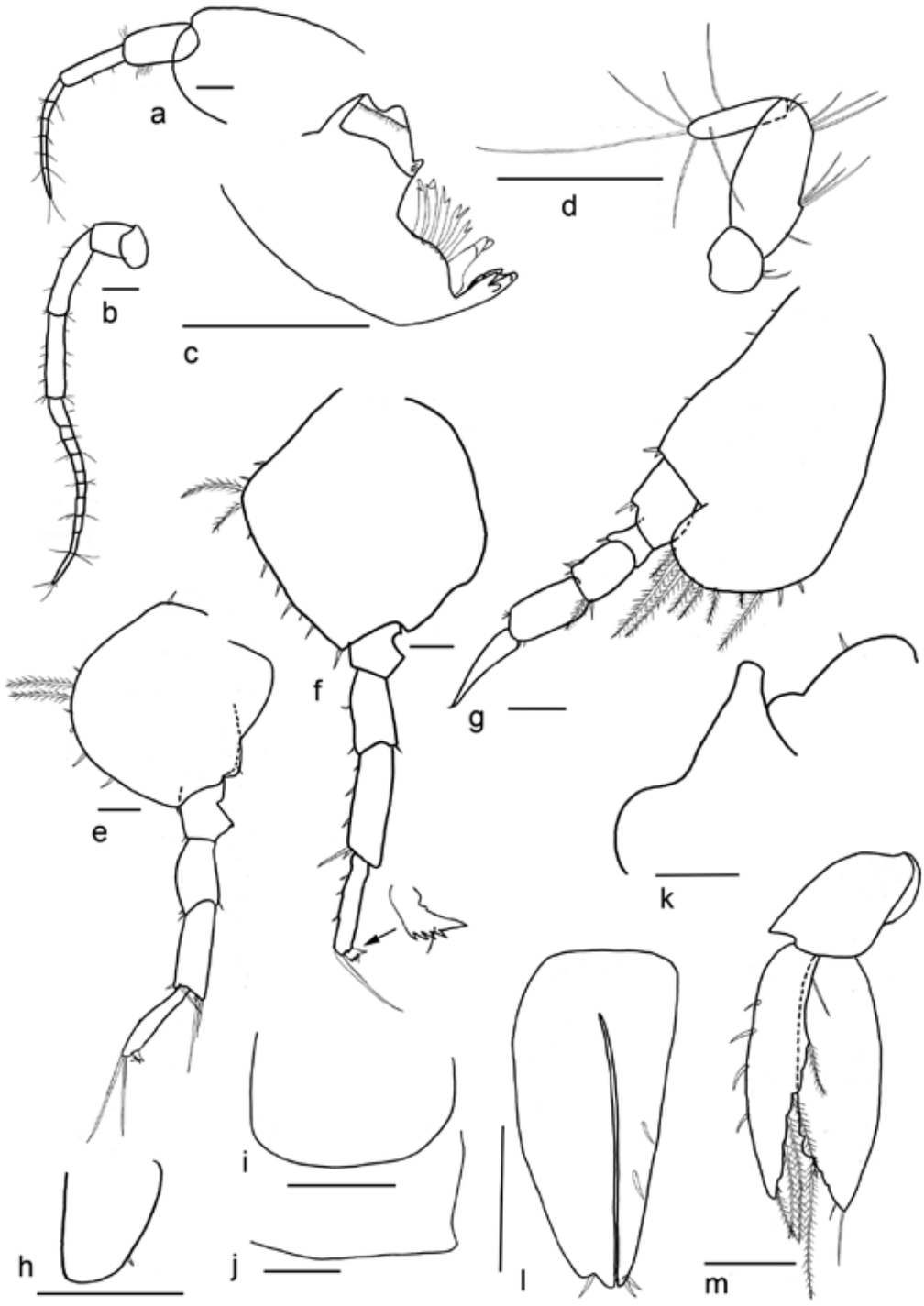

Fig. ZP-2. *Ampelisca* sp. 1, Kuwait Bay. Female: a – head and antenna 1; b – antenna 2; c – mandible; d – palp of mandible; e – pereopod 5; f – pereopod 6; g – pereopod 7; h – coxa 7; i – coxa 5; j – epimer 3; k – urosome; l – telson; m – uropod 3. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca sp. 2 cf. *brevicornis*

Plates 6 and 7, and Fig. ZP-3.
Occurrence: Kuwait Bay area, Auha Island area, Al-Bida'a area, Qaruh Island area, Funaitees area, and Umm Al-Namil area.
Intertidal and Subtidal Zones.
Habitats: sand, mud, and shells.

Description (after Bellan-Santini, 1982; modified). Female, 8.3 mm. Head, long, normally truncate in front, anteroventral and anterodorsal margins parallel; 2 pairs of corneal lenses, small, lower pair at anteroventral corner of head accentuating the projecting form. Us1 with a large round dorsal hump straight behind. Cox1 longer than broad slightly expanded distally; Cox2 and Cox3 rectangular; Cox1 – Cox3 with posterodistal incision; Cox4 broader than Cox1 – Cox3. Ep3 posterior margin bisinuate with a strong tooth at the posterodistal corner. A1 short, almost reaching the end of peduncular article 4 of A2, flagellum **10** arts. A2 nearly half of the length of body, peduncular article 4 longer than art. 5, flagellum with **18** arts. L scarcely bilobate, fringed with fine setae. Md, palp 3-articulate, article 1 short, articles 2 and 3 equal, fringed with **plumose** setae, incisor processed with large smooth teeth, lacinia mobilis dentate, numerous spine rows denticulate and sometimes bifid. Mx1 palp biarticulate, article 2 fringed by teeth and bearing setae on the inner side, inner lobe pyriform ended by 2 plumose setae, outer lobe fringed with numerous denticulate teeth. L, inner lobes small and outer lobes large, both fringed by fine setae. Mxp, inner lobes fringed by plumose setae, outer lobes bearing teeth and short setae. Gn1, basis long, ischium and merus short, carpus and propodus equal with long plumose setae on carpus and simple setae on propodus, **dactylus equal in length to propodus** with small fine setae on the posterior margin. Gn2 carpus 2 × length of propodus, bearing numerous rows of denticulate setae; propodus setose. P3 merus long and dilated distally bearing several plumose setae, especially on the posterior margin and less on the anterior margin, carpus short subquadrate, setose, on the distal margin with plumose setae, propodus long, tapering distally, bearing several long setae, dactylus triangular, longer more than carpus + propodus. P4 like P3 but merus broad, all arts more setose and plumose than P3. P5 basis dilated, rounded anteriorly and posteriorly, bearing plumose setae in the middle of the anterior margin; merus, carpus, and propodus bearing spine like setae on the anterior margin. P6, basis regularly dilated posteriorly, other articles like P5. P7, basis triangular, broad distally, and fringed with plumose setae, merus as long as ischium but bearing a posterior lobe reaching the end of carpus, fringed by plumose setae; carpus triangular, propodus oval, dactylus lanceolate. U1 peduncle as long as rami, only inner ramus and peduncle armed with short spines. U2 peduncle as long as rami, both rami and peduncle armed with short spines. U3 rami foliaceous, **inner and outer rami bearing plumose setae**. T twice as long as broad, deeply cleft, each lobe bearing a row of short setae on the middle of the dorsal surface and 1 seta at the sub-pointed lobe.
Male, 6 mm. Head with a third pair of lenses behind the superior pair. Us1 with a carina more rounded than that of female. A1 slightly exceeding the end of A2 peduncular article 4, flagellum with 6 articles. A2 flagellum with 13 arts. Gn1 **without obtuse spines on the inner margin**.
Taxonomic characters for distinguishing *Ampelisca* sp. 2 cf. *brevicornis* from *A. brevicornis* (Bellan-Santini, 1982) are expressed in **bold** text.

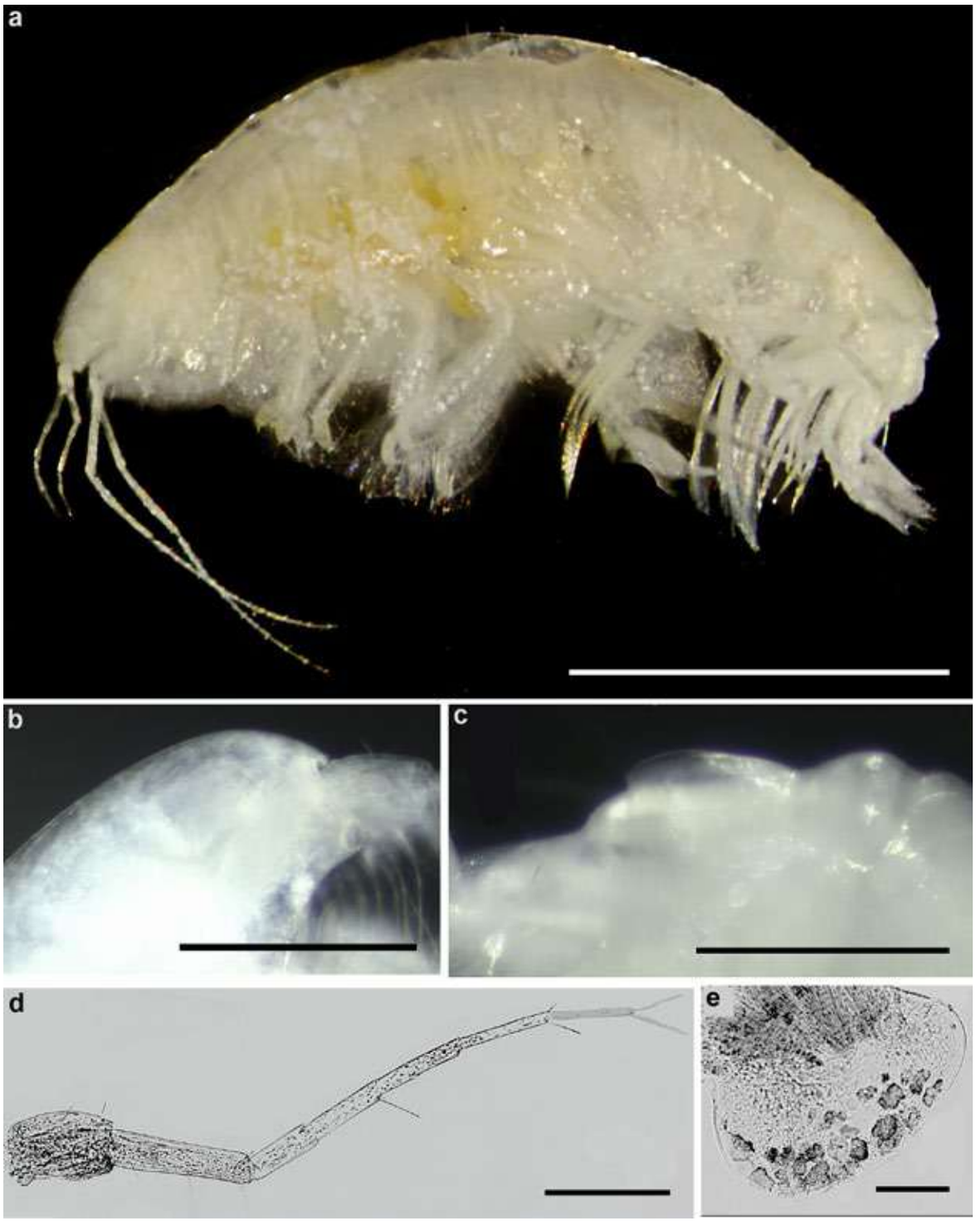

Plate 6. *Ampelisca* sp. 2 cf. *brevicornis*, Al-Bida'a. Female: a – habitus; b – head; c – urosome; d – antenna 1; e – epimer 3. Scale lines: a – 2 mm; b and c – 0.5 mm; d and e – 0.2 mm.

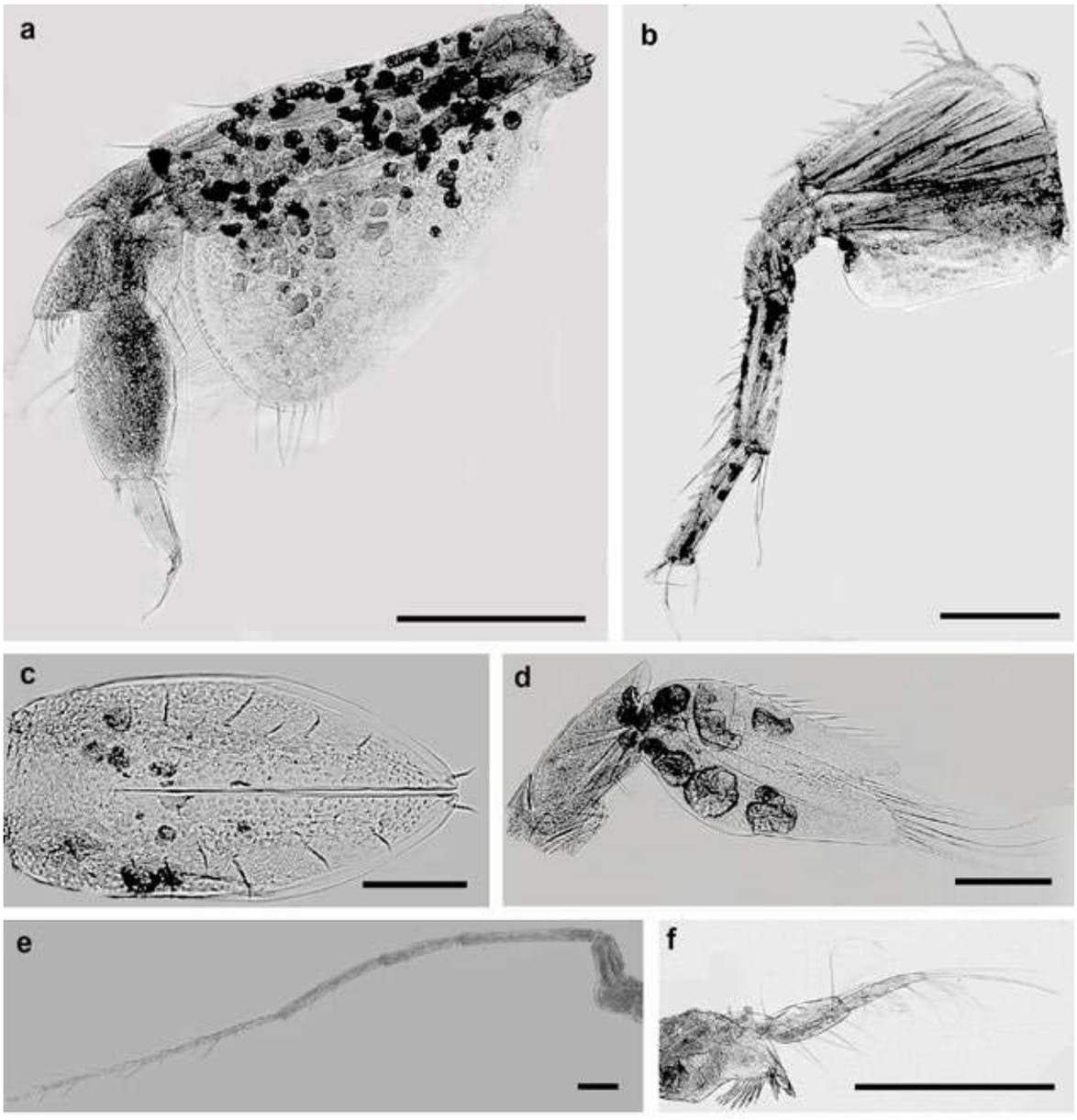

Plate 7. *Ampelisca* sp. 2 cf. *brevicornis*, Al-Bida'a. Female: a – pereopod 7; b – pereopod 6; c – telson; d – uropod 3; e – antenna 2; f – mandible. Scale lines: a, b, and f – 0.5 mm; d and e – 0.2 mm; c – 0.1 mm.

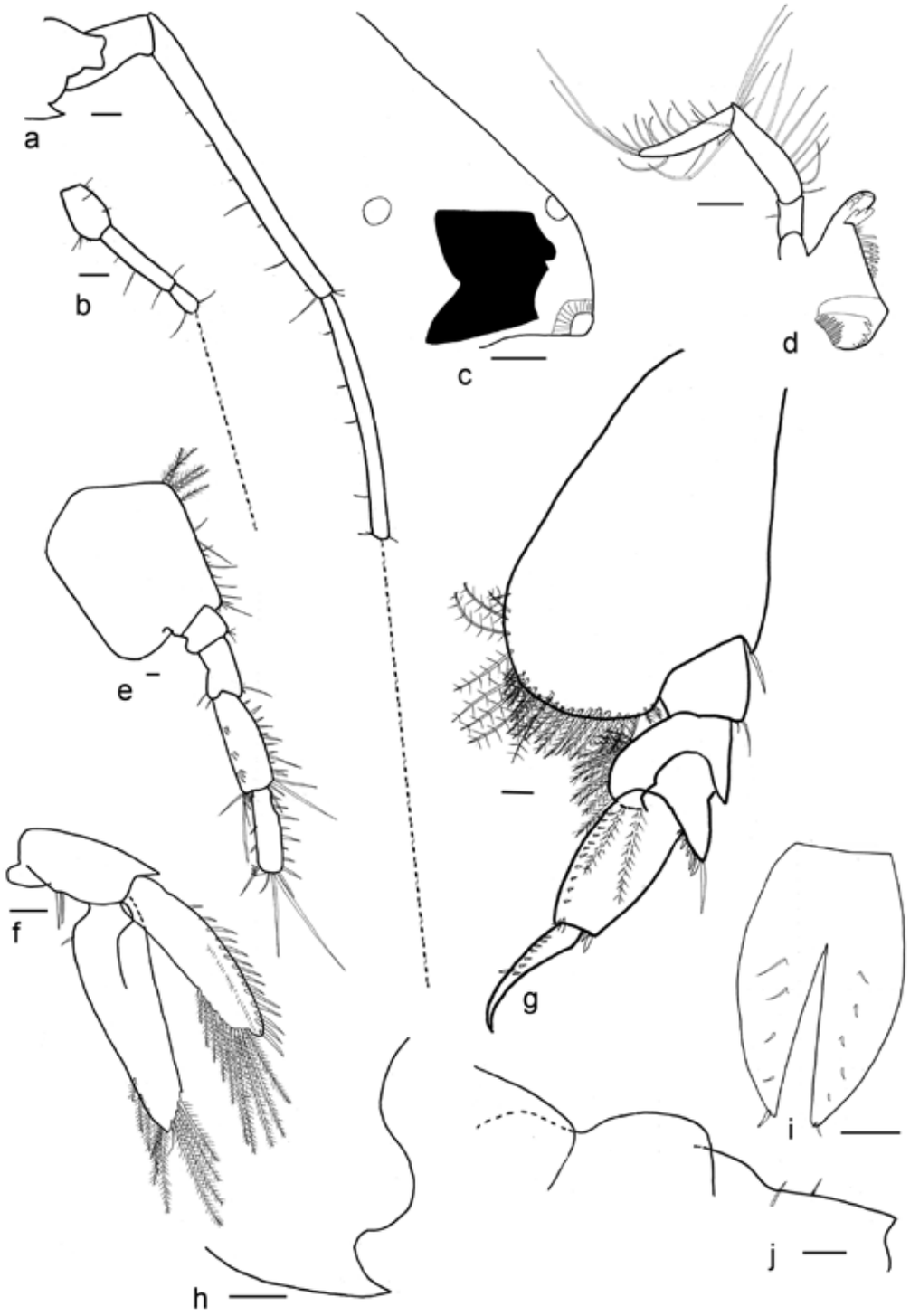

Fig. ZP-3. *Ampelisca* sp. 2 cf. *brevicornis*, Kuwait Bay. Female: a – antenna 2; b – antenna 1; c – head; d – mandible; e – pereopod 6; f – uropod 3; g – pereopod 7; h – epimer 3; I – telson; j – urosome. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca sp. 3 cf. *misakiensis*

Plates 8 and 9, and Fig. ZP-4.
Occurrence: Al-Bida'a area, Auha Island area, and Kuwait Bay area.
Subtidal Zone.
Habitats: sand, muddy sand, and shells.

Description. Male, 4.9 mm. Head with anterodistal part produced, distal margin concave; eyes 1 pair, in the form of distinct lenses. A1 reaching to the distal end of A2 peduncle; flagellum 6-segmented; peduncular article 1 shorter than article 2 in length. A2 1/2 of the body length; flagellum 11-segmented. Peduncular article 4 longer than article 5. Md palp article 2 inflated, shorter than article 3. Gn1 with long basis, carpus and propodus with scattered setae on the ventral margin; propodus about 1/2 the length of carpus; dactylus shorter than the previous article. Gn2 similar in form to Gn1 but longer; propodus more than half the length of carpus; dactylus half the length of propodus, ventral margin of propodus and carpus with a row of setae. P3 with coxa rectangular, basis cylindrical, ischium very short, merus large with a row of dense plumose setae on the ventral margin and 2 fine plumose setae on the dorsal margin; dactylus longer than propodus. P4 similar to P3, but coxa quadrangular in form. P5 with a round basis with a row of long setae on the dorsal margin. Carpus with produced posteroventral corners; dactylus with serrate appendices. P6 similar in form to P5, but basis nearly quadrangular with a row of setae on the dorsal margin. P7 lateral expansion of basis broad, distal margin oblique with dense setae, not reaching to ischium distal end; ischium square, carpus oval, equal in length to propodus; dactylus stick form, ending in a sharp point. Us1 and Us2+Us3 with large dorsal process, armed plumose setae. U1 with rami longer than peduncle. Rami without spines. U2, inner ramus without spines, outer - with spines. U3 with broad lanceolate ramus, longer than peduncle, with a row of plumose setae on the lateral margin. T with 1 lateral seta and 3 distal setae.
Female is similar to male.

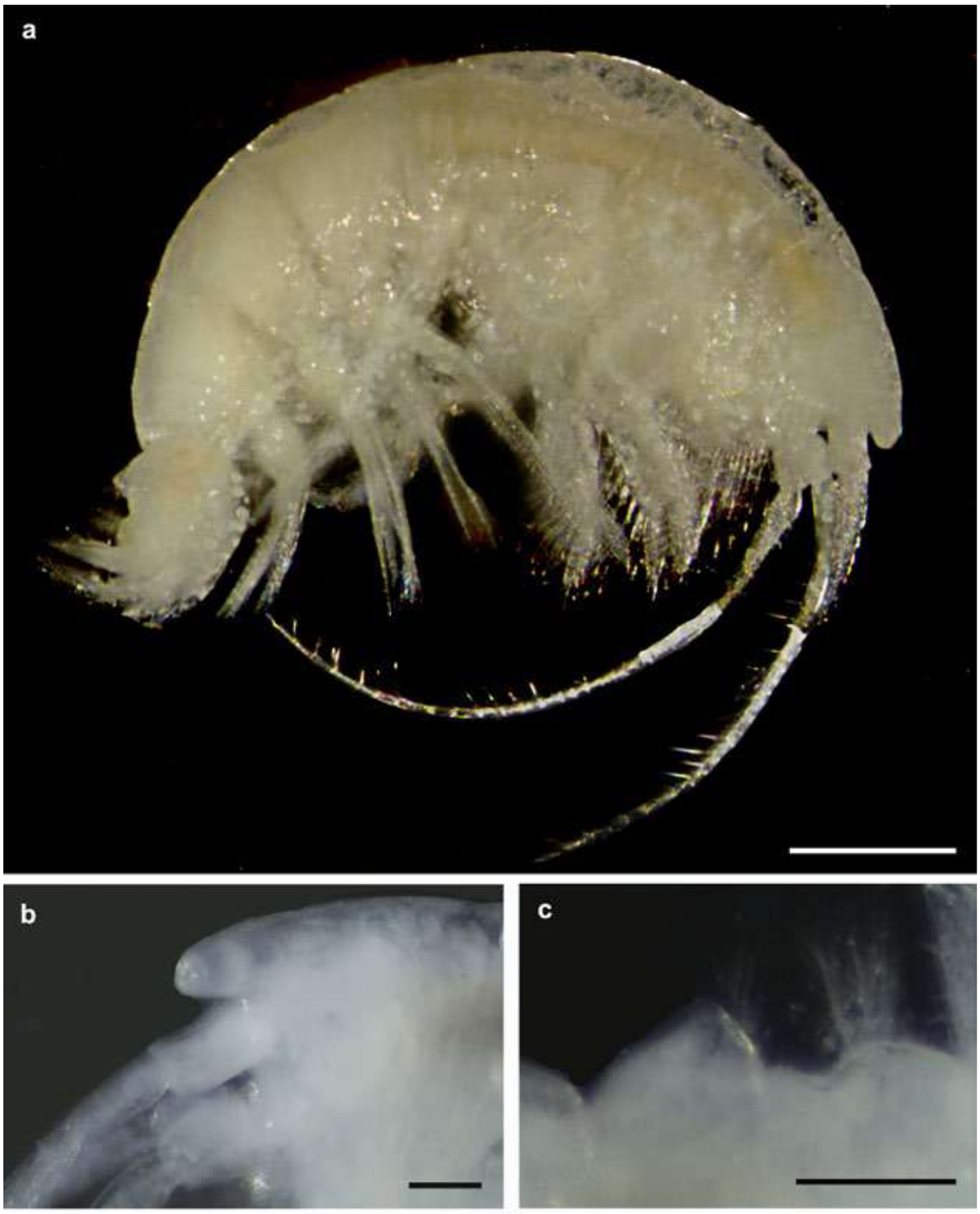

Plate 8. *Ampelisca* sp. 3 cf. *misakiensis*, Kuwait Bay. Female: a – habitus; b – head; c – urosome. Scale lines: a – 1 mm; b and c – 0.2 mm.

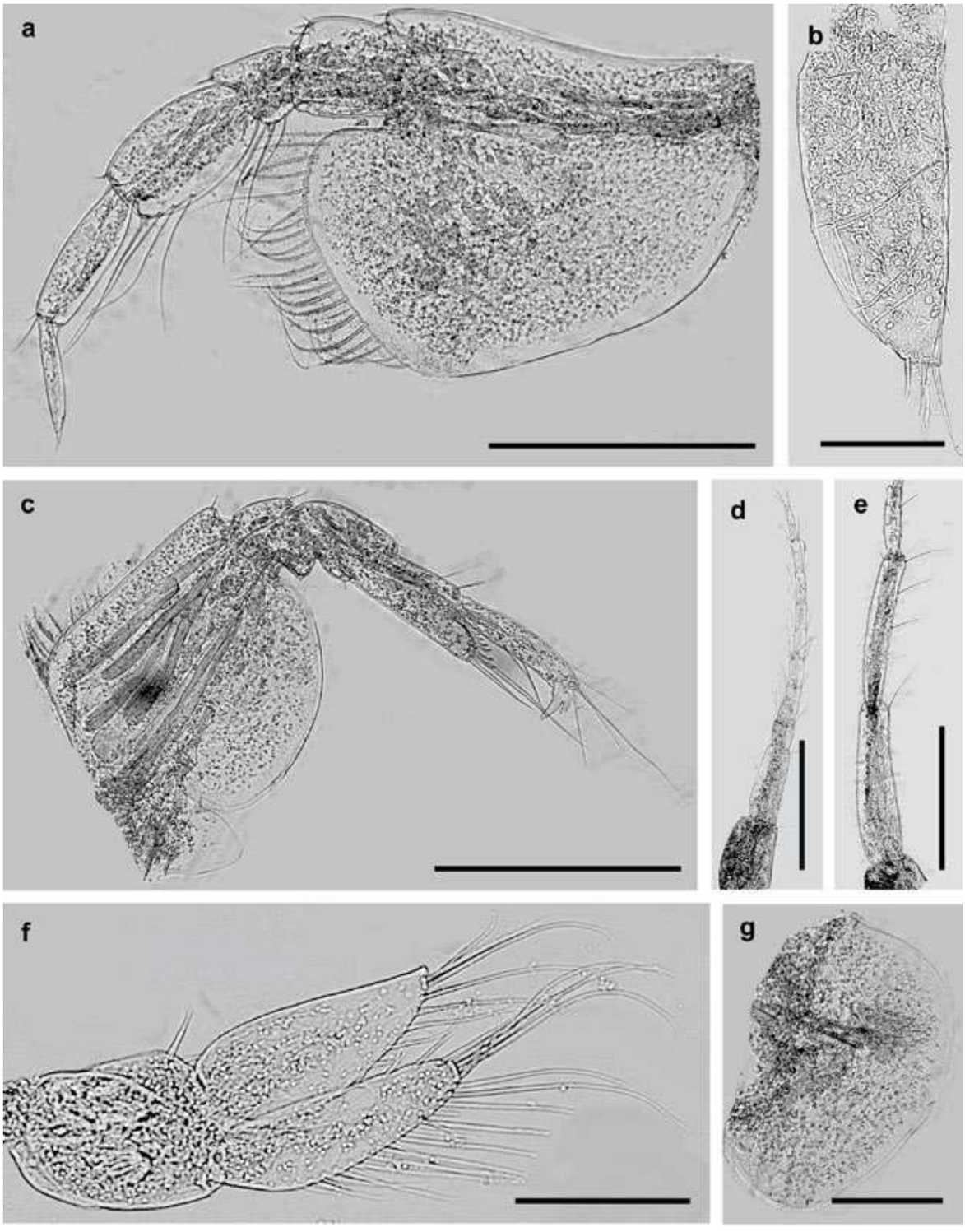

Plate 9. *Ampelisca* sp. 3 cf*. misakiensis*, Kuwait Bay*.* Female: a – pereopod 7; b – telson, left lobe; c – pereopod 6; d – antenna 1; e – antenna 2; f – uropod 3; g – epimer 3. Scale lines: a, c, d, and e – 0.5 mm; f and g – 0.2 mm; b – 0.1 mm.

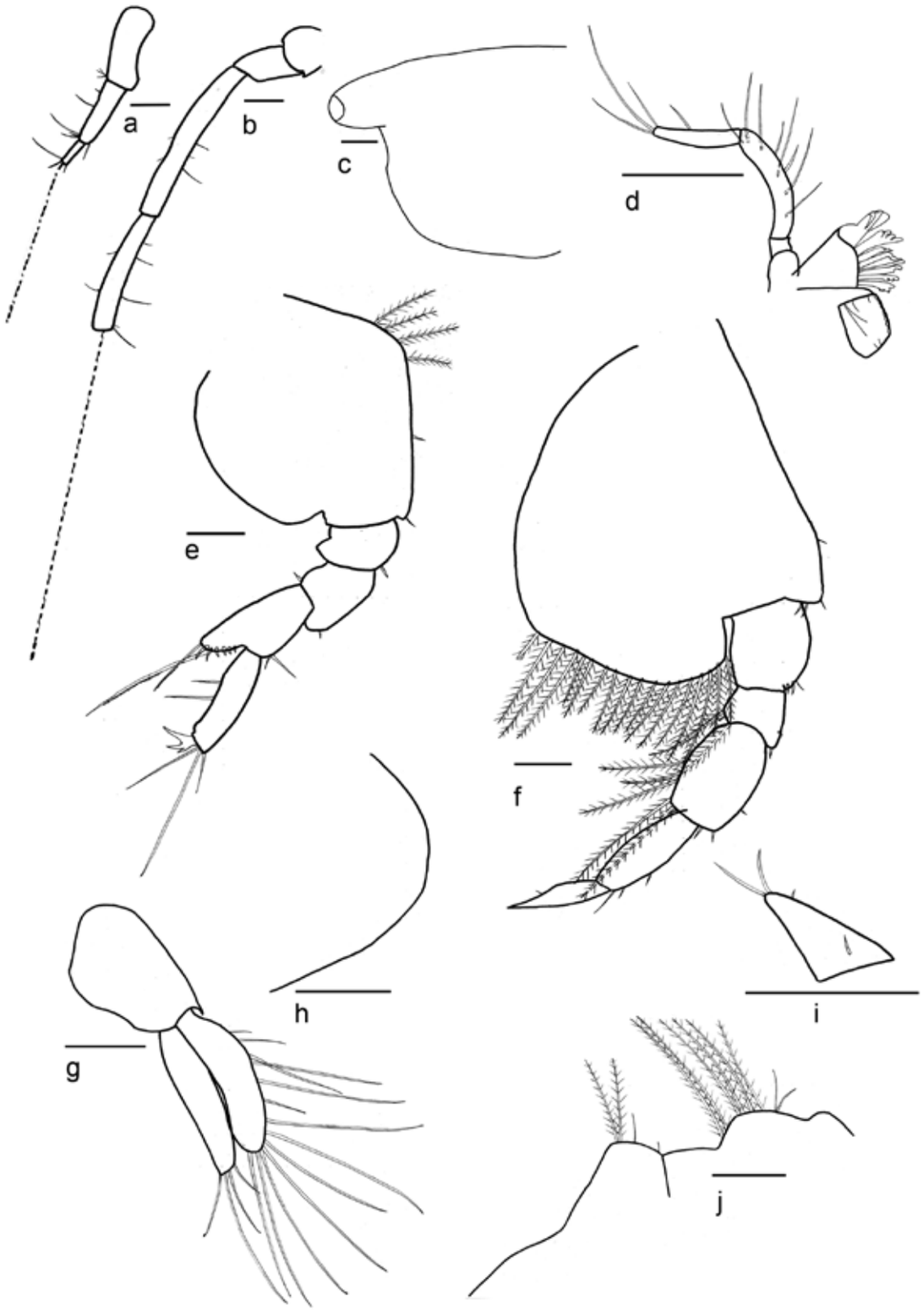

Fig. ZP-4. *Ampelisca* sp. 3 cf. *misakiensis*, Kuwait Bay. Male: a – antenna 1; b – antenna 2; c – head; d – mandible; e – pereopod 6; f – pereopod 7; g – uropod 3; h – epimer 3; I – lobe of telson; j – urosome. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca sp. 4 cf. *rubella*

Plates 10 and 11, and Fig. ZP-5.

Occurrence: Al-Bida'a area, Auha Island area, Kuwait Bay area, Al-Messilah area, Kubbar Island area, Qaruh Island area, Umm Al-Namil Island area, Al-Shumaimah area, Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, Al-Aushairij (East Doha) area, and Al-Judailiat (West Doha) area**.**

Intertidal and Subtidal Zones.

Habitats: rocks, dead corals, muddy sand, pebbles, sponges, shells, sand, algae, ropes (as artificial habitat), and aggregations of polychaete tubes.

Description (after Bellan-Santini, 1982; modified). Male, 6 mm. Head short, stout, truncate, upper anterior corner scarcely prominent, 2 pairs of corneal lenses with blots of **red pigment in alcohol.** Us1 with a small rounded carina, segments 2 –3 notched in the middle. Ep3, posterior margin slightly sinuous with a tooth at the lower distal corner. A1, 1/2 the length of A2. A1 peduncle **without short brushes on the posterior side**, articles A2 **without fringes on the anterior side, without short brushes**. A1 flagellum with **14** articles, A2 flagellum with **24** articles. Mx1 **without setae.** Gn1 like *A. brevicornis*. Gn2, carpus, propodus shorter than *A. brevicornis*. P3 and P4 **merus like *A. brevicornis.*** P5 – P7 relatively short and broad. P5 and P6 with basis very dilated especially the posterior lobe, merus, carpus, propodus poorly setose, bearing a few spines. P7, basis posterior lobe convex, the distal margin **not reaching the distal end of merus**, fringed with plumose setae, merus and carpus near subquadrate, **propodus oval**, dactylus as long as propodus, near triangular. U1 **peduncle as long as rami,** poorly armed with spines. U2 outer ramus shorter than inner, both armed with a few spines. U3 rami stout, foliaceous, bearing **a few plumose setae**. T triangular deeply cleft with **2 pairs of distal spines**, **without short setae on each lobe**.

Female, 6 mm. **A1 2/3 of the length of A2**. A1, flagellum with **10 articles**. A2, peduncular articles 4 and 5 subequal in length, flagellum with **15 articles**. **U3 with plumose setae.**

Taxonomic characters for distinguishing *Ampelisca* sp 4 (cf. *rubella*) from *A. rubella* (Bellan-Santini, 1982) are expressed in **bold** text.

Plate 10. *Ampelisca* sp. 4 cf. *rubella*, Al-Bida'a. Female: a – habitus; b – head; c – urosome. Scale lines: a – 1 mm; b and c – 0.2 mm.

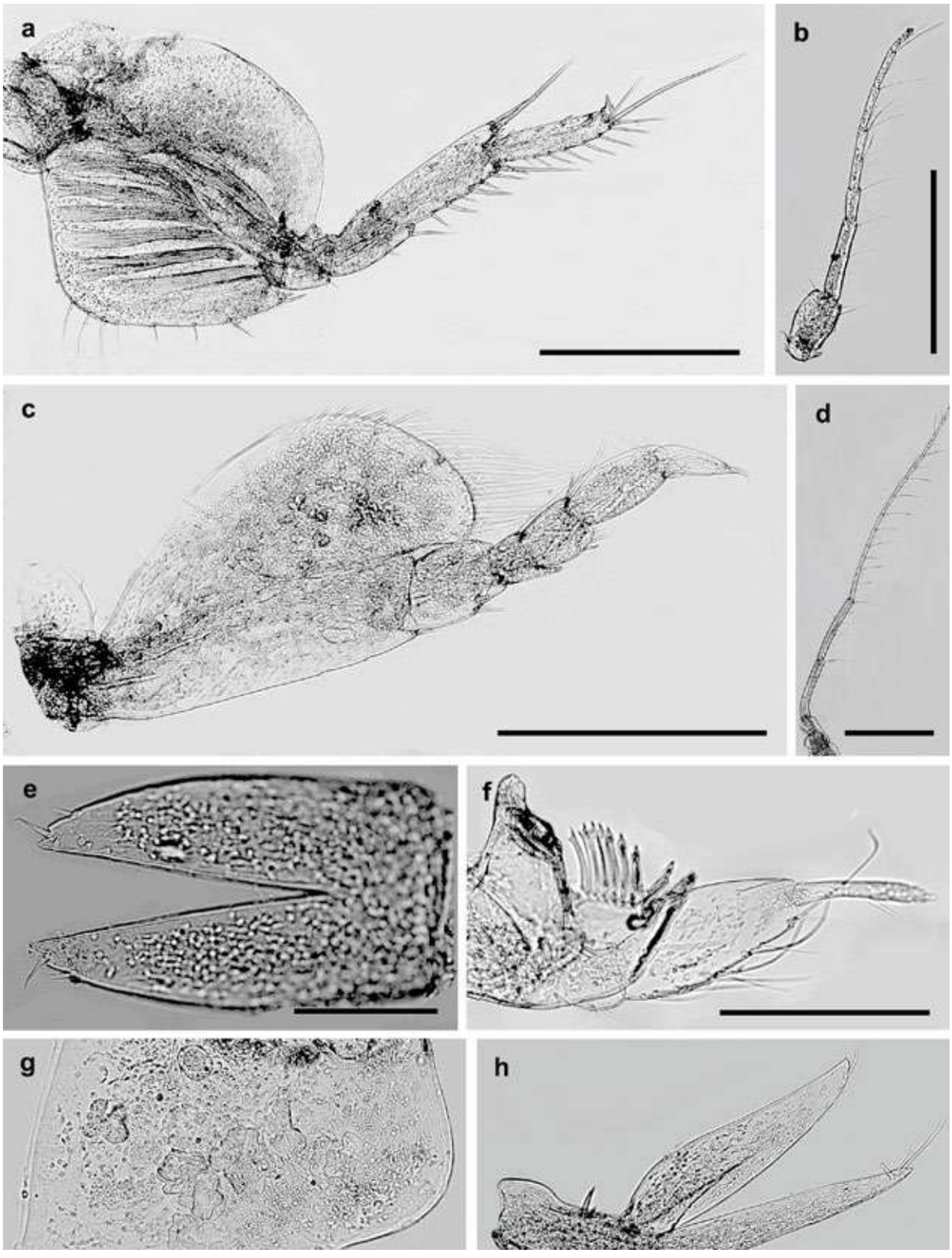

Plate 11. *Ampelisca* sp. 4 cf. *rubella*, Al-Bida'a. Female: a – pereopod 6; b – antenna 1; c – pereopod 7; d – antenna 2; e – telson; f – mandible; g – epimer 3; h – uropod 3. Scale lines: a, b, c, and d – 0.5 mm; e, f, g, and h – 0.2 mm.

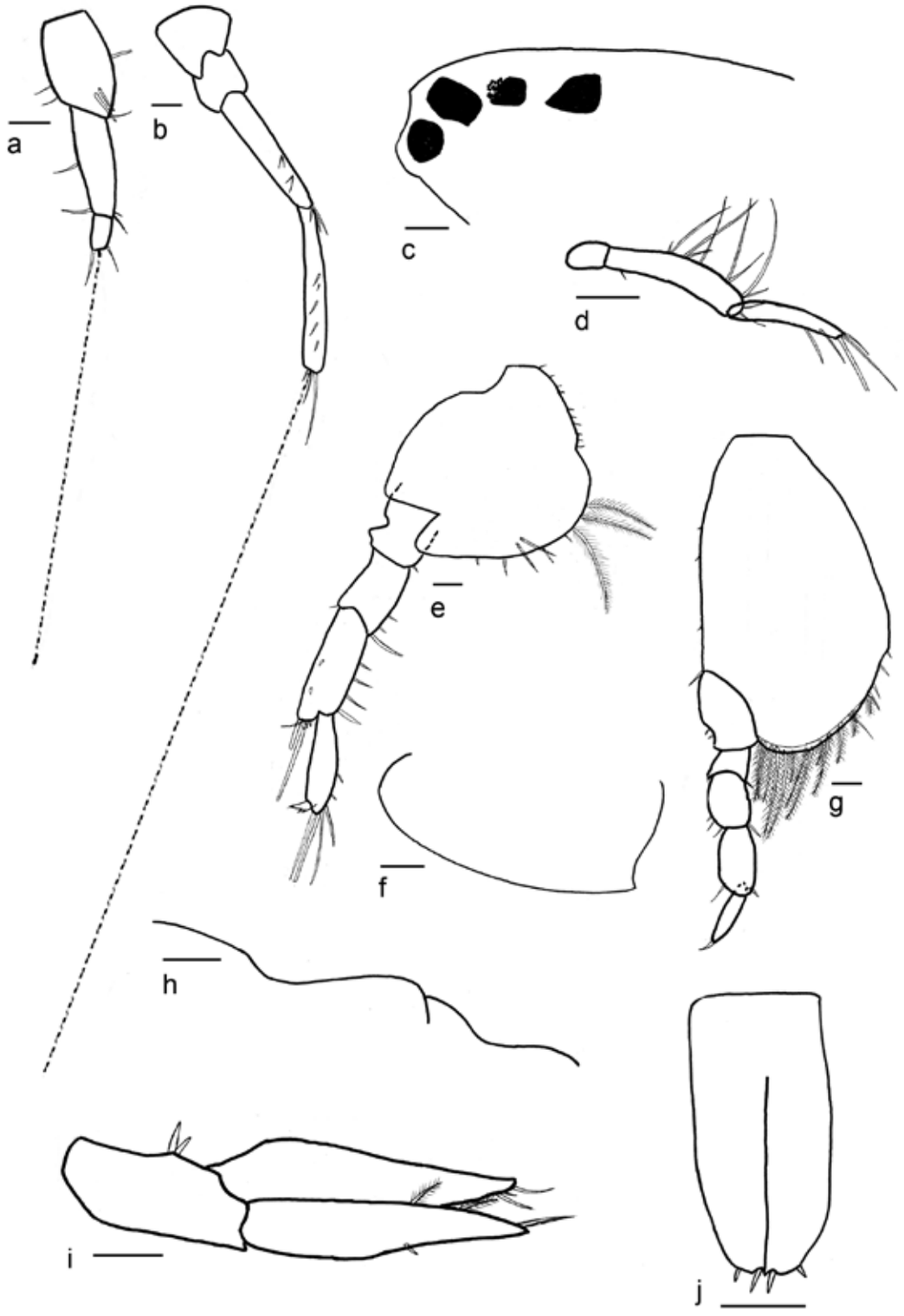

Fig. ZP-5. *Ampelisca* sp. 4 cf. *rubella*, Kuwait Bay. Female: a – antenna 1; b – antenna 2; c – head; d – palp of mandible; e – pereopod 6; f – epimer 3; g – pereopod 7; h – urosome; i – uropod 3; j – telson. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca* sp. 5 cf. *taynamensis
Plate 12 and 13, and Fig. ZP-6.
Occurrence: East Doha area, Funaitees area, and Auha Island area.
Intertidal and Subtidal Zones.
Habitats: muddy sand and shells.

Description (after Dang & Le, 2013; modified). Male, 10.7 mm. Head with anterodistal part produced, distal margin concave; eyes 2 pairs, in the form of distinct lenses. A1 reaching to the distal end of A2 peduncle; flagellum **16** segmented; peduncular article 1 shorter than article 2 in length. A2 as long as body length; flagellum 34 segmented; peduncular article 4 shorter than article 5. First peduncular articles A1 and A2 armed with rows of short and rigid setae. Md palp article 2 inflated, **equal to article 3.** Gn1 with a long **few setae on basis**, carpus and propodus with scattered setae on the ventral margin; propodus short, about 1/3 of the length of carpus; dactylus shorter than the previous article. Gn2 similar in form to Gn1; propodus about half the length of carpus; dactylus s half the length of propodus, ventral margin of propodus and carpus with rows of setae. P3 with coxa rectangular, basis cylindrical, ischium very short, merus large with a row of dense **plumose** setae on both lateral margins; dactylus longer than propodus. P4 similar to P3, but coxa quadrangular in form. P5 with a round basis armed with a row of long setae on the dorsal margin. Carpus with produced posteroventral corners; dactylus very small, with serrate appendices. P6 similar in form to P5, but basis nearly quadrangular with a very small row of setae on the dorsal margin. P7 lateral expansion of basis broad, distal margin oblique with dense setae, not reaching to ischium distal end; ischium square, carpus oval, equal in length to propodus; dactylus stick form, ending in a sharp point. Pleon segments with dorsal carina progressively increasing to the body end. Us1 and Us2+Us3 with large dorsal process. U1 with ramus, longer than peduncle. U2 with serrate ramus, shorter than peduncle. U3 with broad lanceolate ramus, longer than peduncle, with a row of dense plumose setae on the lateral margin. T with naked lateral margin and distal setae.

Female specimens were not found in our investigations.
Taxonomic characters for distinguishing *Ampelisca* sp. 5 cf. *taynamensis* from *A. taynamensis* (Dang & Le, 2013) are expressed in **bold** text.

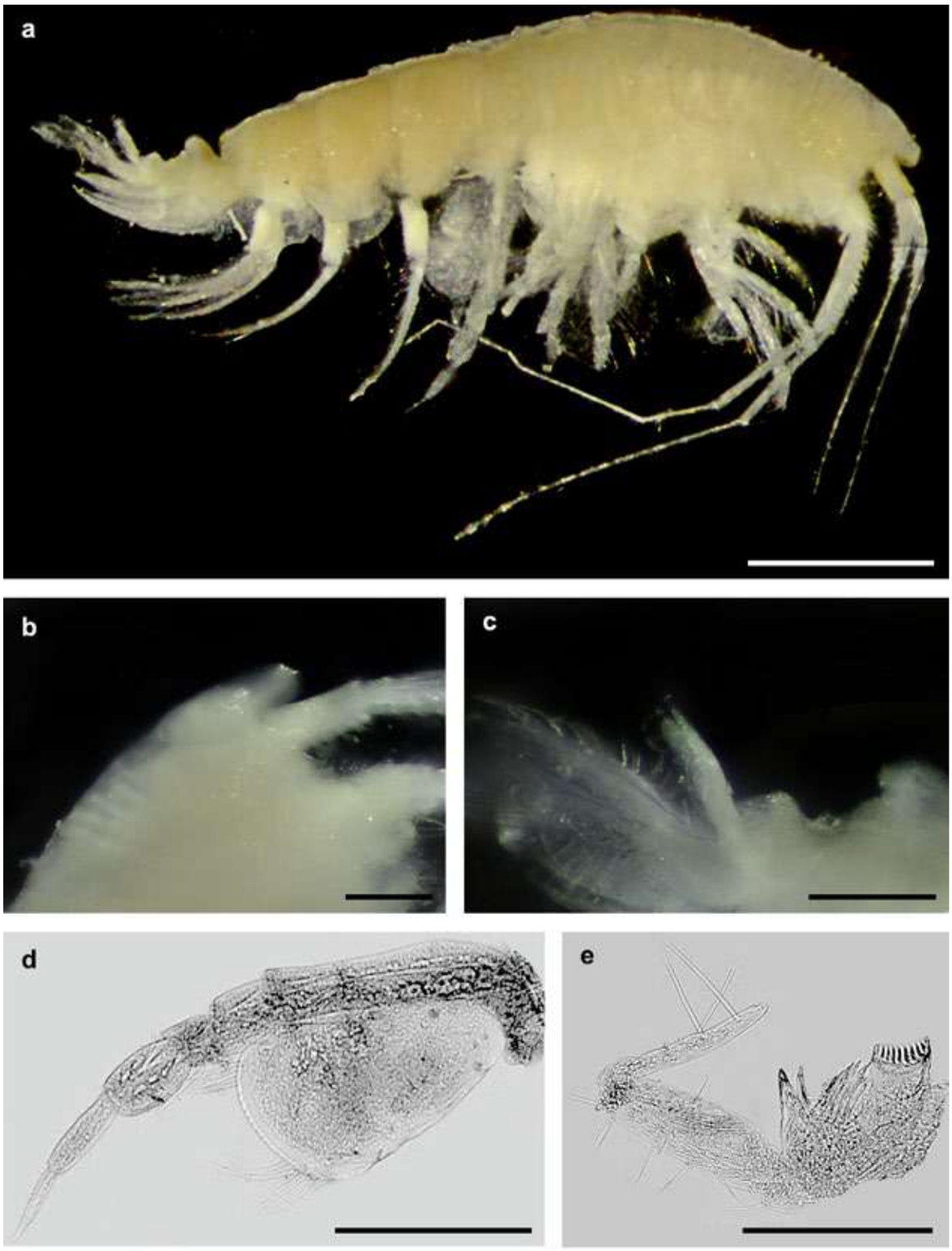

Plate 12. *Ampelisca* sp. 5 cf. *taynamensis*, Funaitees. Male: a – habitus; b – head; c – urosome; d – pereopod 7; e – mandible. Scale lines: a – 1 mm; d – 0.5 mm; b, c, and e – 0.2 mm.

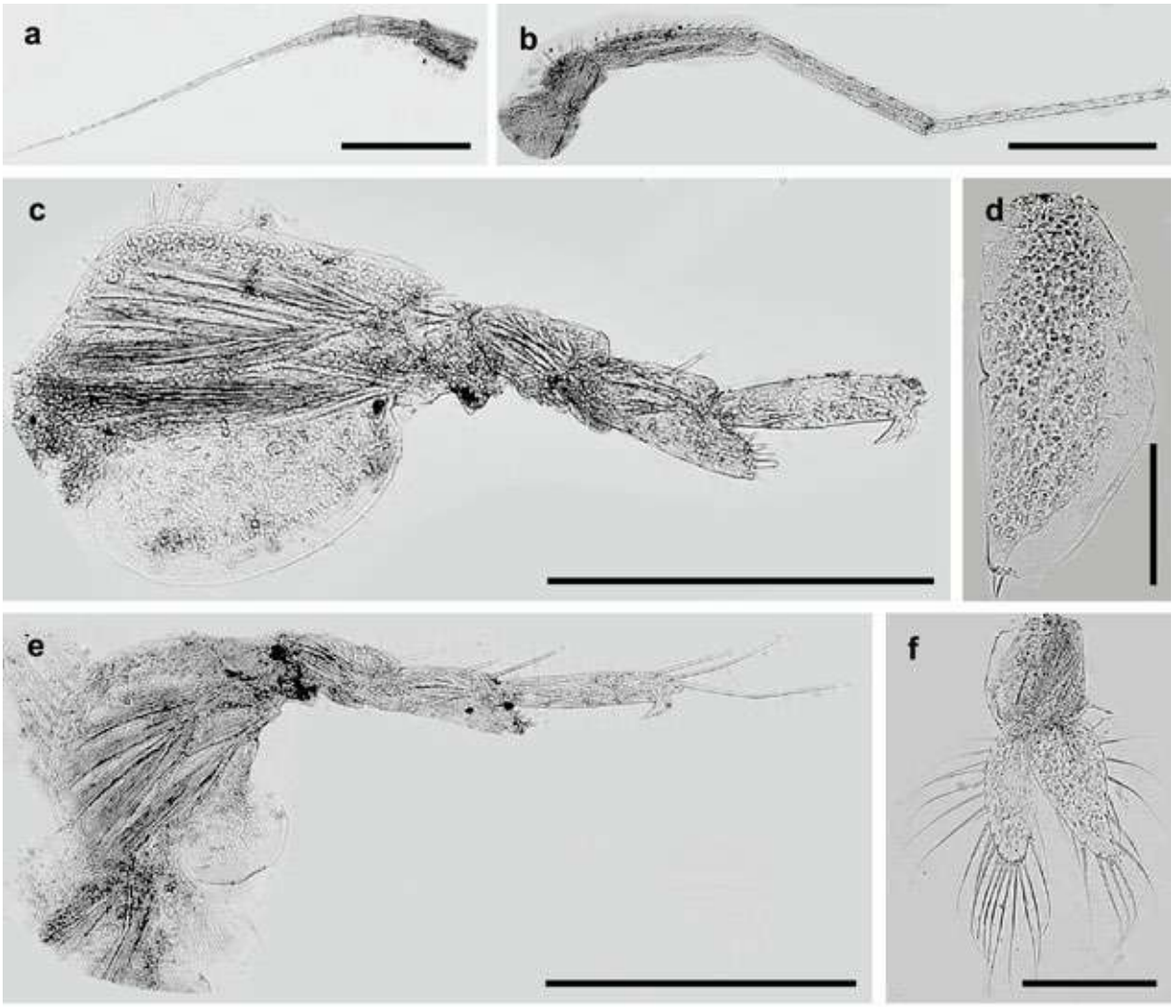

Plate 13. *Ampelisca* sp. 5 cf*. taynamensis*, Funaitees*.* Male: a – antenna 1; b – antenna 2; c – pereopod 5; d – telson, left lobe; e – pereopod 6; f – uropod 3. Scale lines: a, b, c, and e – 0.5 mm; f – 0.2 mm; d – 0.1 mm.

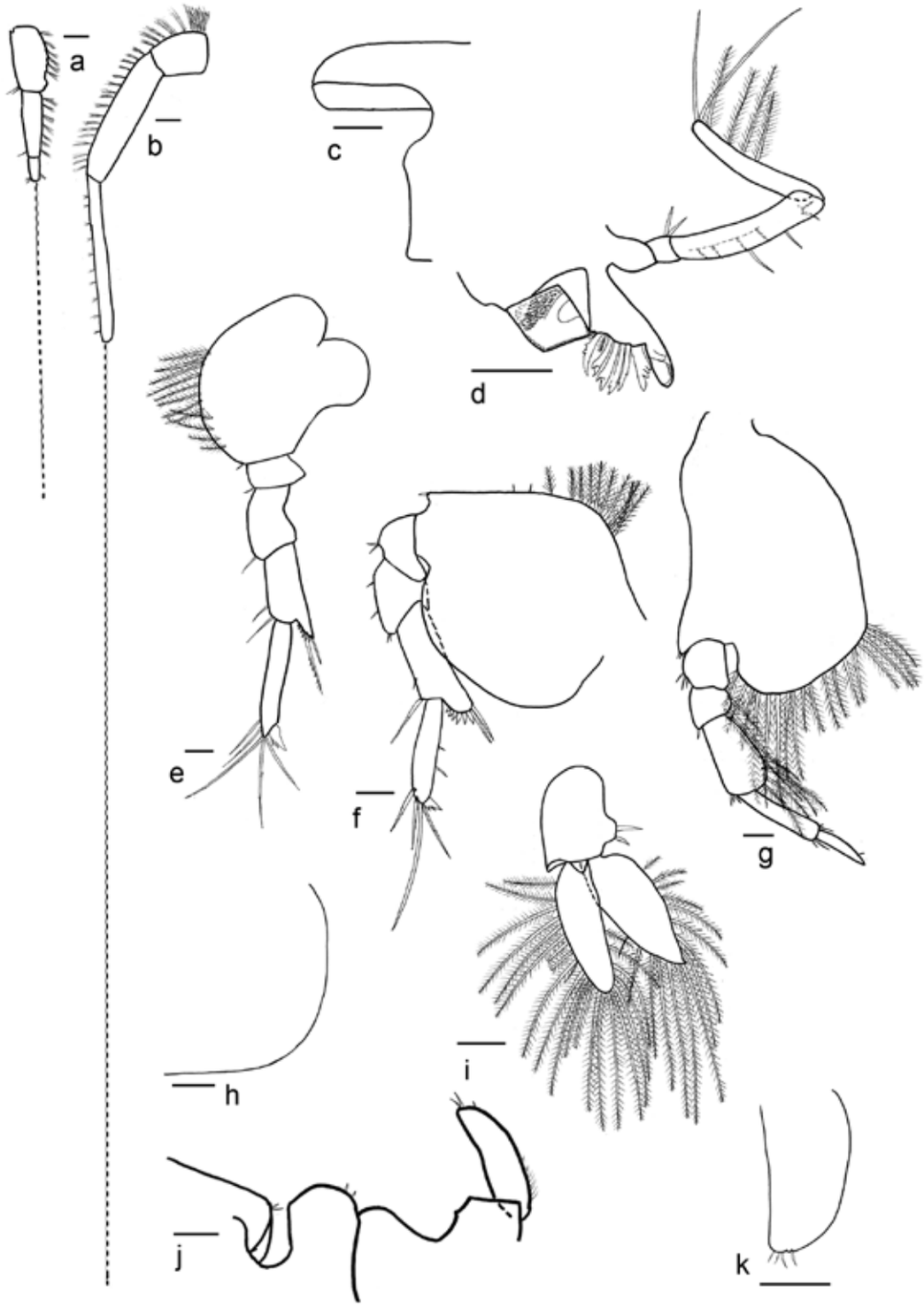

Fig. ZP-6. *Ampelisca* sp. 5 cf. *taynamensis*, Funaitees. Male: a – antenna 1; b – antenna 2; c – head; d – mandible; e – pereopod 5; f – pereopod 6; g – pereopod 7; h – epimer 3; i – uropod 3; j – urosome; k – lobe of telson. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Ampelisca*

Ampelisca* sp. 6 cf. *tulearensis
Plates 14 – 16 and Fig. ZP-7.
Occurrence: Qaruh Island area.
Subtidal Zone.
Habitats: sand and shells.

Description. Male, 5.3 mm. Head with 2 pairs of eyes, each with cuticular lens. A1 reaching to the distal end of A2 peduncle; flagellum 16-segmented. A2 longer than body length; flagellum 33-segmented. First peduncular articles A1 and A2 armed with rows of short and rigid setae. Md palp article 2 longer than article 3. Gn1 with a long basis, carpus and propodus with scattered setae on the ventral margin; propodus near to the length of carpus; dactylus shorter than the previous article. Gn2 similar in form to Gn1, but longer; propodus near to the length of carpus, ventral margin of propodus and carpus with rows of setae. P3 with coxa rectangular, ischium short, merus large with a row of plumose setae on both lateral margins; dactylus longer than propodus. P4 similar to P3, but coxa quadrangular in form. P5 with round basis with a row of long setae on the dorsal margin. P6 similar in form to P5, but basis quadrangular with a row of setae on the dorsal margin. P7 lateral expansion of basis broad, distal margin oblique with dense plumose setae, reaching half the length of merus; ischium subquadrate, merus bearing posterior lobe reaching half of carpus, propodus oval, dactylus lanceolate. Us1 with a large round dorsal hump. Us2+Us3 with sinus. U1 outer ramus longer than peduncle, without spines. Inner ramus 2/3 of the length of outer ramus, without spines. U2 rami length similar to peduncle; outer ramus without spines, inner ramus with spines. U3 rami lanceolate with plumose setae, edge serrate. T cleft on 2/3 of length with a little spine distally.
Female specimens were not found in our investigations.

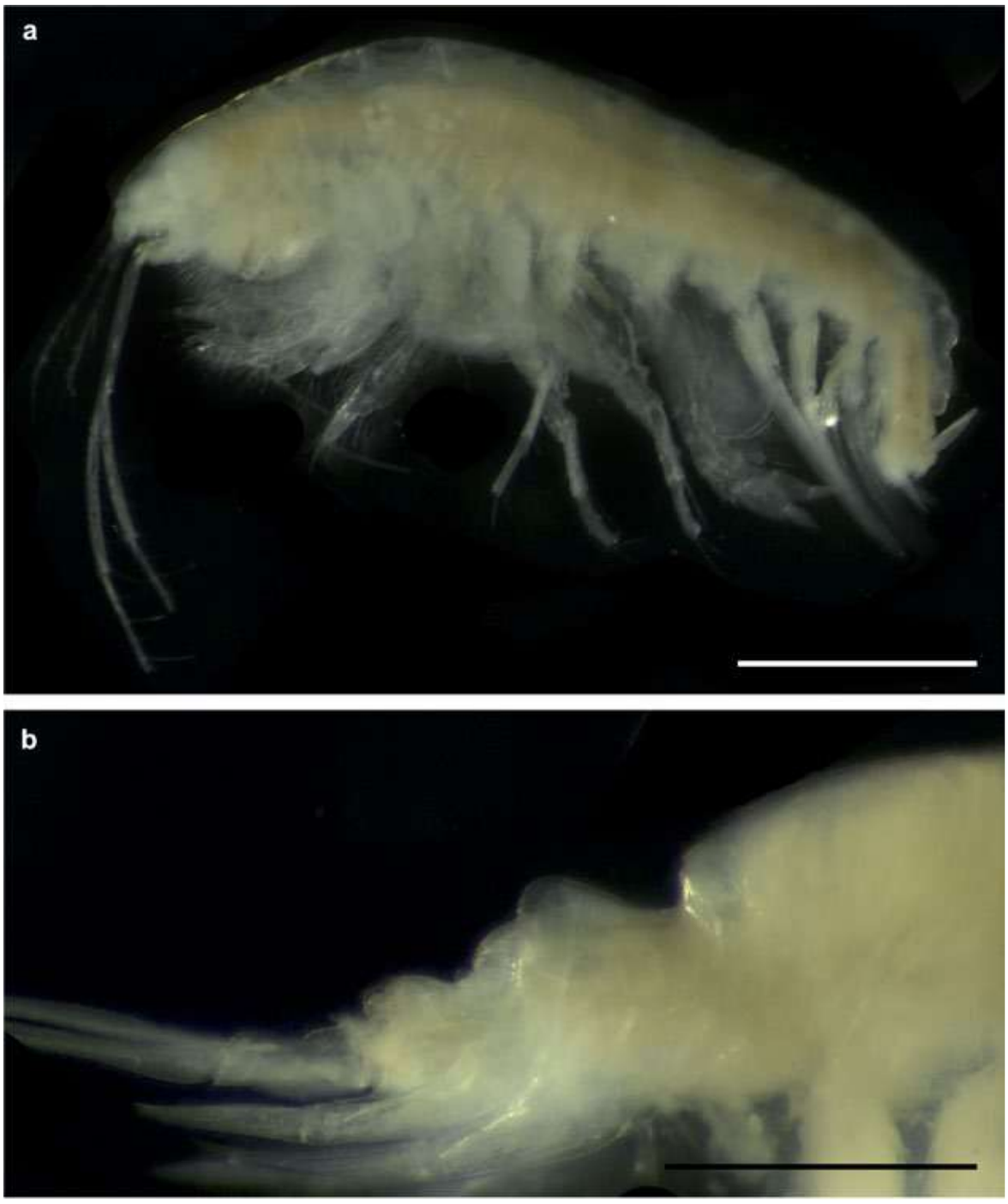

Plate 14. *Ampelisca* sp. 6 cf. *tulearensis*, Qaruh Island. Male: a – habitus; b – urosome. Scale lines: a – 1 mm; b – 0.5 mm.

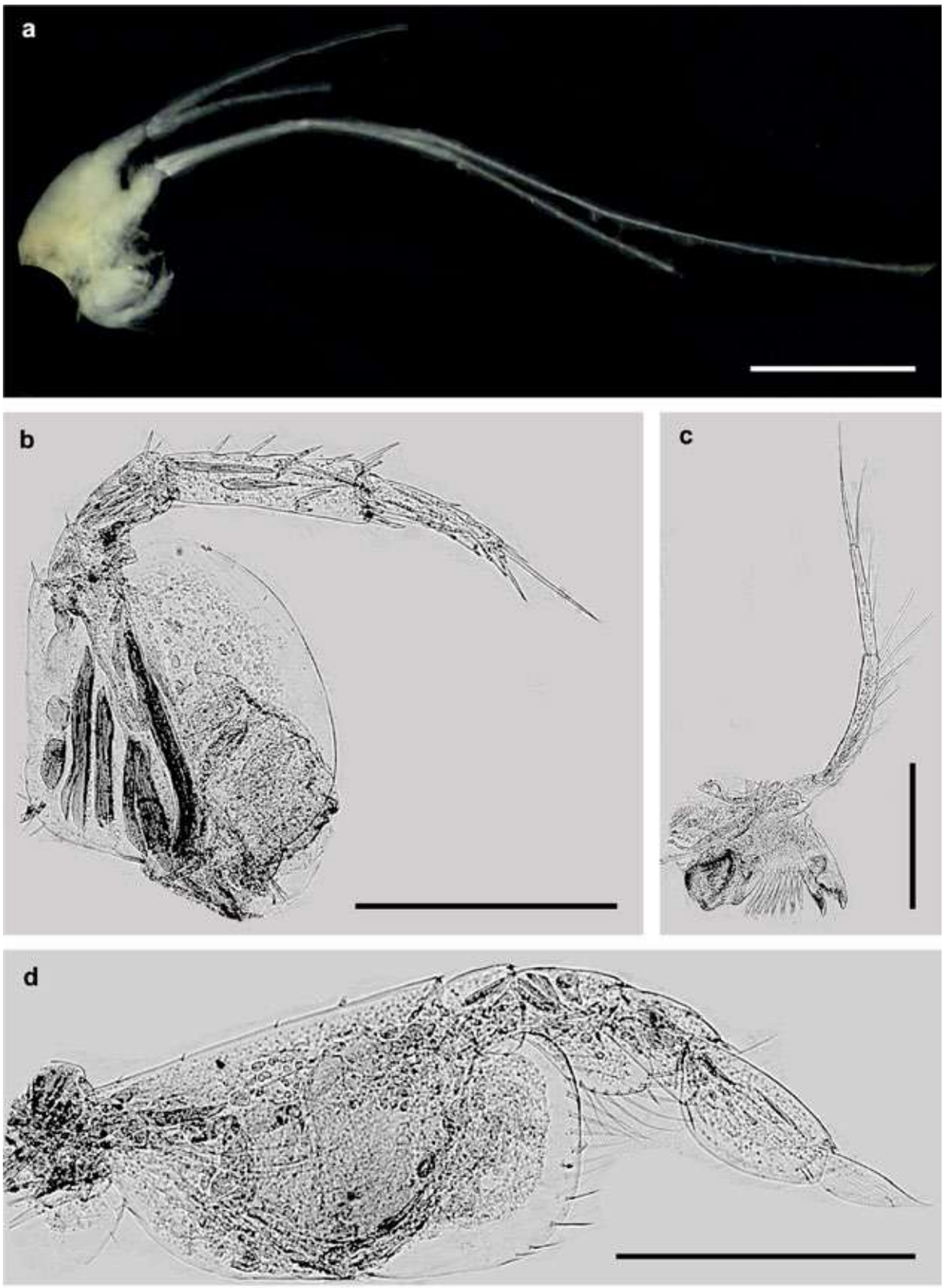

Plate 15. *Ampelisca* sp. 6 cf. *tulearensis*, Qaruh Island. Male: a – antennae; b – pereopod 6; c – mandible; d – pereopod 7. Scale lines: a – 1 mm; b and d – 0.5 mm; c – 0.2 mm.

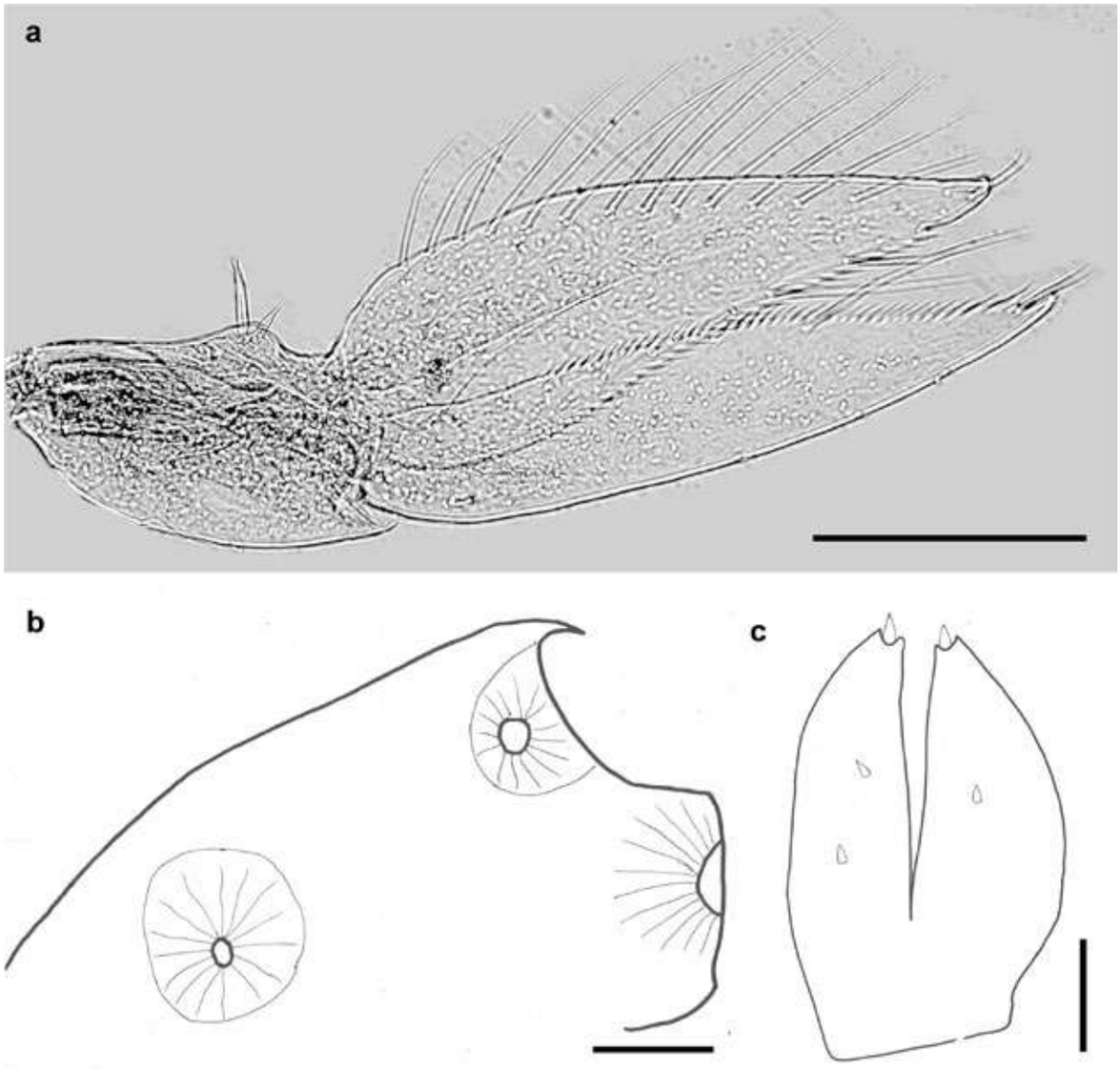

Plate 16. *Ampelisca* sp. 6 cf. *tulearensis*, Qaruh Island. Male: a – uropod 3; b – head (picture); c – telson (picture). Scale lines: a – 0.2 mm; b and c – 0.1 mm.

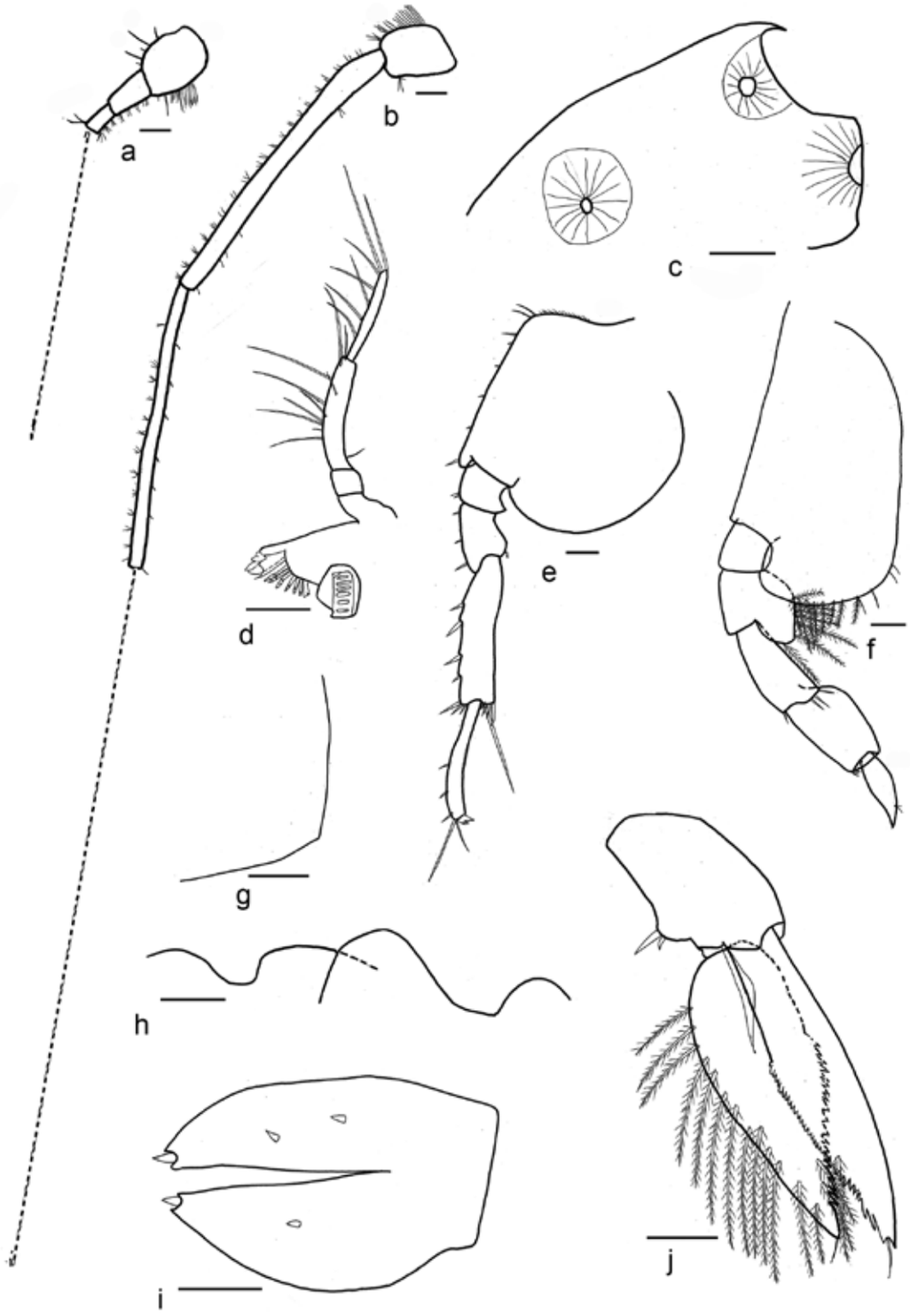

Fig. ZP-7. *Ampelisca* sp. 6 cf. *tulearensis*, Qaruh Island. Male: a – antenna 1; b – antenna 2; c – head; d – mandible; e – pereopod 6; f – pereopod 7; g – epimer 3; h – urosome; i – telson; j – uropod 3. Scale lines – 0.1 mm.

Family Ampeliscidae
Genus *Byblis*

***Byblis* sp.**
Plates 17 and 18, Figs. ZP-9 and ZP-10.
Occurrence: Auha Island area, Kuwait Bay area, and Al-Maghasel area.
Intertidal and Subtidal Zones.
Habitats: muddy sand and mud.

Description. Male, 6.8 mm. Head with 2 pairs of corneal lenses. Us1 rounded, dorsally without a distinct hump. Cox1 longer than broad, rounded distally and fringed with plumose setae, Cox2 rectangular with 4 plumose posterodistal setae, Cox4 hook-shaped with a notch in the ventral margin. Ep3 rounded. A1 1/2 the length of A2, flagellum 10-segmented, segment 2 peduncle longer than segment 1. A2 1/2 of body length, flagellum 18-segmented, segment 5 peduncle longer than 4. Md palp 3-articulate, 1 and 3 shorter than 2, 2 and 3 with setae. Mx1 inner lobe with 1 short subapical seta. Gn1, propodus about half the length of carpus, carpus and propodus setose, dactylus with small setae at the inner margin. Gn2 longer than Gn1, propodus about half the length of carpus, carpus and propodus setose, dactylus with small setae at the inner margin. P3 basis longer than propodus, dactylus longer than propodus. P4 longer than P3 and more setose. P5 basis rounded with a row of plumose setae on the dorsal margin. P6 similar in form to P5, but basis nearly quadrangular with a row of plumose setae on the dorsal margin. P7 basis with posterior lobe greatly expanded distally, reaching the distal end of carpus and bearing numerous plumose setae, ischium short, merus equal to carpus, dactylus tapering, 1/2 the length of propodus with a seta at the distal point. U1, peduncle equal to both rami, edges finely denticulate, bearing spines. U2 slightly shorter than U1 and less setose. U3 peduncle short, rami unequal lanceolate, edges minute serrulate. T near oval, whole not cleft, without notch.
Female is similar to male.

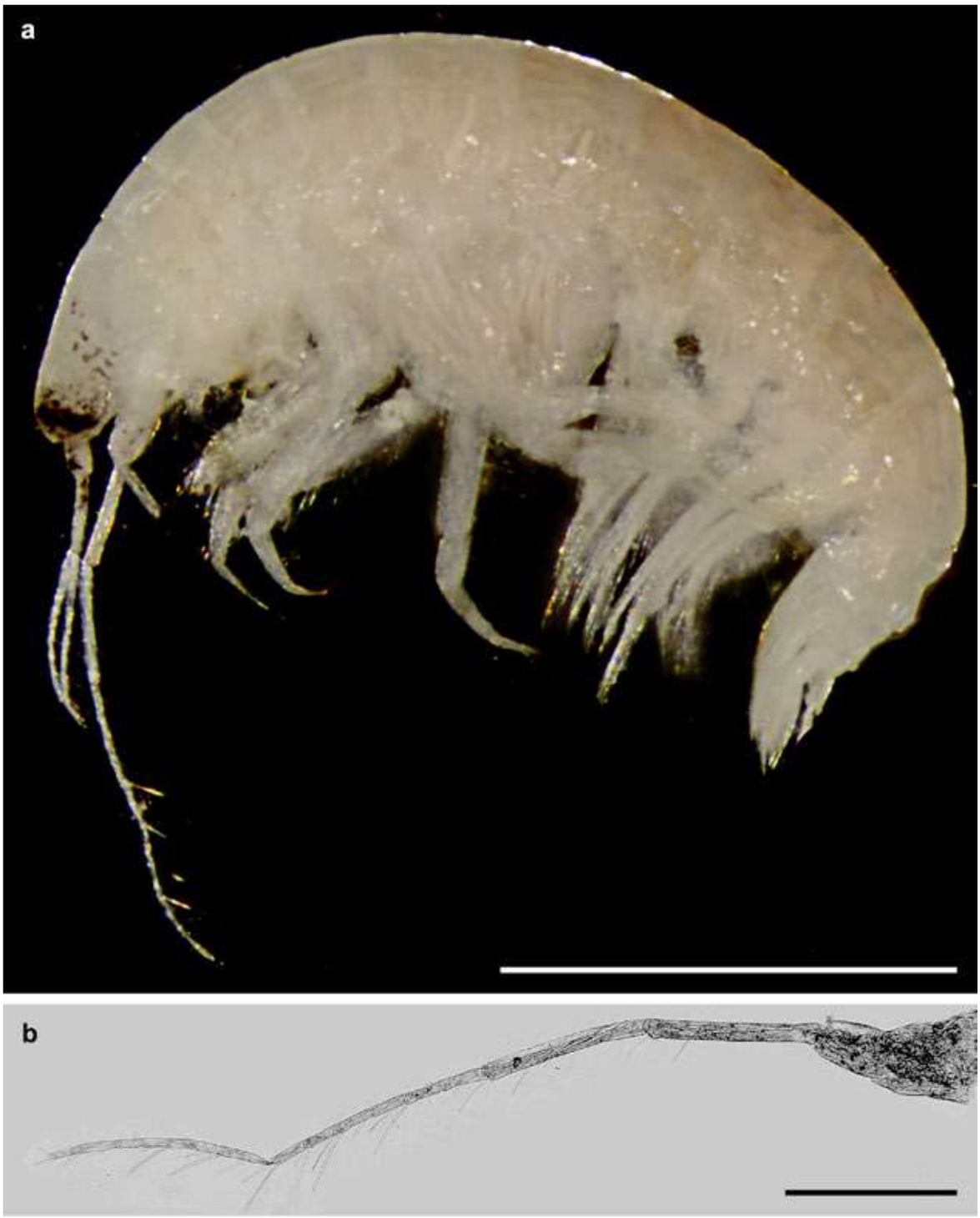

Plate 17. *Byblis* sp., Kuwait Bay. Female: a – habitus; b – antenna 2. Scale lines: a – 2 mm; b – 0.5 mm.

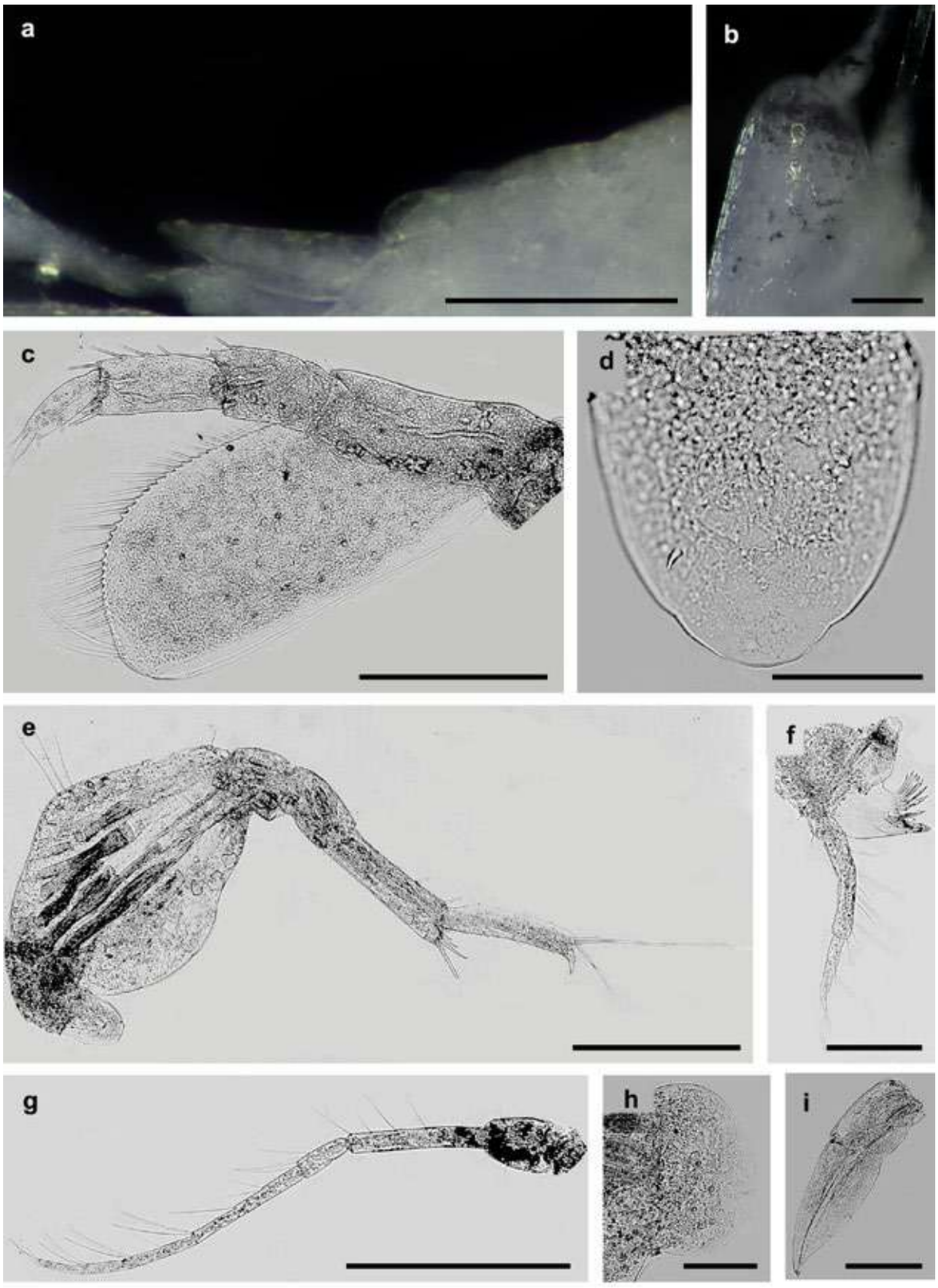

Plate 18. *Byblis* sp., Kuwait Bay. Female: a – urosome; b – head; c – pereopod 7; d – telson; e – pereopod 6; f – mandible; g – antenna 1; h – epimer 3; i – uropod 3. Scale lines: c, e, and g – 0.5 mm; a, b, f, h, and I – 0.2 mm; d – 0.1 mm.

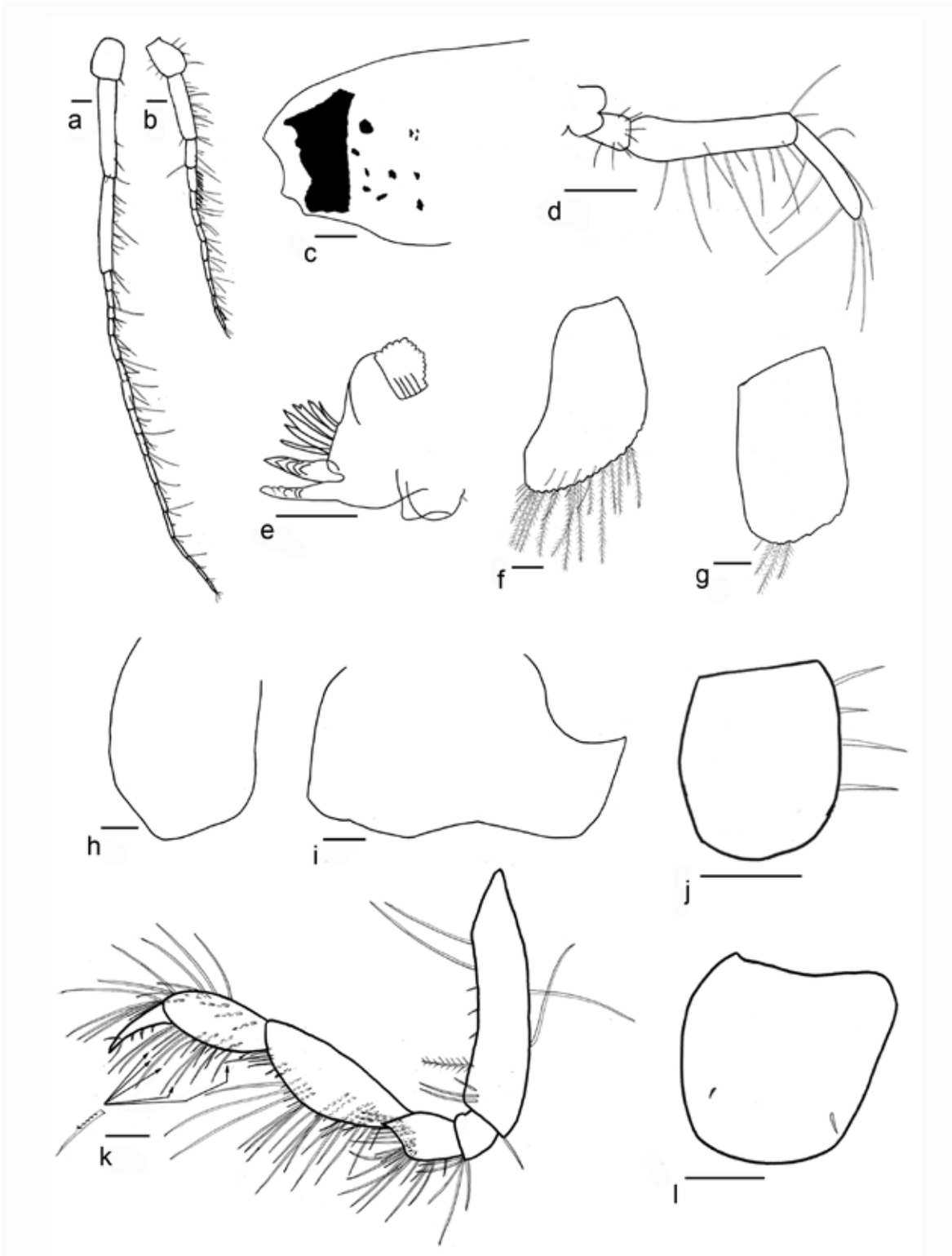

Fig. ZP-9. *Byblis* sp., Kuwait Bay. Male: a – antenna 2; b – antenna 1; c – head; d – palp of mandible; e – mandible; f – coxa 1; g – coxa 2; h – coxa 3; i – coxa 4; j – coxa 7; k – gnathopod 1; l – telson. Scale lines – 0.1 mm.

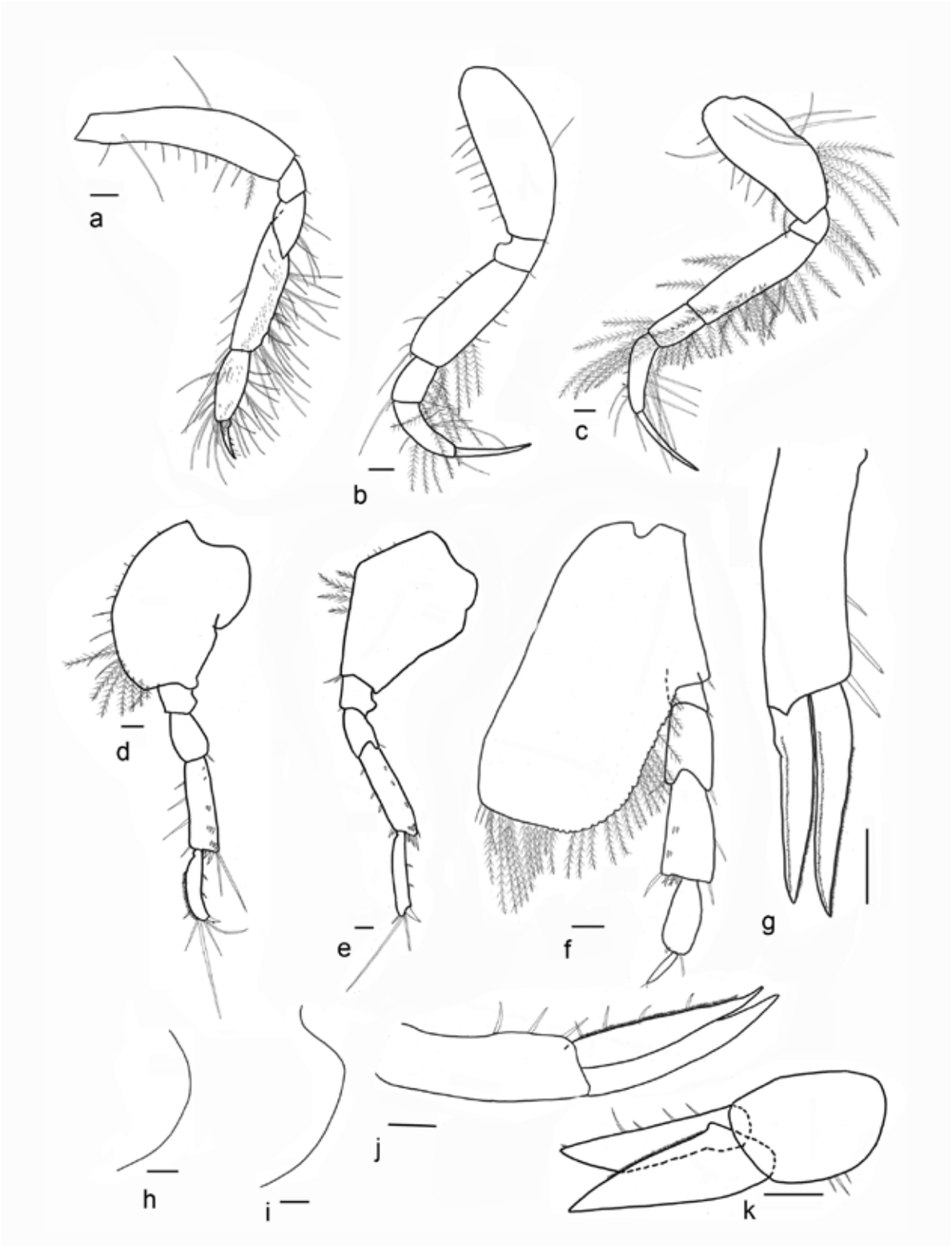

Fig. ZP-10. *Byblis* sp., Kuwait Bay. Male: a – gnathopod 2; b – pereopod 3; c – pereopod 4; d – pereopod 5; e – pereopod 6; f – pereopod 7; g – uropod 2; h – epimer 2; i – epimer 3; j – uropod 1; k – uropod 3. Scale lines – 0.1 mm.

Family Amphilochidae
Genus Apolochus

Apolochus* sp. 1 cf. *kailua

Plates 19 and 20, and Fig. ZP-11.

Occurrence: Funaitees area, Qaruh Island area, Al-Bida'a area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Auha Island area, and Miskan Island area.

Intertidal and Subtidal Zones.

Habitats: macroalgae, sand, shells, pebbles, coral rubble, rocks, sea grass, sponges, and ropes (as artificial habitat).

Description (after J.L. Barnard, 1970; modified). Male, 2 mm. Body without dorsal cusps; lateral cephalic lobe slightly truncate; eyes very large, clear in alcohol; antennae extending equally. Md molar narrow and weakly triturative; distomedial margin of outer plates on Mxp not excavate, with 6 – 7 slender, widely spaced setae; palp article 1 of Mxp with wing – like medial extension. Gn1 and Gn2 large, slender lobe of carpus on Gn1 guarding propodus and extending almost to palm, on Gn2 extending fully to palm; anterodistal corners of propodus on gnathopods softly rounded, dactylus with medial inner tooth but no pectinations or scales; gnathopods of the enlarged kind, but Gn2 larger than Gn1, hands longer than wide, palms scarcely oblique but convex; coxa 1 elongated, anteroventrally extended as a short coniform process. P3 – P7 with about four sets of spines on 'active' margins, distal locking set (and occasionally other sets) paired and closely placed to the next proximal set, dactylus with short distal nail and prominent mammilliform bulb proximal to nail; pleonal epimers 1-3 each with sinuous posterior margins and very weak posteroventral tooth or protrusion; telson of medium length, shorter than peduncle of U3, apically rounded but coniform.
Female is similar to male.

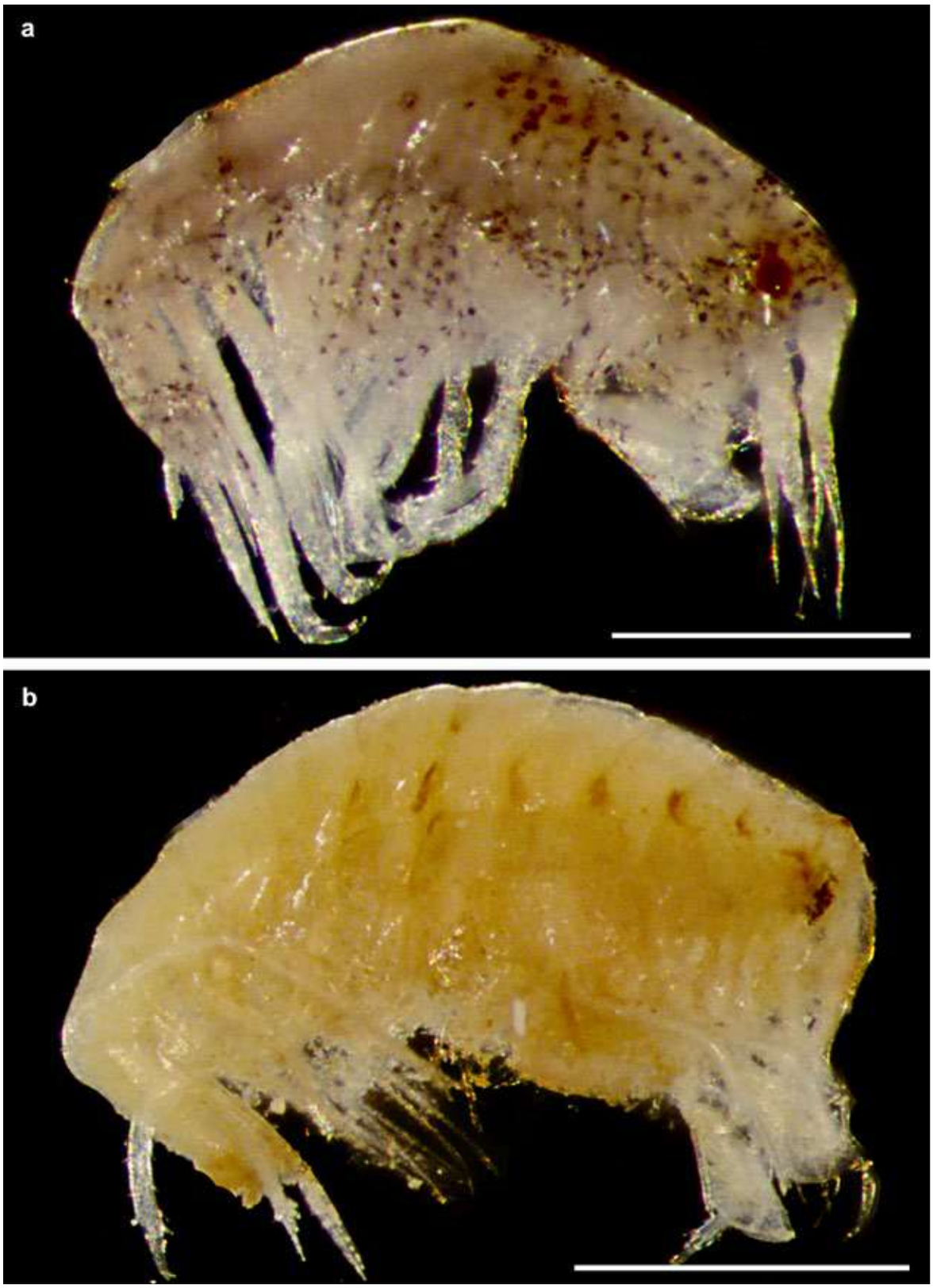

Plate 19. *Apolochus* sp. 1 cf*. kailua*, Al-Bida'a*.* Female different coloring: a – specimen 1; b – specimen 2. Scale lines: b – 1 mm; a – 0.5 mm.

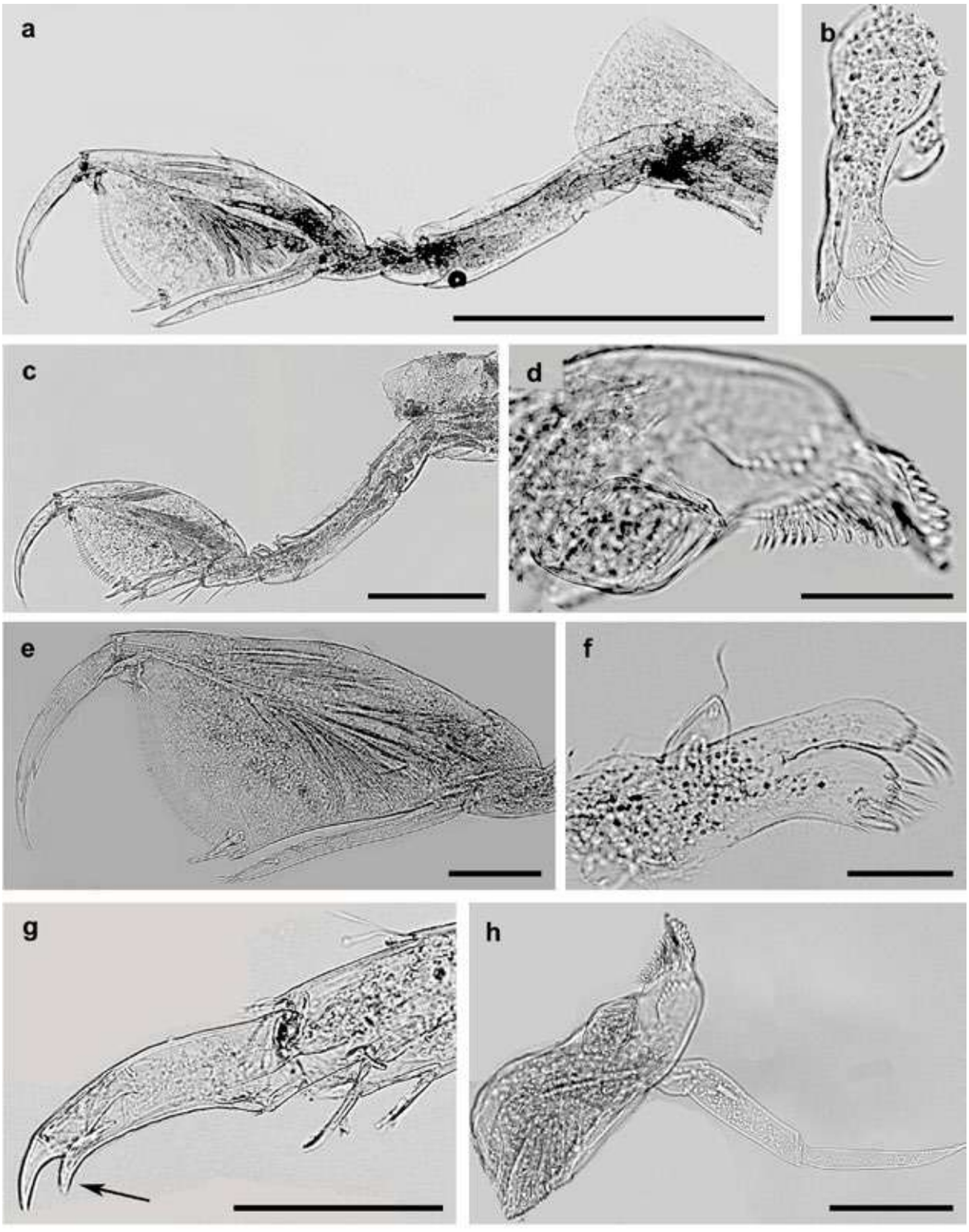

Plate 20. *Apolochus* sp. 1 cf. *kailua*, Al-Bida'a. Female, specimen 2: a – gnathopod 2; b – maxilla 2; c – gnathopod 1; d – mandible, molar; e – gnathopod 2, carpus-propodus-dactylus; f – maxilla 1; g – pereopod 7, dactylus, tooth (arrow); h – mandible. Scale lines: a – 0.5 mm; c – 0.2 mm; g and h – 0.1 mm; b, d, and f – 0.05 mm.

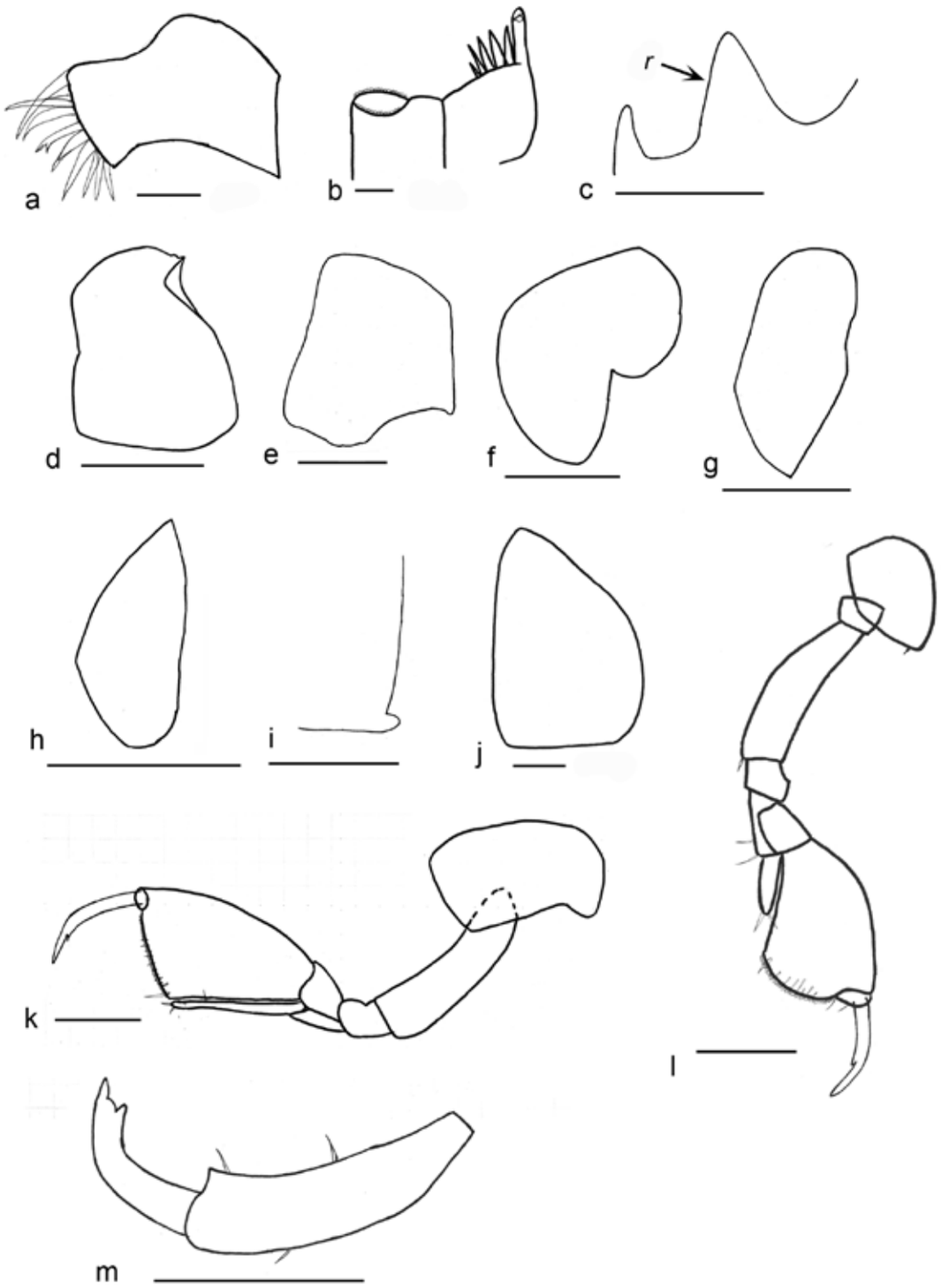

Fig. ZP-11. *Apolochus* sp. 1 cf. *kailua*, Funaitees. Male: a – maxilla 1; b – mandible; c – head; d – coxa 3; e – coxa 4; f – coxa 5; g – coxa 6; h – coxa 7; i – epimer 3; j – telson; k – gnathopod 2; l – gnathopod 1; m – propodus and dactylus of pereopod 4. Scale lines: a, b, and j – 0.01 mm; c, d, e, f, g, h, i, k, l, and m – 0.1 mm. Designation: r – rostrum.

Family Amphilochidae
Genus Apolochus

Apolochus* sp. 2 cf. *menehune

Plates 21 and 22, and Fig. ZP-12.

Occurrence: Funaitees area, Qaruh Island area, Al-Khiran area, Umm Al-Maradim Island area, Al-Shumaimah (Khor Al-Subiyah area), Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, Auha Island area, and Miskan Island area.

Intertidal and Subtidal Zones.

Habitats: macroalgae, sand, shells, pebbles, coral rubble, rocks, hydroids-bryozoans associations, ropes (as artificial habitat), sponges, and aggregation of polychaete tubes.

Description (after J.L. Barnard, 1970; modified). Male, 2.9 mm. Body without dorsal cusps; lateral cephalic lobe rounded; eyes very large, varying from clear in formaldehyde and alcohol to a clear ring of ommatidia surrounding a slightly pigmented core to eyes with fully black pigmented core; A1 scarcely extending to the end of the peduncle of A2. Md molar weakly triturative, subconical and of medium size; outer plate of Mxp distomedially excavate and pectinate, distolateral end with a large spine. Stout lobe of carpus on Gn1 extending about halfway along propodus and slender lobe on Gn2 **extending fully to palm**, anterodistal corner of propodus on Gn2 sharply extended, merus of Gn2 with 1-3 very stout ventral spines; dactylus of gnathopods pectinate or bearing scales on proximal inner edges; coxa 1 short, almost hemispherical, bearing 1 distal notch, coxae 2-3 with medium-sized distal serrations. Dactylus of pereopods 1-5 simple or with very faint distal nail marked by 1-2 weak scales; Ep1 with slight posteroventral tooth, Ep2 with slightly extended corner and Ep3 with rounded-quadrate corner; T is about 40 percent as long as the peduncle of U3, apically rounded but coniform.

Female is similar to male.

Taxonomic characters for distinguishing *Apolochus* sp. 2 cf. *menehune* from *Apolochus menehune* (J.L. Barnard, 1970) are expressed in **bold** text.

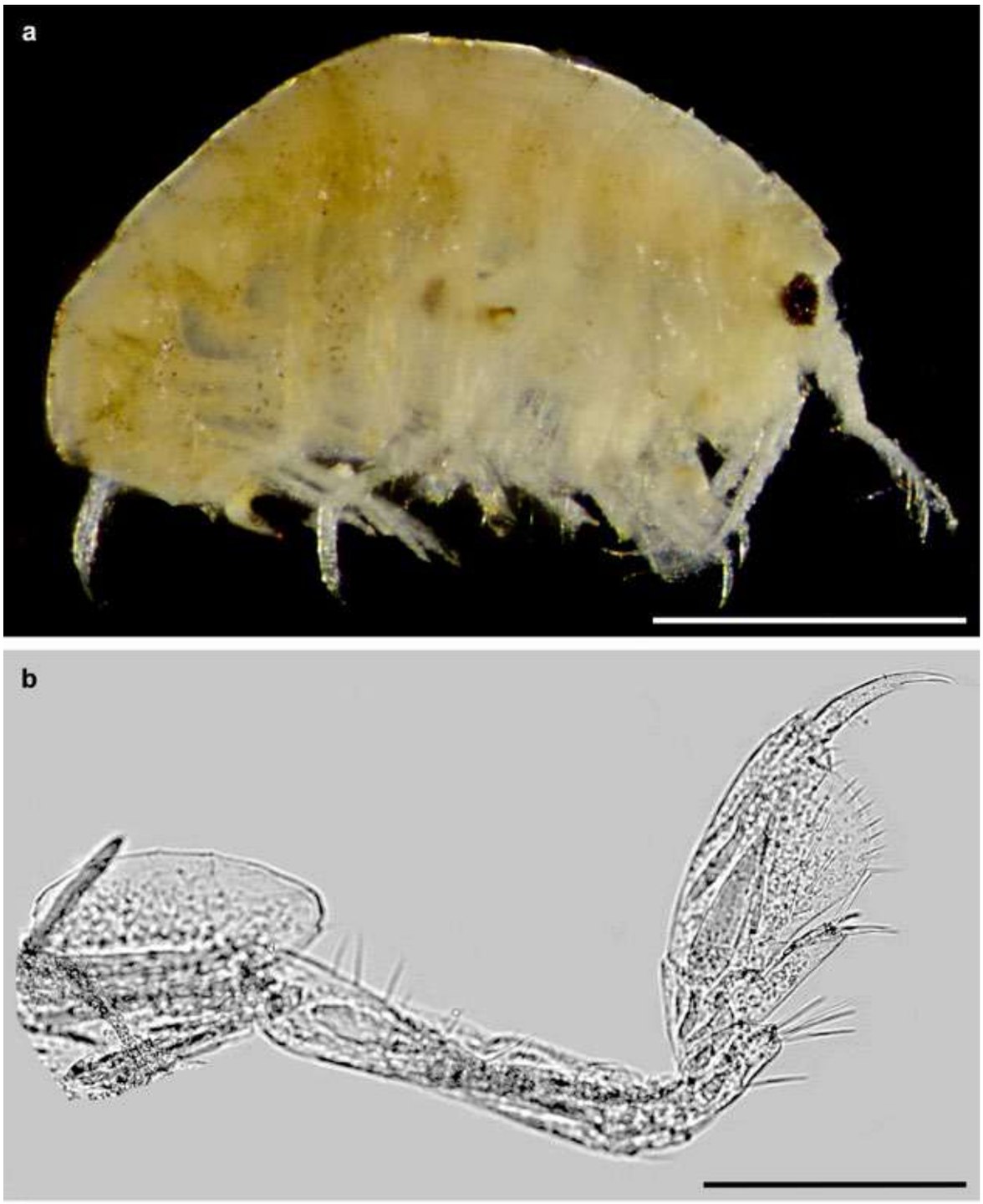

Plate 21. *Apolochus* sp. 2 cf. *menehune*, Al-Khiran. Female: a – habitus; b – gnathopod 1. Scale lines: a – 1 mm; b – 0.2 mm.

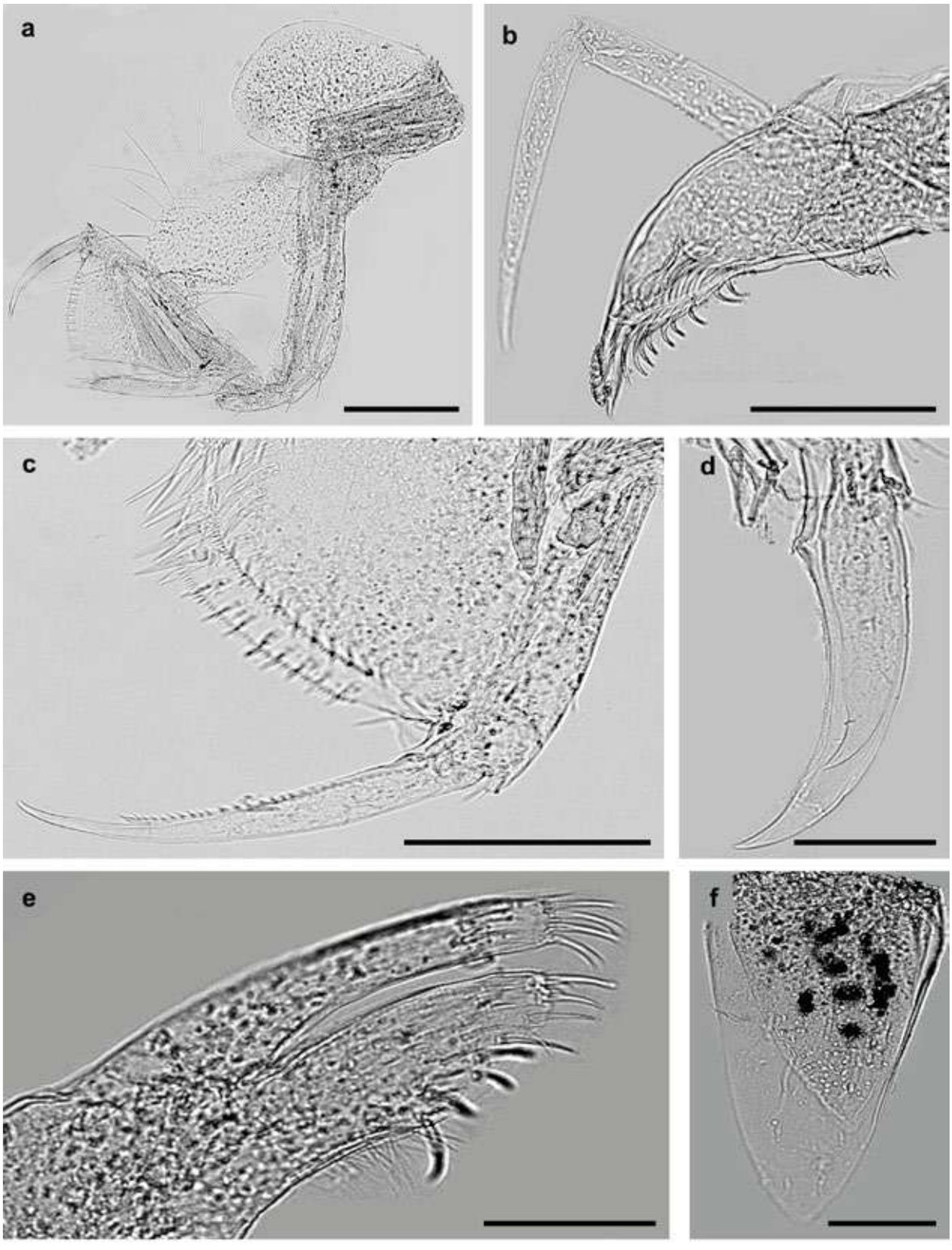

Plate 22. *Apolochus* sp. 2 cf. *menehune*, Al-Khiran. Female: a – gnathopod 2; b – mandible; c – gnathopod 2, propodus palm and dactylus; d – pereopod 7, dactylus; e – maxilla 2; f – telson. Scale lines: a – 0.2 mm; b, c, and f – 0.1 mm; d and e – 0.05 mm.

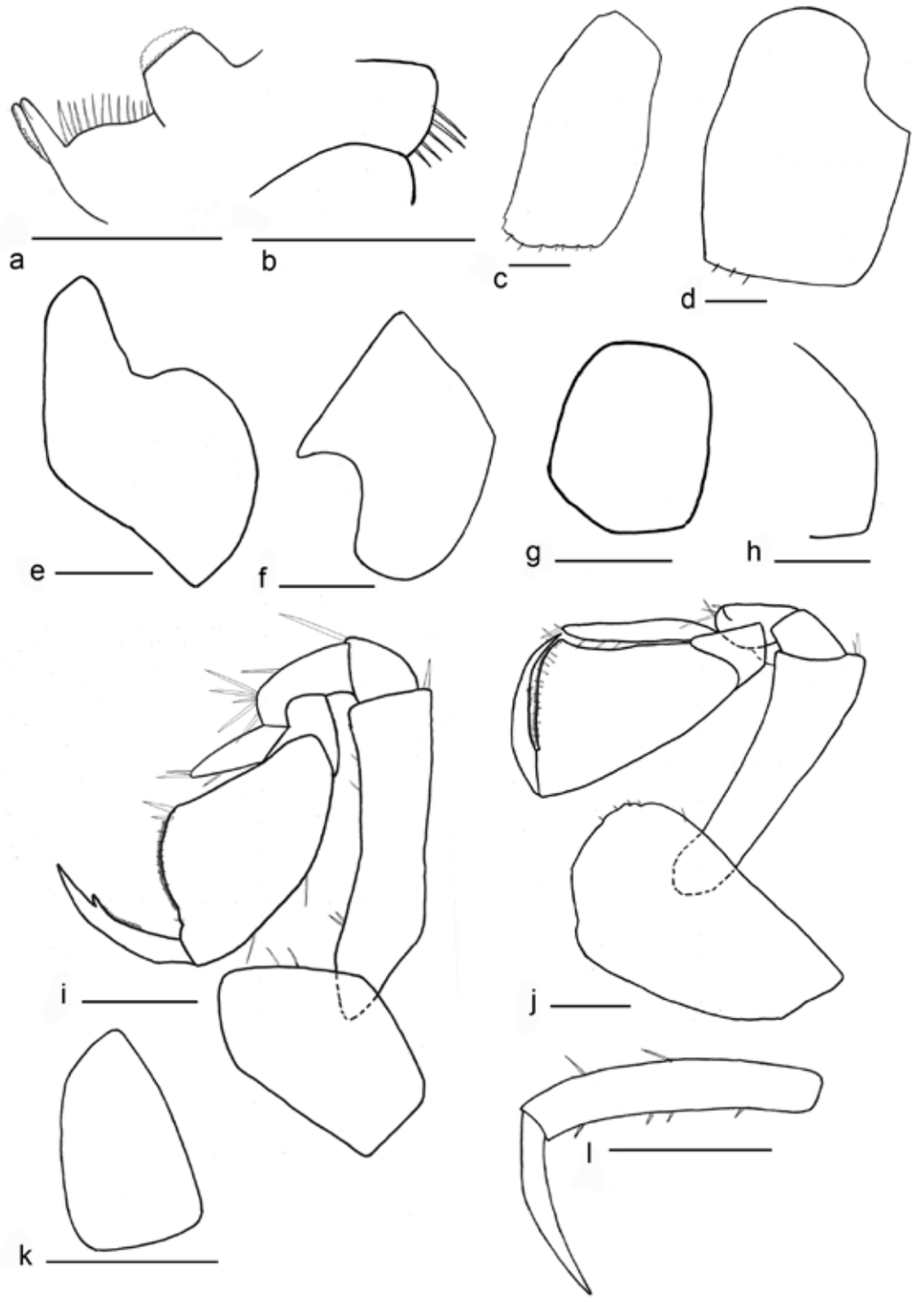

Fig. ZP-12. *Apolochus* sp. 2 cf. *menehune*, Al-Khiran. Male: a – mandible; b – maxilla 2; c – coxa 3; d – coxa 4; e – coxa 5; f – coxa 6; g – coxa 7; h – epimer 3; i – gnathopod 1; j – gnathopod 2; k – telson; l – propodus and dactylus of pereopod 3. Scale lines – 0.1 mm.

Family Ampithoidae
Genus *Ampithoe*

Ampithoe ramondi Audouin, 1826
Plates 23 and 24, and Fig. ZP-13.
Occurrence: Funaitees area, Qaruh Island area, Salmiya town beach area, pier constructions of marinas, Kubbar Island area, Umm Al-Maradim Island area, Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Nuwaiseeb area, Ras Al-Zour area, Al-Messilah area, Auha Island area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: biofouling areas, macroalgae, rocks, dead corals, pebbles, sand–pebble mixture, sponges, aggregation of polychaete tubes, and ropes (as artificial habitat).

Description (after Myers, 1985; modified). Male, 9 mm. A2 short and stout, setose; flagellum longer than peduncular article 5 with about 22 articles. Md palp articles in the ratio **2:7:7**, article 3 parallel-sided. Gn1, basis with well developed, rounded anterodistal lobe; carpus anterior margin with **5** strong spines, posterior distal margin strongly produced, angular; propodus about one and a half times the length of carpus and twice as long as broad, approximately parallel-sided, with evenly rounded palm. Gn2, basis with strongly developed anterodistal lobe; propodus about one and a half times the length of carpus, posterior margin produced into a short, truncated, thumb-like process separated from a very oblique palm by a wide, round-bottomed excavation, anterior margin strongly setose and swollen distally; dactylus relatively short and stout, opposite to "thumb". P3 and P4 moderately stout, article 5 of moderate length. P5, propodus palm with a distal pair of straight spines and a further more proximal process. U3, outer ramus with proximal spine very strongly recurved. T apically concave.

Female, 6.2 mm. Gn2, basis with lobe anterodistally with setae anterodistally and posterodistally; ischium with setae posterodistally; merus with small lobe posterodistally and with setae posteriorly, posterodistally, and posterolaterally; carpus with a strong lobe and with setae posteriorly, posterodistally, anterodistally, and posterolaterally; propodus longer than carpus with setae posteriorly, posterodistally, anterodistally, and posterolaterally, palm well defined by spine; dactylus strong with teeth on the inner side.
Taxonomic characters for distinguishing *Ampithoe ramondi* by Grintsov from *Ampithoe ramondi* by Myers, 1985, are expressed in **bold** text.

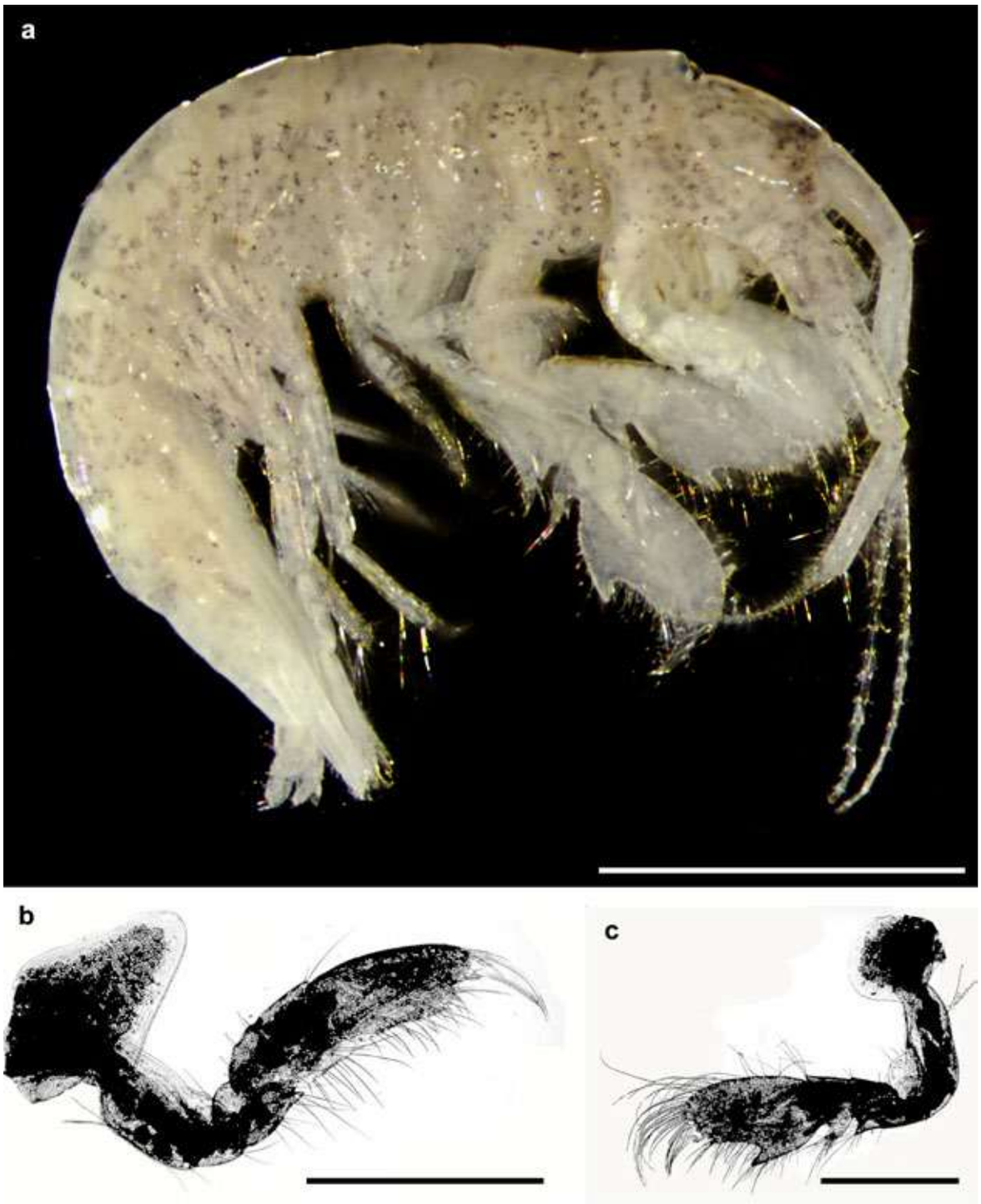

Plate 23. *Ampithoe ramondi*, Funaitees. Male: a – habitus; b – gnathopod 1; c – gnathopod 2. Scale lines: b and c – 1 mm; a – 0.5 mm.

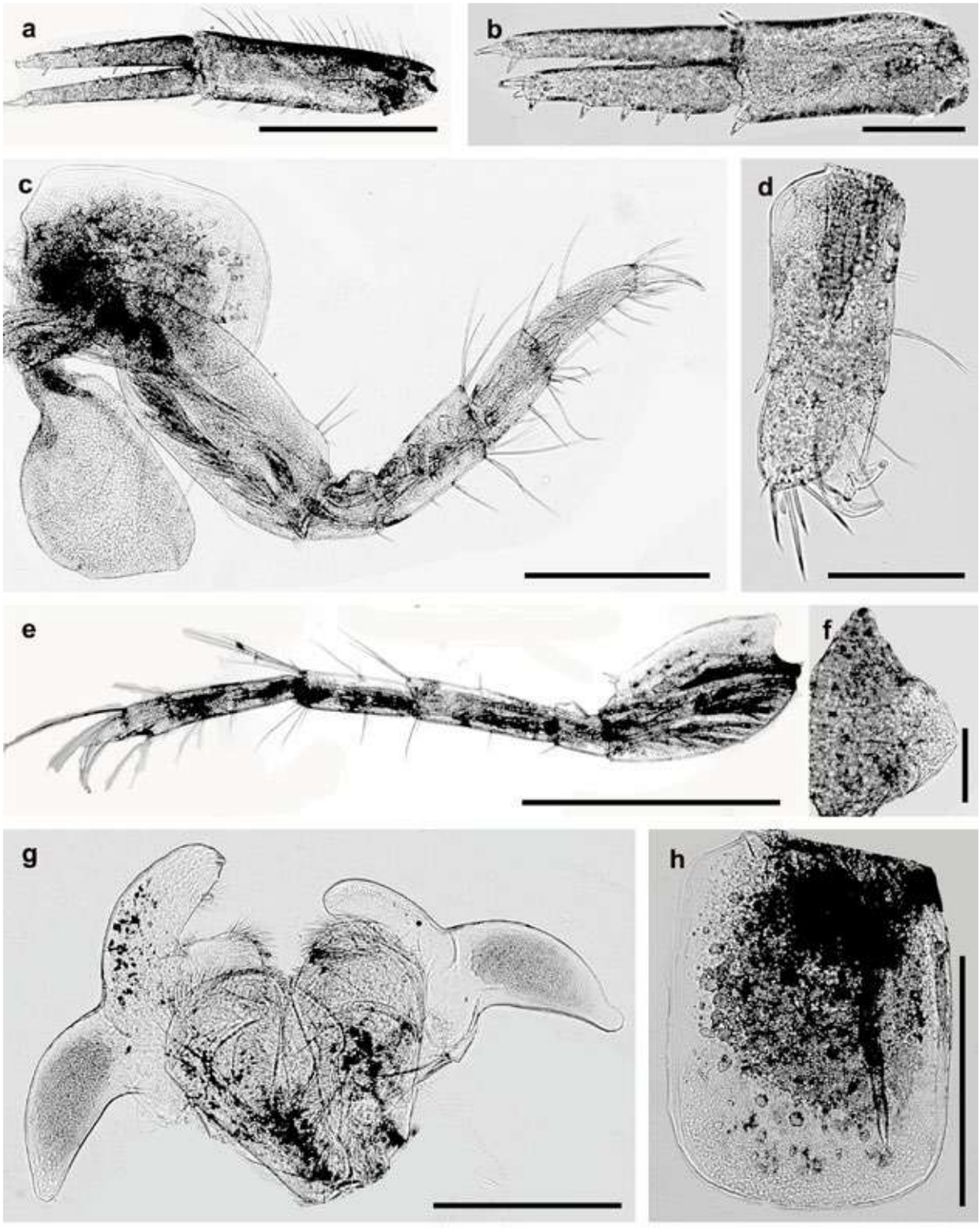

Plate 24. *Ampithoe ramondi*, Funaitees. Male: a – uropod 1; b – uropod 2; c – pereopod 3; d – uropod 3; e – pereopod 7; f – telson; g – labium; h – coxa 4. Scale lines: e – 1 mm; a, c, and h – 0.5 mm; b, d, and g – 0.2 mm; f – 0.1 mm.

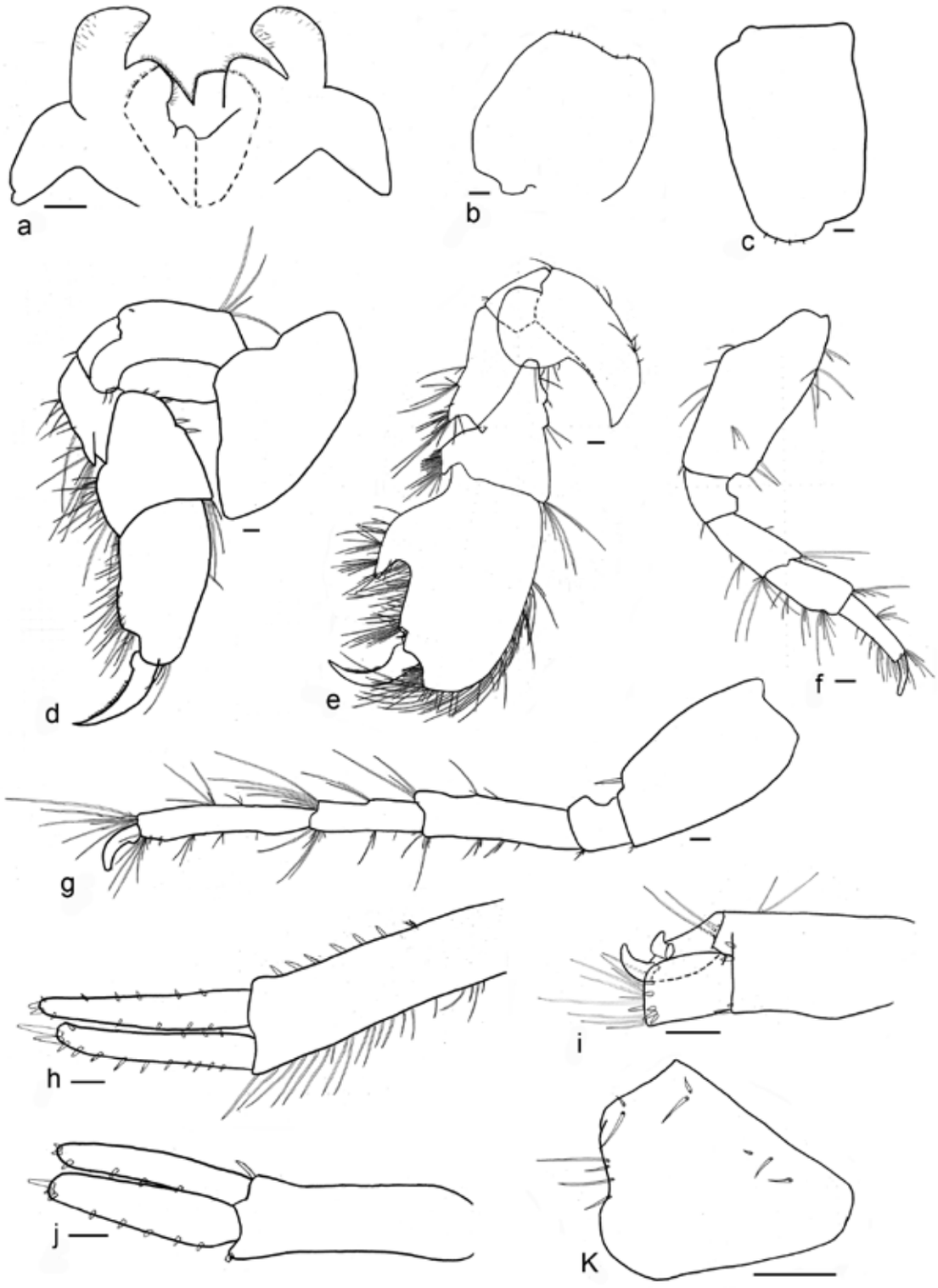

Fig. ZP-13. *Ampithoe ramondi,* Funaitees. Male: a – labium; b – coxa 2; c – coxa 4; d – gnathopod 1; e – gnathopod 2; f – pereopod 3; g – pereopod 7; h – uropod 1; i – uropod 3; j – uropod 2; k – telson. Scale lines – 0.1 mm.

Family Ampithoidae
Genus *Ampithoe*

Ampithoe sp. 1

Plates 25 and 26.
Occurrence: Auha Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, rocks, and sand.

Description. Male, 5.1 mm. A2 short and stout, setose; flagellum as long as peduncle with about 12 articles. Md palp articles in the ratio near 1:1:1, article 3 parallel-sided with 4 setae apically. Gn1, basis without developed anterodistal lobe; carpus concave posterodistally with setae posteriorly; propodus slightly longer than carpus, approximately parallel-sided, with a straight palm, dactylus longer than palm. Gn2, basis without anterodistal lobe with setae posteriorly; merus with setae and lobe posterodistally; carpus with setae and lobe posterodistally; propodus inflated proximally and tapering distally, palm strongly concave, with setae, but not spines or teeth; dactylus relatively short and stout. P3 and P4 moderately stout, carpus of moderate length. P5, basis-carpus short, massive; propodus fusiform with spines and setae posteriorly; dactylus short and stout. U1 peduncle as long as the inner ramus with interramal tooth about 1/4 the length of inner ramus bearing dorsal and distal spines and setae; outer ramus shorter than inner with dorsal and apical spines; inner ramus thinner than outer with spines dorsally and apically. U2 peduncle as long as the inner ramus, without interramal tooth bearing dorsal and distal spines; outer ramus shorter than inner with dorsal and apical spines; inner ramus not thinner than outer ramus with spines dorsally and apically. U3 peduncle longer than rami with distodorsal spines, distolateral setae, and dorsal setae, outer ramus with mediodorsal small spine and two strong curved spines distally, dorsal edge with small setae too; inner ramus with a group of setae and medium spine distally. T near triangular, each lateral apex with seta and a small spine.

Female, 5.5 mm. Gn2, basis with setae posteriorly, posterodistally; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus with a small lobe and with setae posteriorly, posterodistally, and anterodistally; propodus longer than carpus with setae anteriorly and posteriorly, palm defined by small spine and strong angle; dactylus strong with teeth on the inner side.

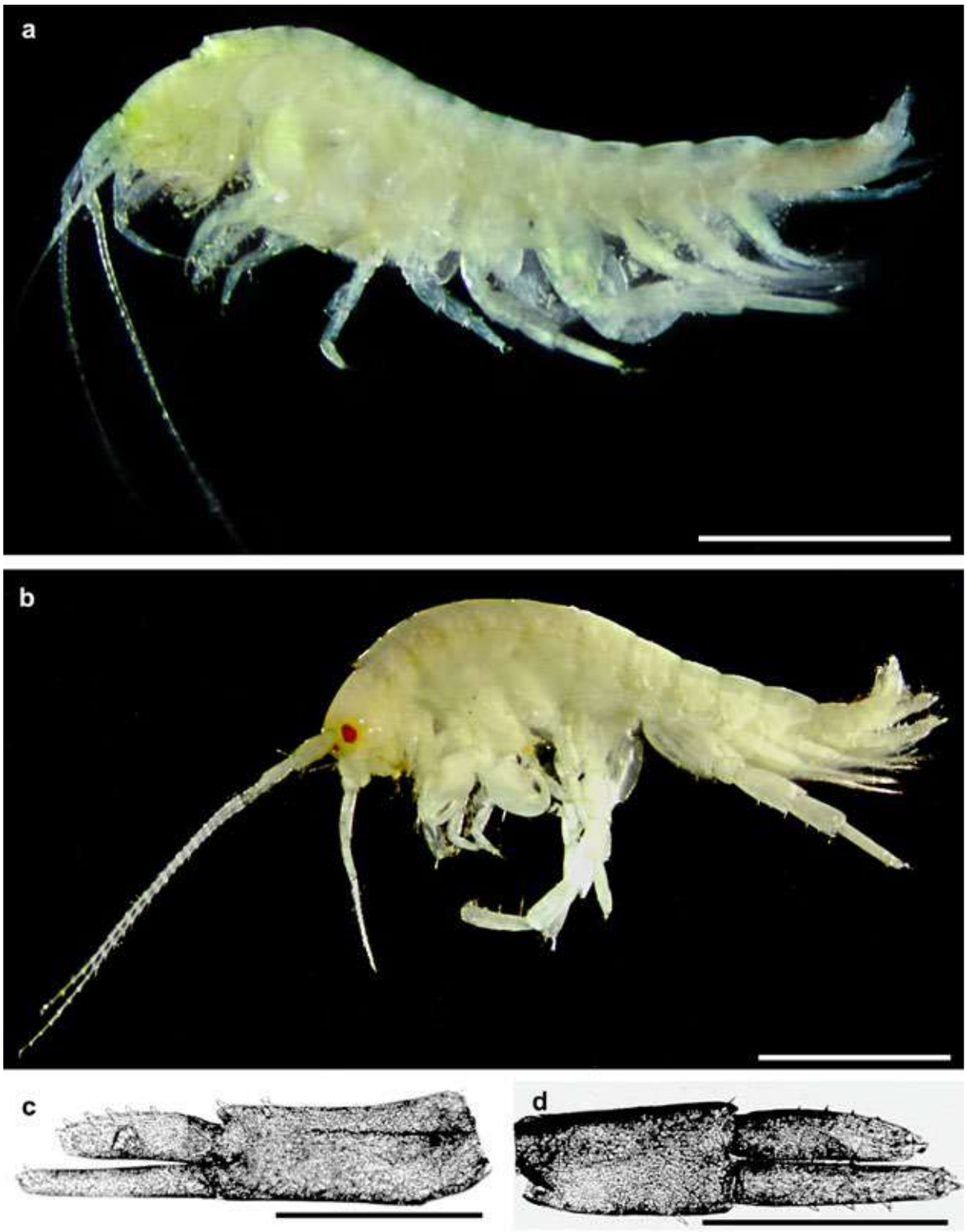

Plate 25. *Ampithoe* sp. 1, Auha Island: a – habitus of female; b – habitus of male; c – uropod 1; d – uropod 2. Scale lines: a and b – 2 mm; c and d – 0.5 mm.

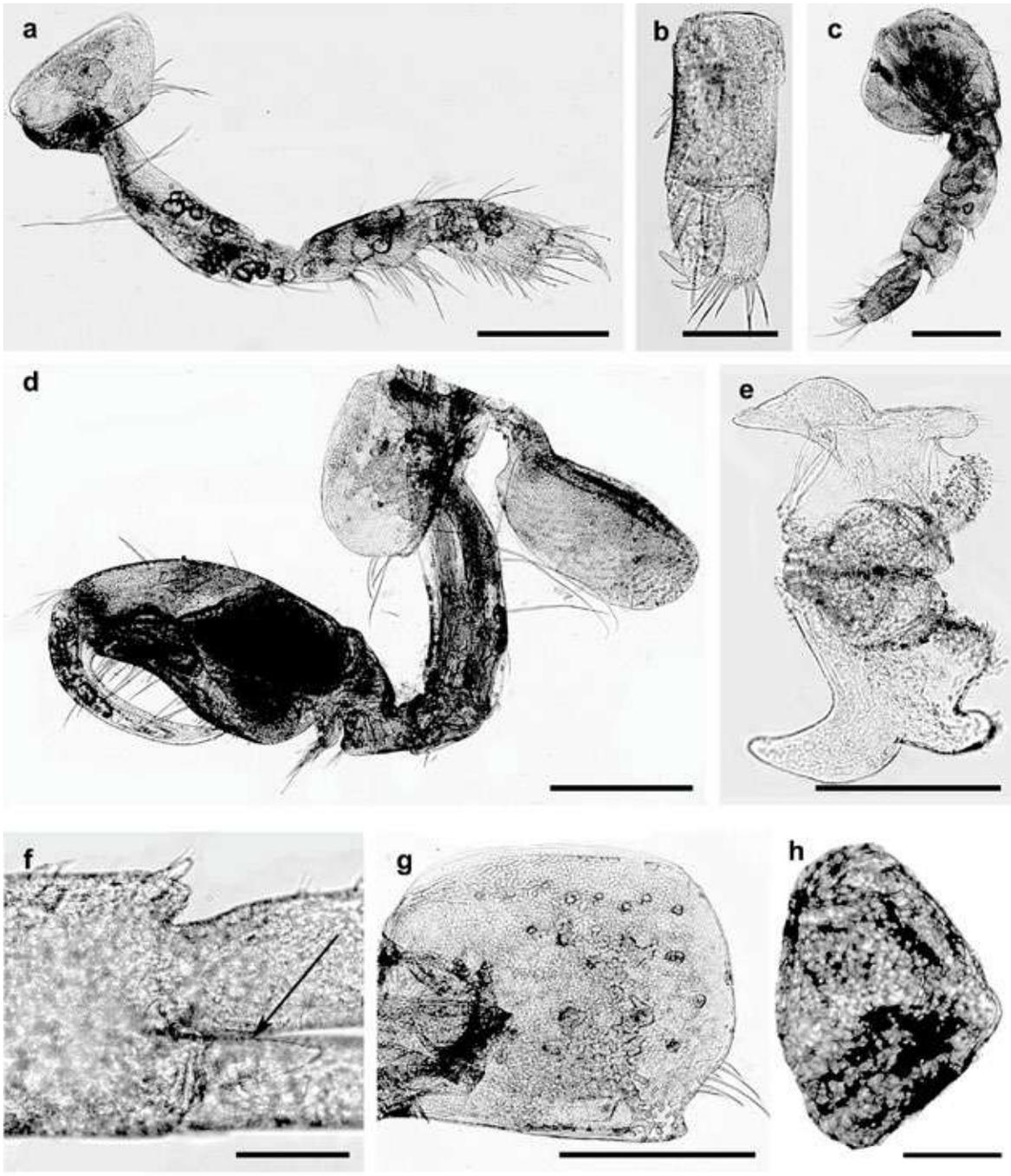

Plate 26. *Ampithoe* sp. 1, Auha Island. Male: a – gnathopod 1; b – uropod 3; c – pereopod 5; d – gnathopod 2; e – labium; f – uropod 1, spur (arrow); g – coxa 4; h – telson. Scale lines: a, c, d, and g – 0.5 mm; b and e – 0.2 mm; f – 0.1 mm; h – 0.05 mm.

Family Ampithoidae
Genus *Ampithoe*

Ampithoe* sp. 2 cf. *kava

Plates 27 and 28.

Occurrence: Auha Island area, Khiran area, Turtle Island area, Ras Ajuza (Kuwait Bay area), Al-Nuwaiseeb area, Failaka Island area, and Miskan Island area.

Intertidal and Subtidal Zones.

Habitats: rocks, macroalgae, sponges, ropes (as artificial habitat), and shells-sand mixture.

Description. Male, 4.0 mm. A1 longer than A2; flagellum longer than peduncle with 15-articles. A2 short and stout, setose; flagellum shorter than peduncle with 10-articles. Md palp articles in the ratio near 1:1.5:2, article 3 parallel-sided, with 2 setae medially, 2 setae subapically and 2 setae apically. Gn1, basis with small anterodistal lobe bearing 1 seta; carpus convex posteromedially with setae posteriorly; propodus slightly longer than carpus with setae posteriorly, palm not defined, dactylus about 60% the length of propodus, with small spines on the inner edge. Gn2, basis with lateral setae and with anterodistal lobe bearing 2 setae; merus with setae posterodistally; carpus with setae and small lobe posterodistally and setae anteriorly; propodus posterior margin produced into a short, truncated process with spine separated from a very oblique palm by a wide, round-bottomed excavation, anterior margin strongly setose; dactylus relatively short and stout and bearing small spines on the inner edge. P3 and P4 moderately stout, carpus of moderate length. U1 peduncle longer than inner lobe with rounded interramal process and bearing dorsal and distal spines and setae; outer lobe shorter than inner with dorsal and apical spines; inner lobe with spines dorsally and apically. U2 peduncle as long as the inner lobe without interramal tooth bearing distal spines; outer lobe shorter than inner with dorsal and apical spines; inner lobe not thinner than outer with spines dorsally and apically. U3 peduncle longer than rami with dorsodistal and dorsoventral spines, distolateral setae and dorsal setae, outer ramus with two strong curved spines distally, dorsal edge with serration; inner ramus with 3 setae and 3 spines distally. T near triangular with 2 setae dorsally, each lateral apex with a seta and a small spine.

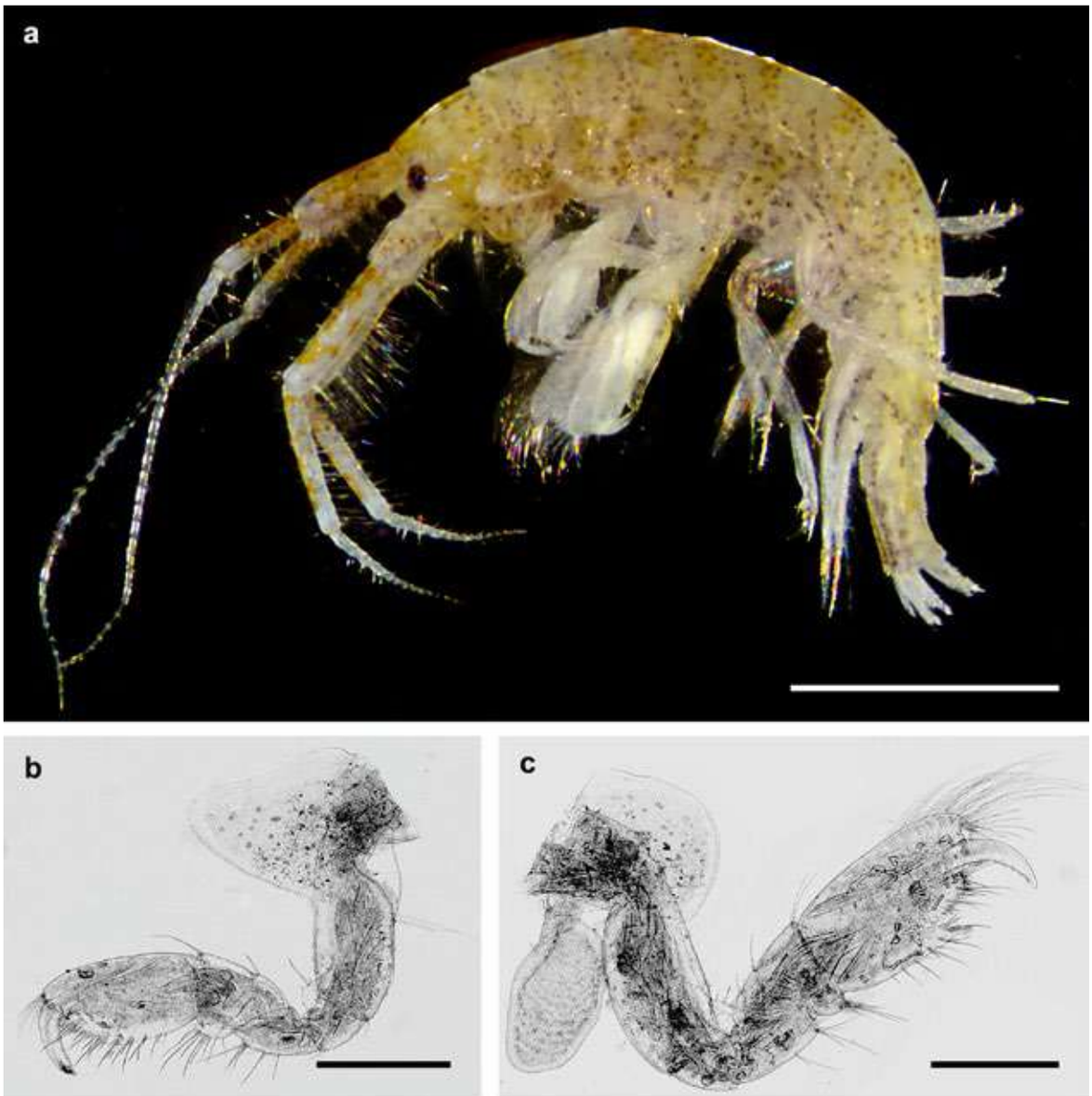

Plate 27. *Ampithoe* sp. 2 cf. *kava*, Auha Island. Male: a – habitus; b – gnathopod 1; c – gnathopod 2. Scale lines: a – 2 mm; b and c – 0.5 mm.

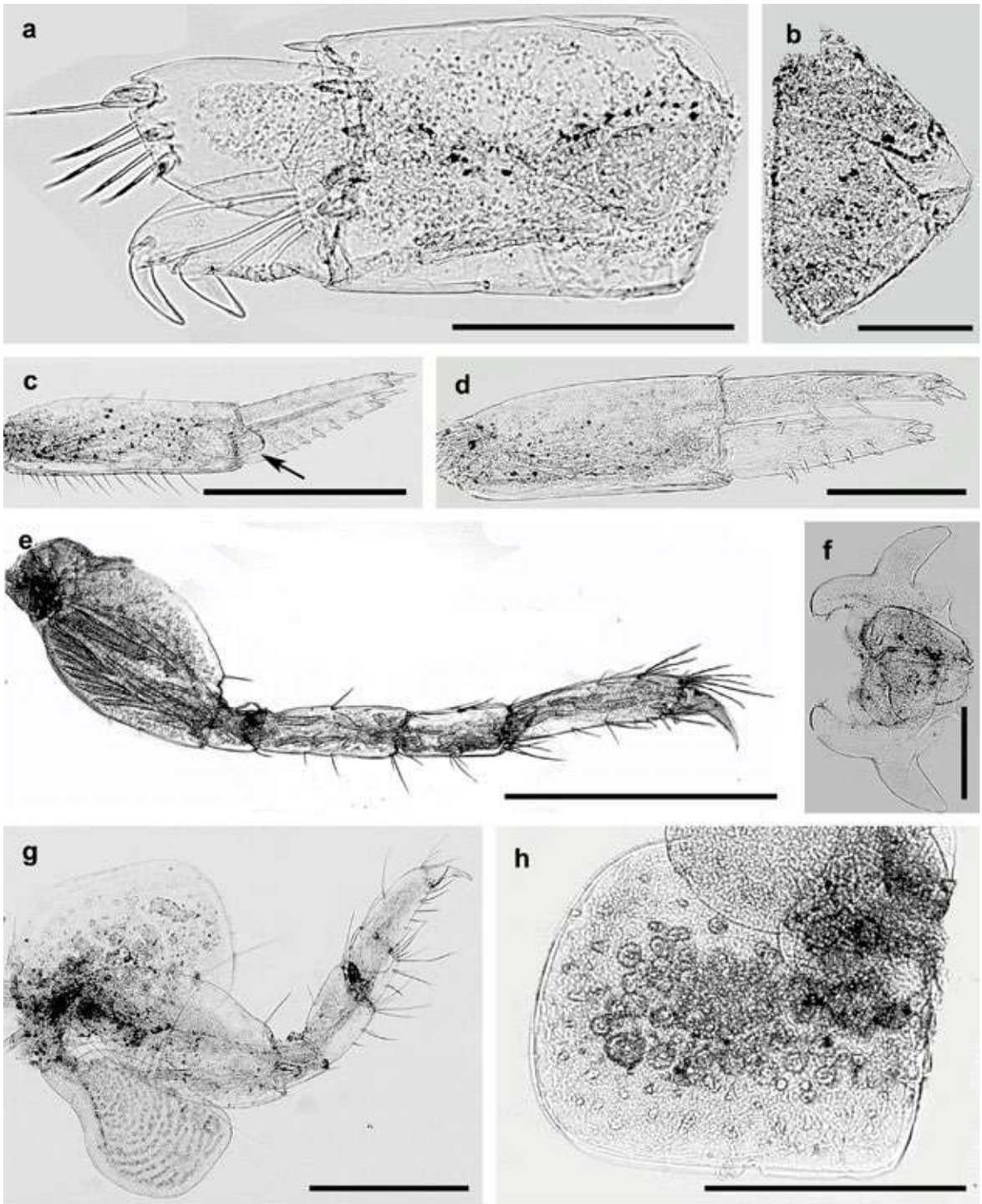

Plate 28. *Ampithoe* sp. 2 cf. *kava*, Auha Island. Male: a – uropod 3; b – telson; c – uropod 1, spur (arrow); d – uropod 2; e – pereopod 7; f – labium; g – pereopod 3; h – coxa 4. Scale lines: e – 1 mm; c, g, and h – 0.5 mm; a, d, and f – 0.2 mm; b – 0.1 mm.

Family Ampithoidae
Genus *Cymadusa*

Cymadusa setosa (Haswell, 1879)
Plates 29 to 32, and Figs. ZP-14 and ZP-15.
Occurrence: Funaitees area, Salmiya town beach area, East Doha area, Rescue Center Marina area, Al-Messilah area, Masfat Al-Ahmadi area, Failaka Island area, Al-Salam beach (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, Auha Island area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, shells, pebbles, cobble, rocks, ropes (as artificial habitat), sea grass, sand, and sponges.

Description (after Peart, 2004; modified). Male, 14 mm. A1 subequal to A2; peduncular article 1 subequal to article 2 longer than article 3, article 3 shorter than article 1; acc.fl. with two articles. A2 dense, plumose setae along the margins of the peduncle; peduncular article 4 longer than article 5. Lower lip outer plate outer lobe longer than inner lobe. Md with **8** robust setae in setal row; palp article 1 shorter than article 2, article 2 subequal to article 3, article 3 longer than article 1, setae on the posterior margin and apex. Mx1 palp apical margin with robust setae; inner plate with **7** slender setae. Mx2 outer lobe broader than inner lobe. Mxp strongly setose. Gn1 more slender but longer than Gn2; poorly setose; Cox1 produced forward, anterior margin straight, ventral and part of anterior margin with long plumose setae fringe; basis longer than Cox1, without long plumose setal fringe, distal lobe large and subacute; merus produced to form a long, acute anteroventral lobe; carpus longer than merus, longer than propodus, margins parallel at the distal end, carpal lobe rounded to straight with distal subacute corner; propodus ovoid; palm entire, straight, posterodistal tooth absent, midpalmar tooth absent; dactylus longer than palm. Gn2 margins with long, plumose setae; Cox2 with long, plumose setal fringe on the ventral margin only; basis longer than Cox2, with long plumose setae, distal lobe absent; merus produced to form a small, rounded anteroventral lobe; carpus longer than merus, shorter than propodus; propodus subquadrate; palm entire, straight, posterodistal tooth subacute and small, midpalmar tooth present and subquadrate; dactylus shorter than palm, tapering evenly. P3 and P4 similar in shape; Cox3 and Cox4 with a dense, simple setal fringe. P5. Cox5 with setal fringe on the ventral margin and without medial setae. P6 basis with medial setae. P7 basis subrectangular. P6 and P7 much longer than P3 – P5; distal articles with setae. Ep3 with a small subacute tooth. U1 peduncle with 11 robust setae; outer ramus shorter than inner ramus. U3 with seven distal peduncular robust setae; outer ramus shorter than inner ramus, hooks both strongly recurved, setal fringe present on the lateral margin; inner ramus with both apical robust and slender setae. T truncated, apical slender setae in oblique rows, also with lateral setae, apical cusps present.
Female, 9 mm. Similar with male. Gn2. Cox2 with long, plumose setal fringe on the ventral margin only; basis longer than Cox2, with long setae posteriorly, distal lobe absent; merus produced to form a small, rounded anteroventral lobe; carpus longer than merus, shorter than propodus; propodus rectangular; palm entire, straight, posterodistal tooth subacute and small, midpalmar tooth absent; dactylus longer than palm.

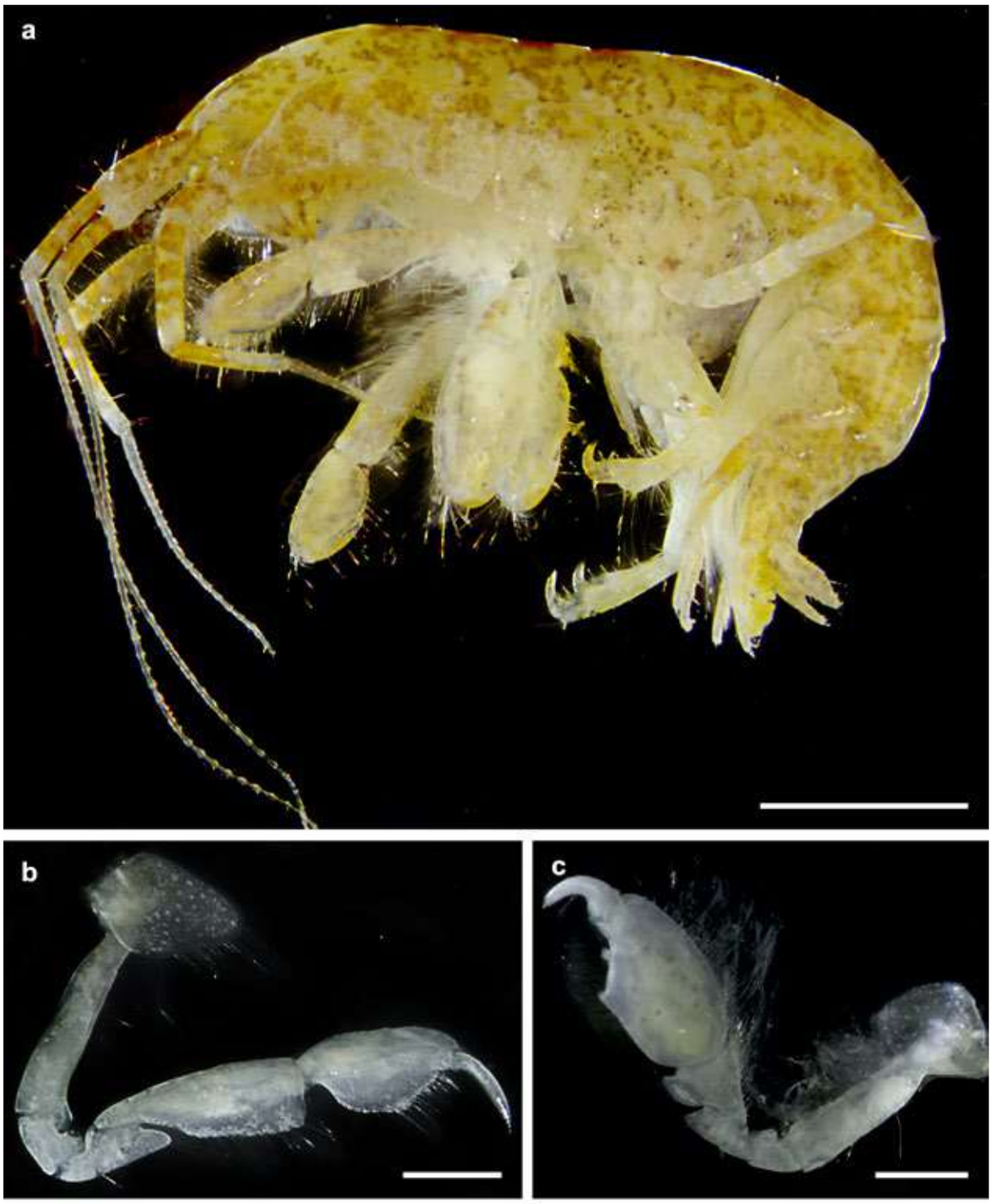

Plate 29. *Cymadusa setosa*, East Doha. Male: a – habitus; b – gnathopod 1; c – gnathopod 2. Scale lines: a – 2 mm; b and c – 1 mm.

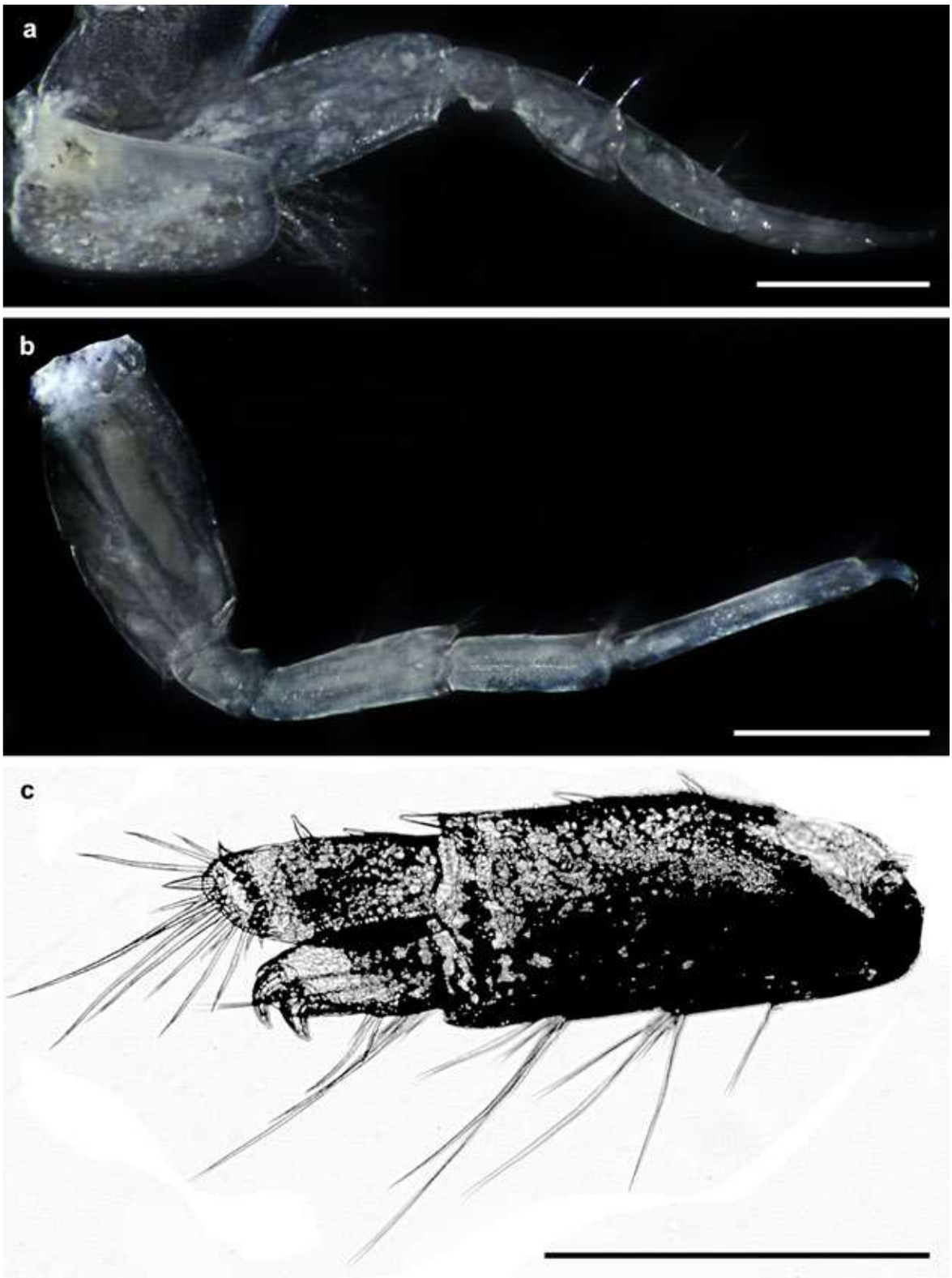

Plate 30. *Cymadusa setosa*, East Doha. Male: a – pereopod 3; b – pereopod 7; c – uropod 3. Scale lines: a and b – 1 mm; c – 0.5 mm.

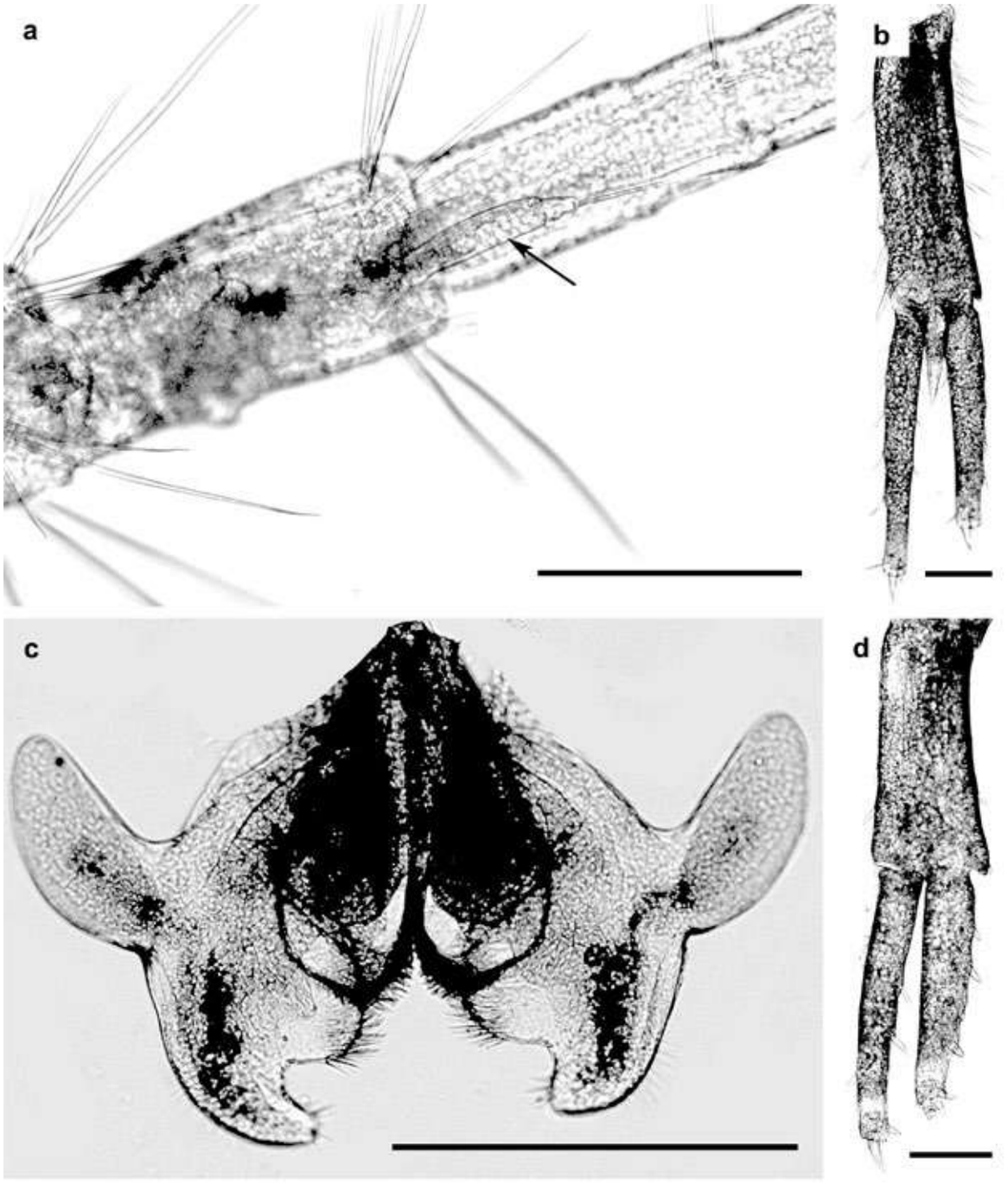

Plate 31. *Cymadusa setosa*, East Doha. Male: a – antenna 1, accessory flagellum (arrow); b – uropod 1; c – labium; d – uropod 2. Scale lines: b, c, and d – 0.5 mm; a – 0.2 mm.

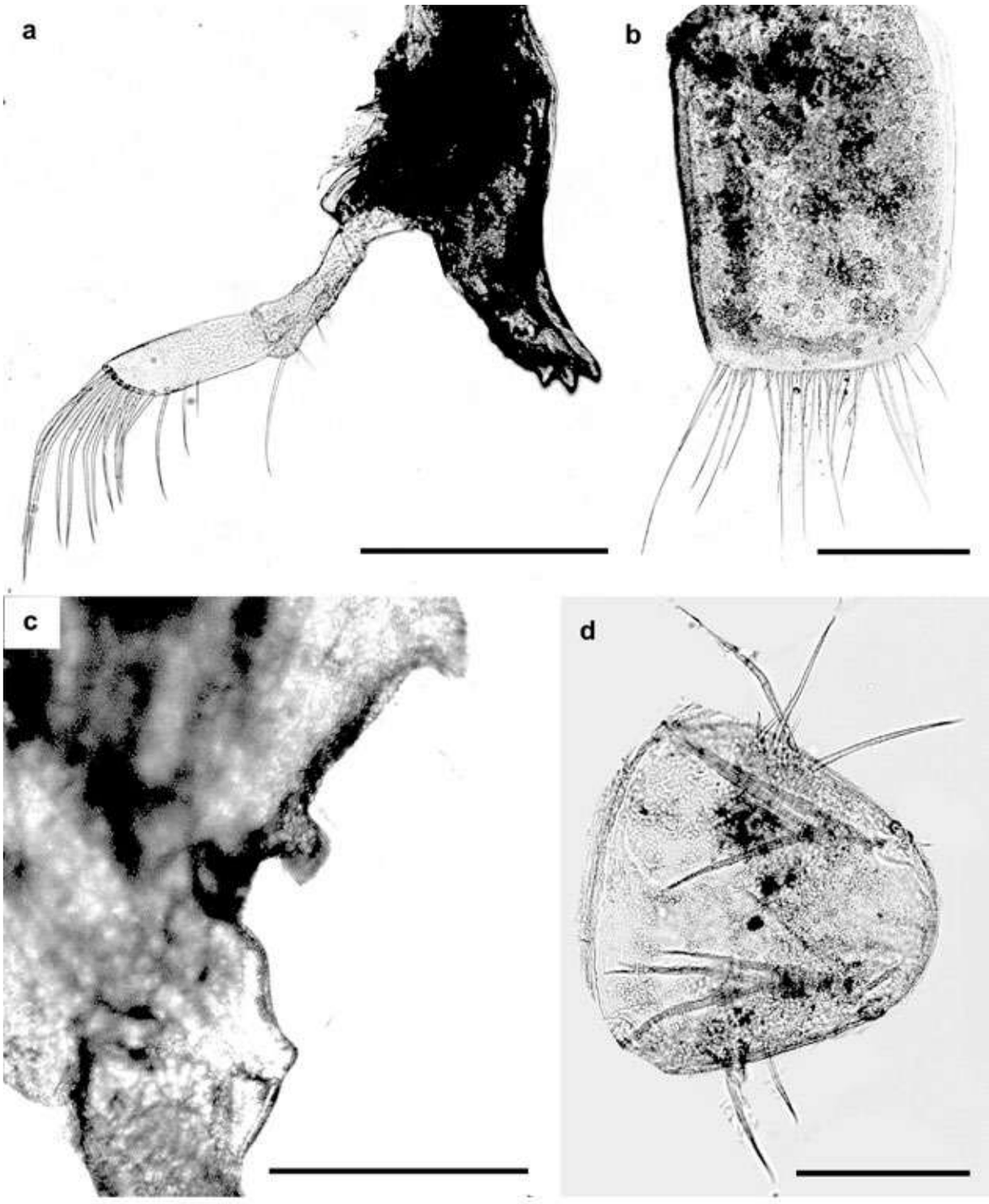

Plate 32. *Cymadusa setosa*, East Doha. Male: a – mandible; b – coxa 4; c – gnathopod 2, palm; d – telson. Scale lines: a, b, and c – 0.5 mm; d – 0.2 mm.

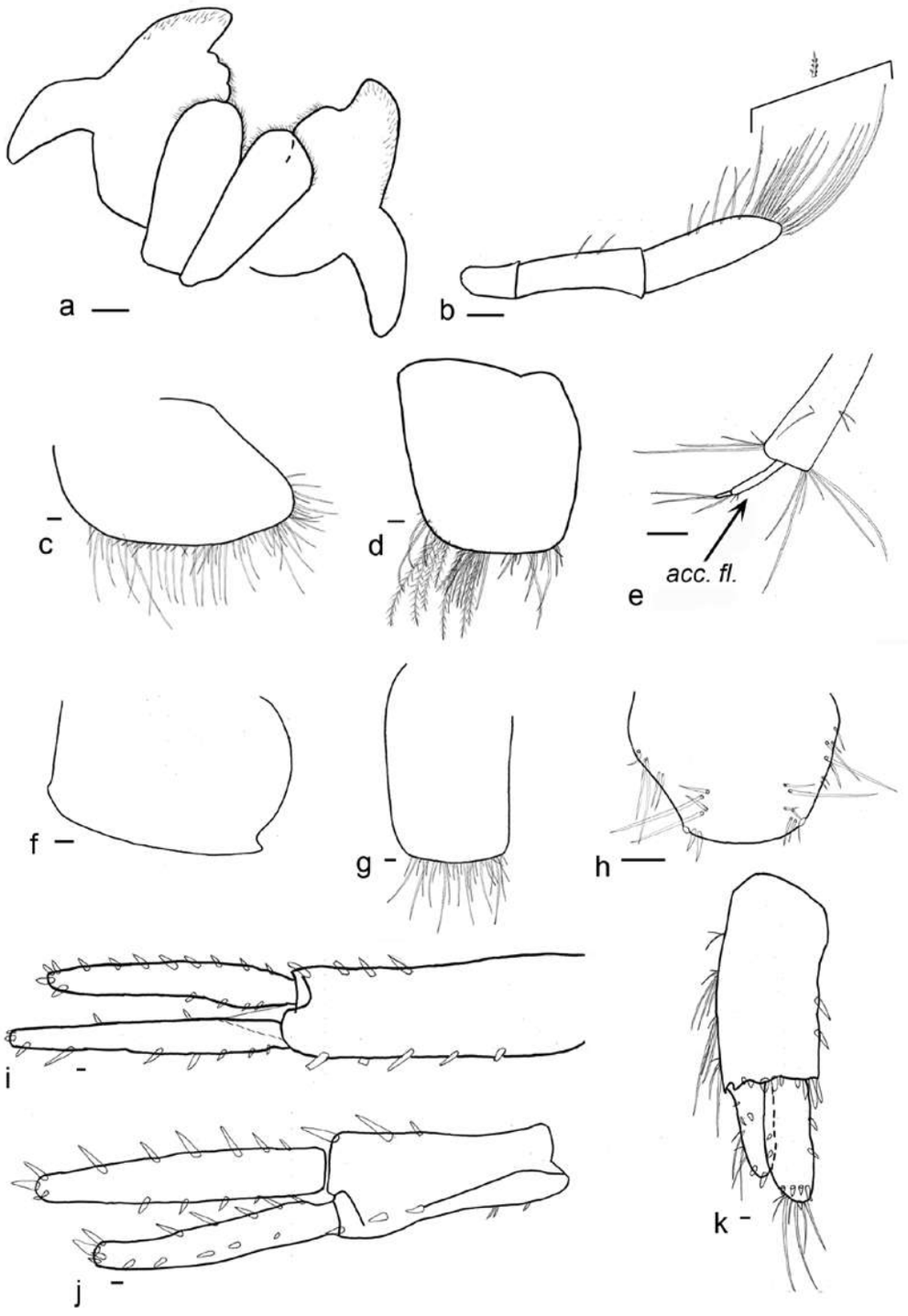

Fig. ZP-14. *Cymadusa setosa*. East Doha. Male: a – labium; b – palp of mandible; c – coxa 1; d – coxa 2; e – peduncle of antenna 1, segment 3 and accessory flagellum; f – epimer 3; g – coxa 4; h – telson; i – uropod 1; j – uropod 2; k – uropod 3. Scale lines – 0.1 mm. Designation: acc. fl. – accessory flagellum.

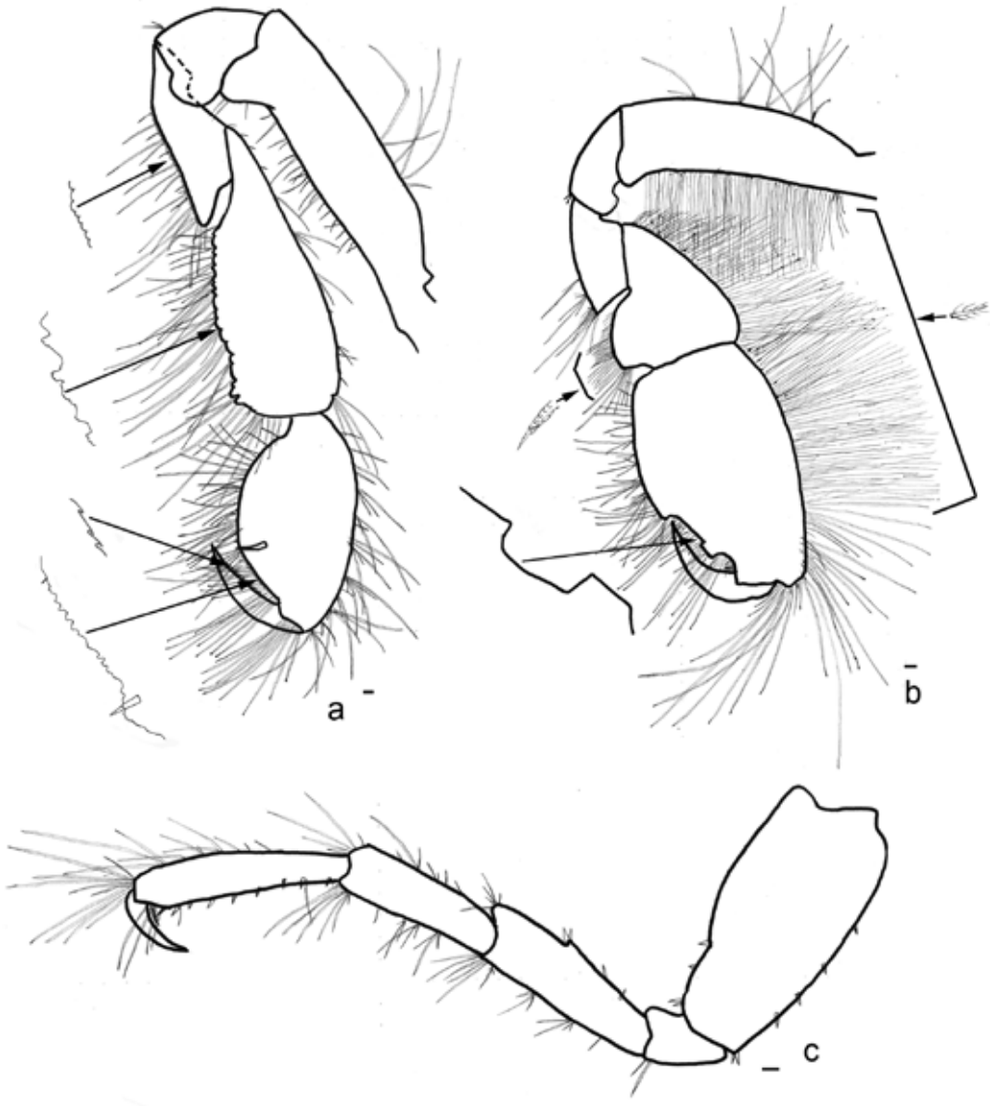

Fig. ZP-15. *Cymadusa setosa,* East Doha. Male: a – gnathopod 1; b – gnathopod 2; c – pereopod 7. Scale lines – 0.1 mm.

Family Ampithoidae
Genus *Biancolina*

***Biancolina* sp.**
Plates 33 and 34.
Occurrence: Al-Khiran area, Auha Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: *Sargassum* spp. (macroalgae).

Description. Male, 2.1 mm. Head eyes round. Ep1 – Ep3 similar, rounded. Us3 incompletely fused with telson. A1 and A2, issued from concave front face of head. A1; peduncular article 2 slightly less than twice as the length article 1, slightly curved, article 3 longer than 1; flagellum longer than peduncle, 12-articulate, 1 aesthetasc on each of flagellar articles 1-4. A2 about 80% of the length of A1; article 4 and 5 equal; flagellum short, about as the length of peduncular article 5, 3-articulate, articles successively shorter, terminal article minute. Md with 2 – 3 thin accessory setae; right incisor with 3 distal teeth, left incisor with 3 gross teeth distally; right lacinia mobilis small with 5 minute teeth; left lacinia bigger with 5 teeth. L inner lobes almost fused together, apically incised. Mx1; inner plate small, with a short apical seta; outer plate with 8 spines. Mx2; outer plate more than twice as the breadth of the inner plate. Mxp; inner plate reaching midway along palp article 2, with 2 subapical setae and 1 apical seta; outer plate broader than inner, not expanded, medial margin lined with rows of scales, apex with 6 bare setae; palp article 1 short; article 2 triangular, mediodistal expansion setose; article 3 half as broad as the distal margin of article 2, subquadrate, distally setose; article 4 small with setae. Cox1 weakly tapering, distal margin slightly concave, with 2 widely spaced setules; Cox2 intermediate in size and shape between Cox1 and Cox3 + Cox4; Cox3 and Cox4 equal, expanded anteriorly; Cox5 – Cox7 anterolobate, anterior lobe successively shallower from Cox5 to Cox7. Gn1; carpus triangular, scarcely lobate posteriorly, with two long setae; propodus weakly bent posteriorly, weakly tapering, posterior margin bordered with small scales, constricted at distal one third, medial face with a few setae; palm short, punctuated, bordered with 3 lateral setae; dactylus weakly striated. Gn2 similar to Gn1. P3 and P4; basipodite with small spines in the middle anterior margin; merus anteriorly lobate not reaching the distal margin of carpus, apex anterior lobe with 2 setae. P5; basipodite as long as wide; merus tumid; propodus parachelate, weakly broadened distally, softly curved anteriorly, palm with defining spine; dactylus with sinuous anterior margin. P6 and P7: basipodite slightly longer than wide. U1; peduncle lateral margin with long plumose setae; inner ramus about 50% the length of peduncle, lateral margins with a row little scales with apical seta; outer ramus slightly longer than inner with 3 apical setae. U2; peduncle not expanded with a long plumose seta on the lateral margins; inner ramus about 70% as long as peduncle, with 1 spine and 1 seta apically; outer ramus slightly longer than inner, apex with spine. U3; peduncle broad with 1 seta distally; inner ramus with 2 apical spines; outer ramus as long as the inner, slightly broader with 2 apical spines. T wider than the length, moderately notched apically.
Female is similar to male but A1 is shorter, and flagellum is 5-articulate.

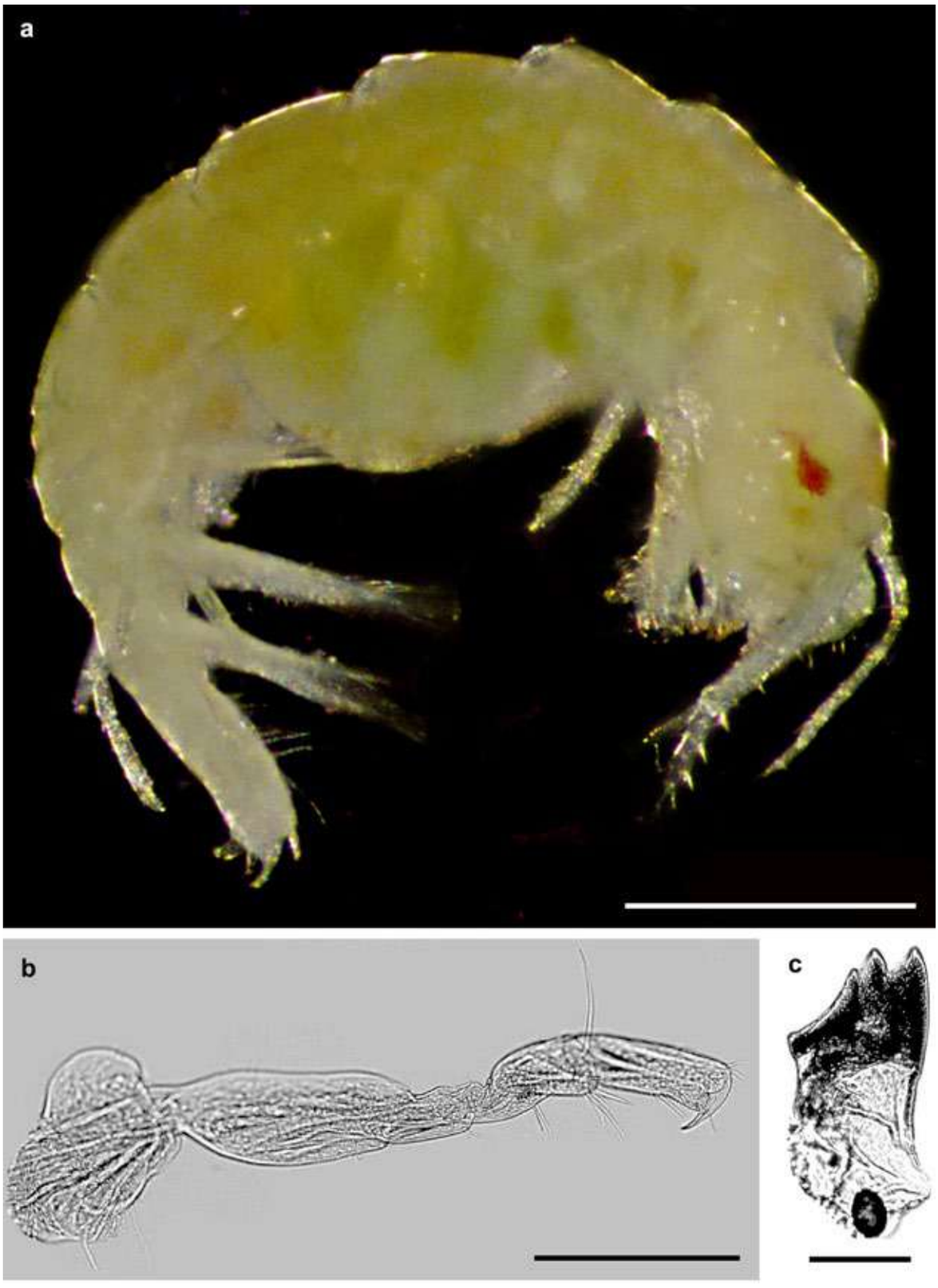

Plate 33. *Biancolina* sp. Al-Khiran. Female: a – habitus; b – gnathopod 1; c – mandible. Scale lines: a – 0.5 mm; b – 0.2 mm; c – 0.05 mm.

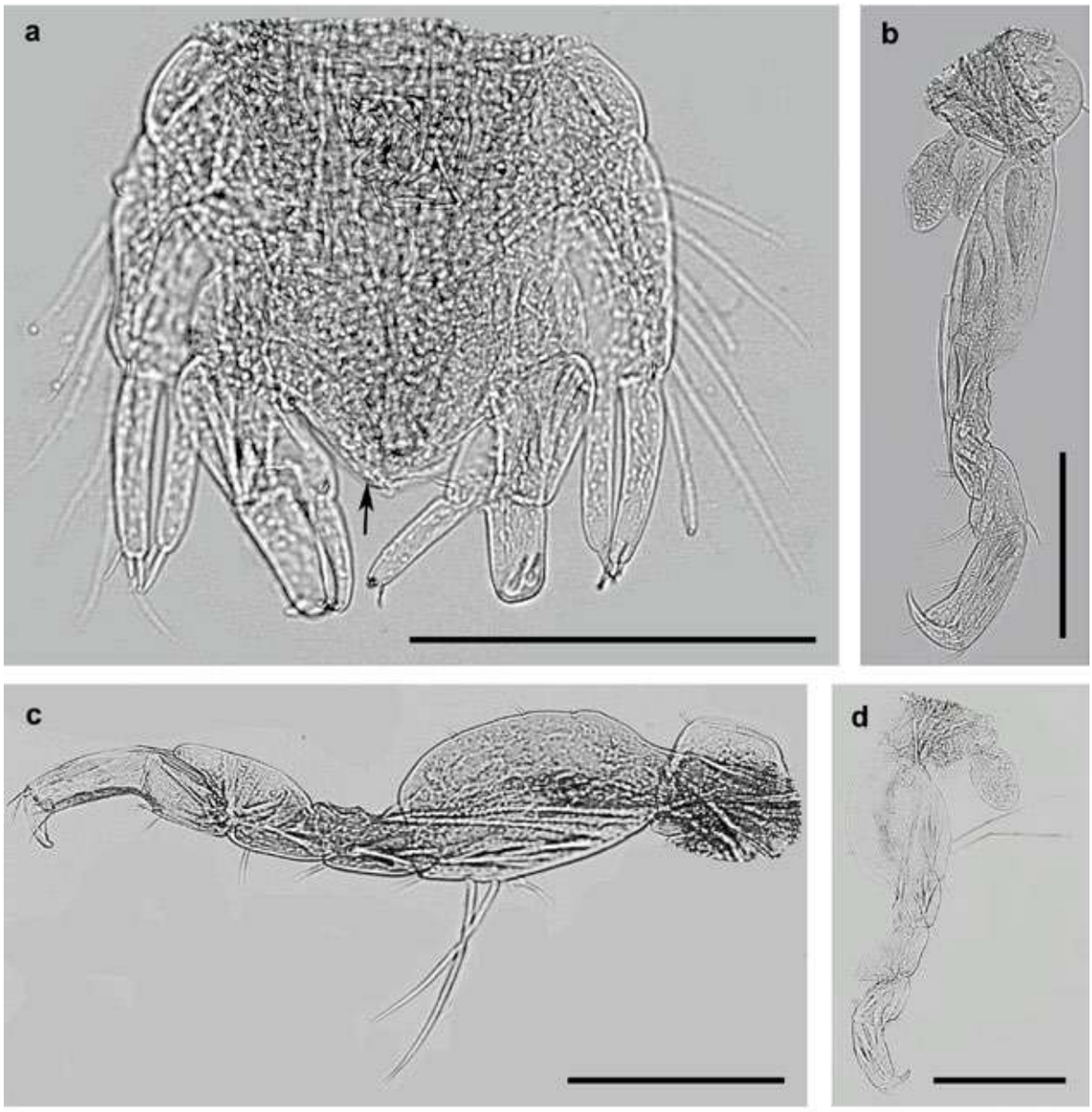

Plate 34. *Biancolina* sp. Al-Khiran. Female: a – urosome, telson (arrow), uropod 1-3; b – gnathopod 2; c – pereopod 3; d – pereopod 4. Scale lines: a, b, c, and d – 0.2 mm.

Family Aoridae
Genus *Bemlos*

Bemlos acuticoxa Myers & Nithyanandan, 2016
Plates 35 and 36, and Figs. ZP-16 and ZP-17.
Occurrence: Funaitees area, Al-Judailiat (Khor Al-Subiyah area), Al-Nuwaiseeb area, Ras Ajuza (Kuwait Bay area), Failaka Island, Masfat Al-Ahmadi area, Ras Al-Zour area, Al-Shumaimah (Khor Al-Subiyah area), Umm Al-Maradim Island area, Qaruh Island area, Al-Messilah beach area, Al-Khiran area, Al-Salam beach (Kuwait Bay area), Auha Island area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: shells, sand, macroalgae, rocks, dead corals, hydroid-bryozoan associations, pebbles, sponges, and ropes (as artificial habitat).

Description (after Myers & Nithyanandan, 2016; modified). Male, 6.0 mm. Head lateral lobes moderately produced, truncate. Eye round. Md palp article 3 longer than 2, posterior margin almost straight with comb-setae. Mx1 inner plate with a single, long, pectinate seta. L with acute mandibular processes. A1 longer than A2; peduncular article 2 longer than 1; primary flagellum longer than peduncle with 23 articles; acc.fl. long, with 6 articles. A2 peduncular articles 4 and 5 subequal in length. Pereon. Segments 2–4 with strong ventral spines. Gn1 much larger than Gn2; Cox1 subrectangular, strongly produced anterodistally, subacute; basis about four times as long as broad; carpus reduced, cup-shaped; propodus elongated rectangular, posterodistal angle with strong acute tooth separated from short rounded palm by narrow sinus; dactylus greatly overlapping palm. Gn2. Cox2 subround; basis elongated, anterior margin weakly concave; carpus a little longer than propodus. P3 – P7 of normal *Bemlos* form. Pleon. Ep2 and Ep3 with small posterodistal spine. U1 peduncle subequal with rami, with long, curved, distoventral spine; inner ramus scarcely longer than outer. U2 peduncle shorter than rami, with strong distoventral spine about two third the length of peduncle; inner ramus longer than outer. U3 rami much longer than peduncle, outer ramus longer than inner. T with each dorsolateral crest bearing a pair of long setae.

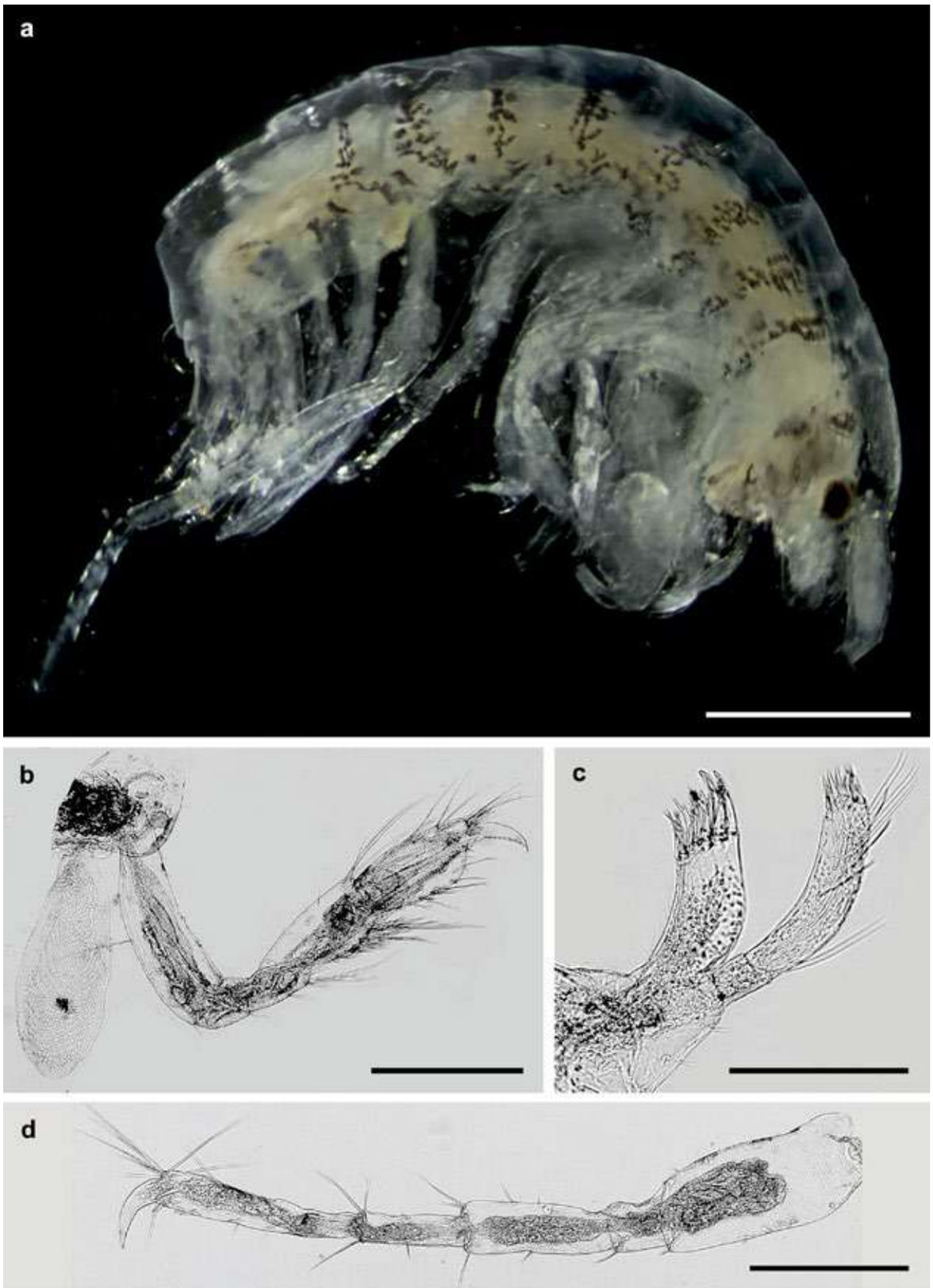

Plate 35. *Bemlos acuticoxa*, Funaitees. Male: a – habitus; b – gnathopod 2; c – maxilla 1; d – pereopod 7. Scale lines: a – 1 mm; b and d – 0.5 mm; c – 0.2 mm.

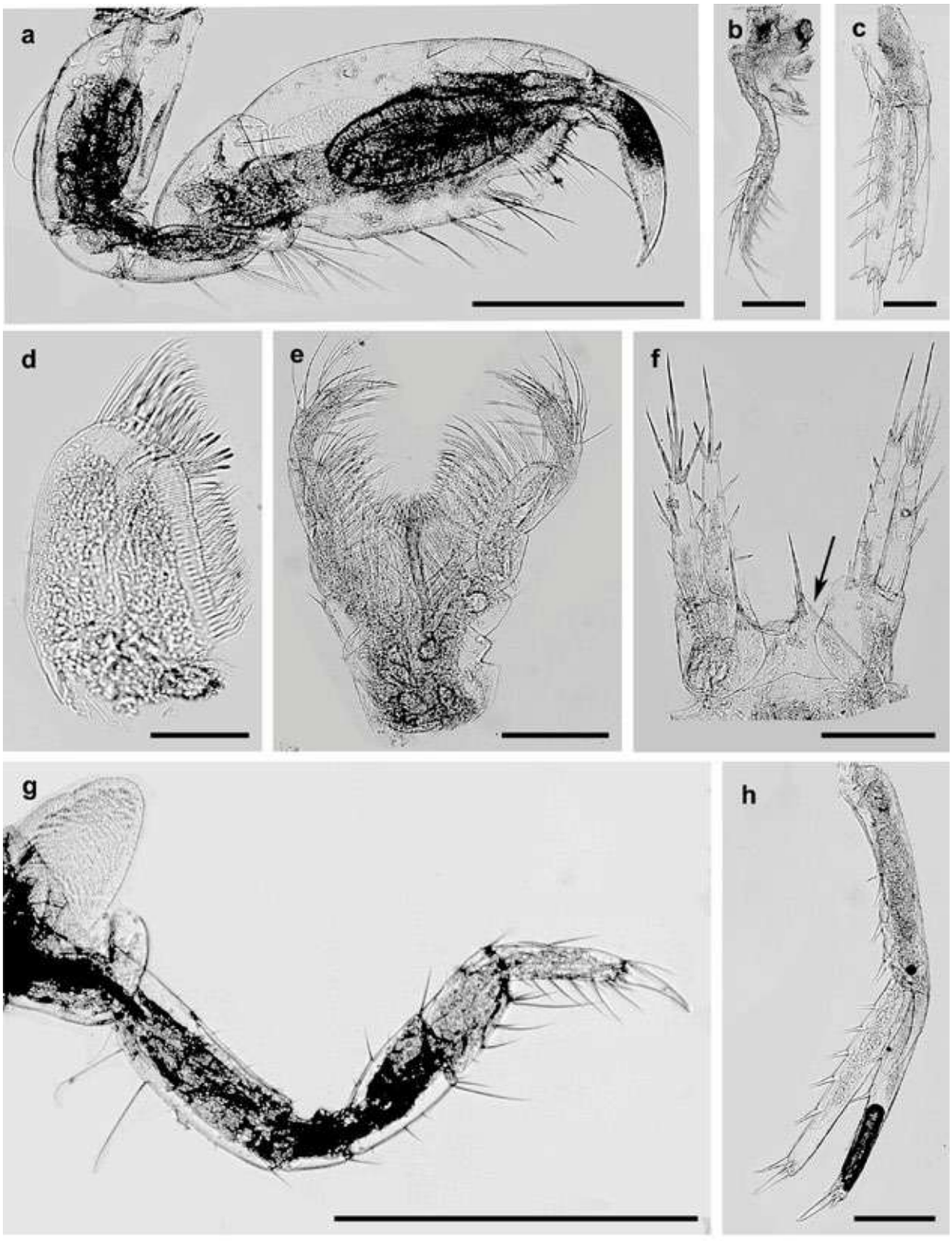

Plate 36. *Bemlos acuticoxa*, Funaitees. Male: a – gnathopod 1; b – mandible; c – uropod 2; d – maxilla 2; e – maxilliped; f – uropod 3, telson (arrow); g – pereopod 3; h – uropod 1. Scale lines: g – 1 mm; a – 0.5 mm; b, e, and h – 0.2 mm; c and d – 0.1 mm.

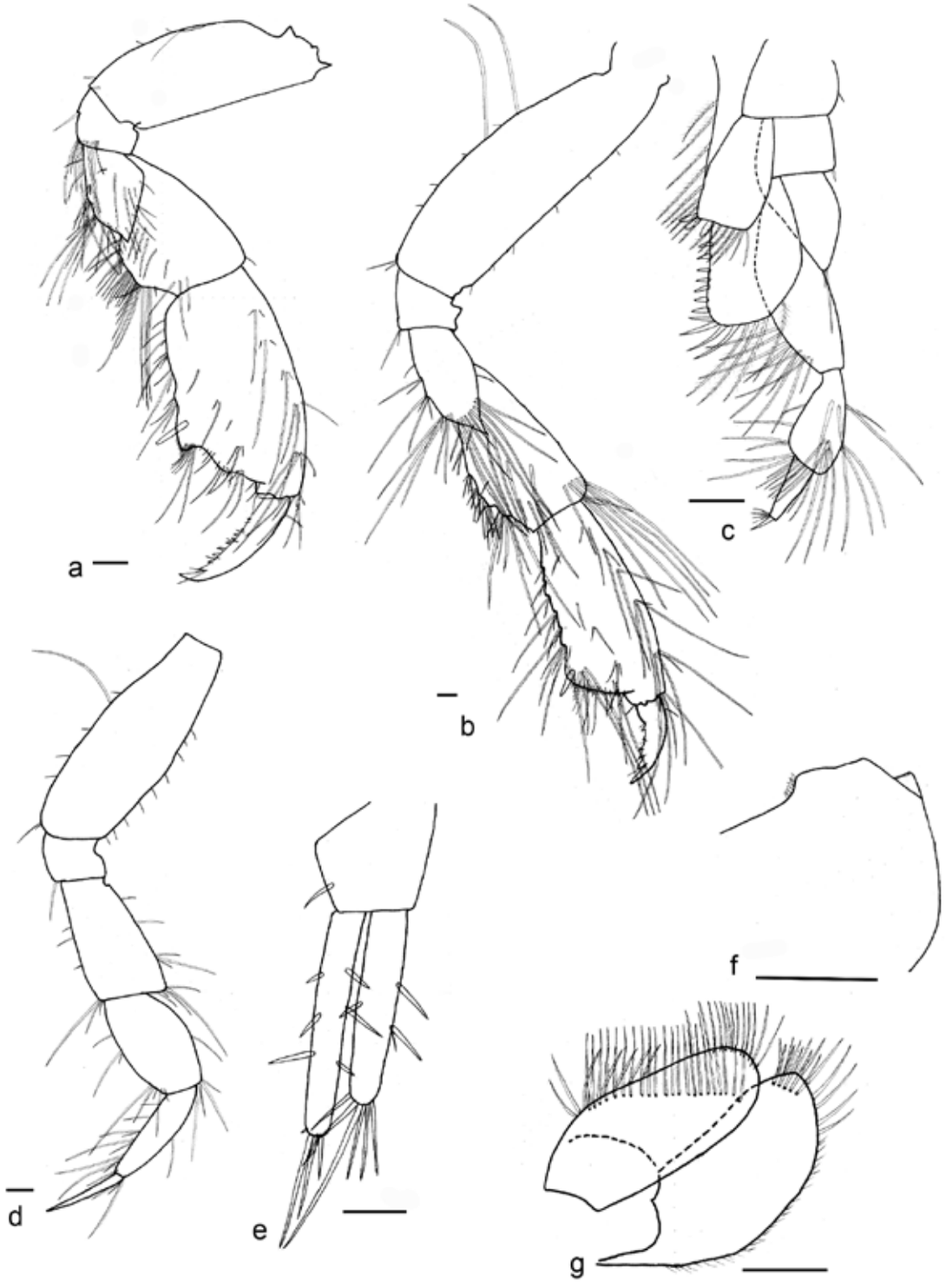

Fig. ZP-16. *Bemlos acuticoxa,* Funaitees. Female: a – gnathopod 1; b – gnathopod 2; c – maxilliped; d – pereopod 3; e – uropod 3; f – mandible; g – maxilla 2. Scale lines – 0.1 mm.

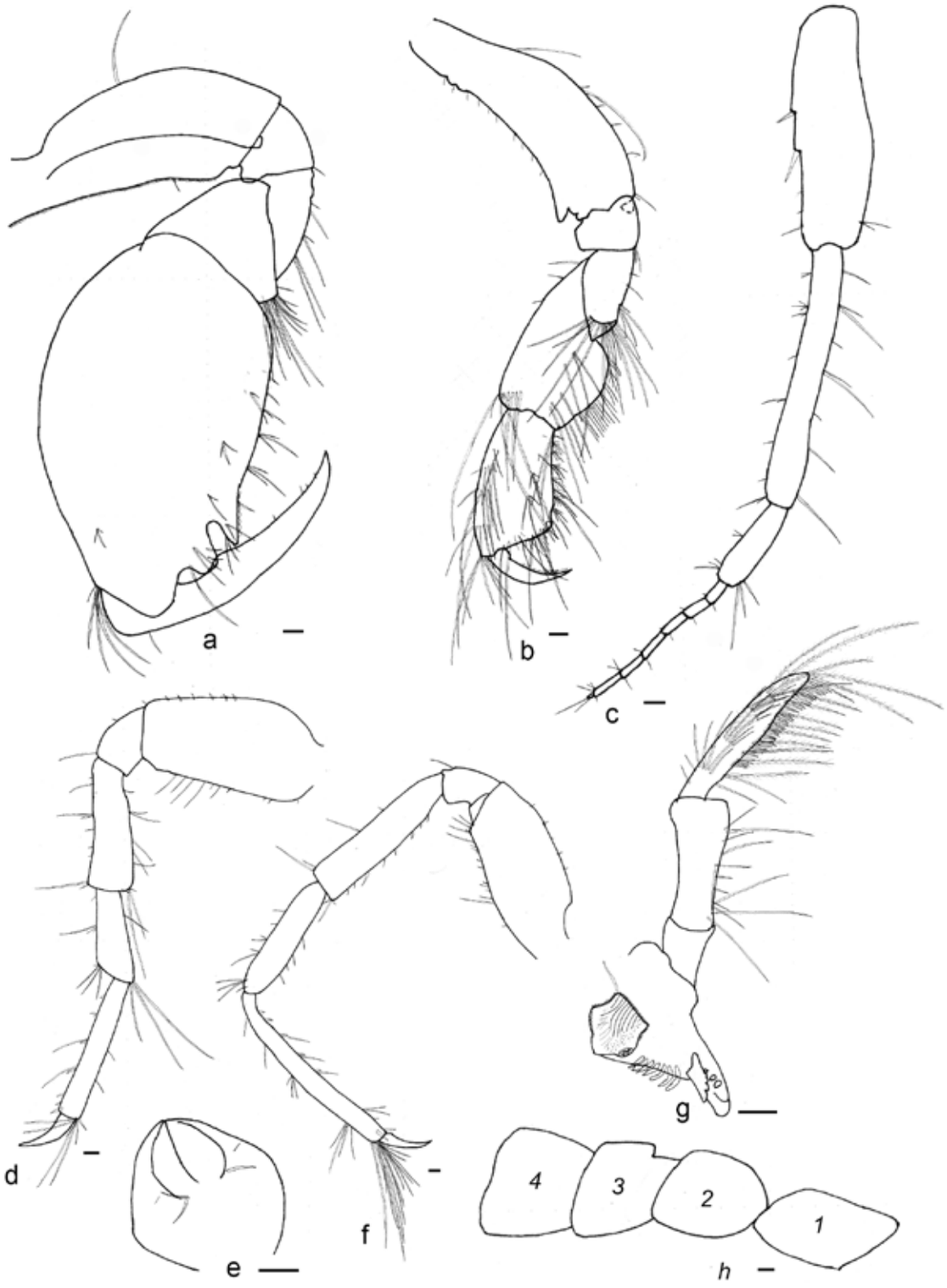

Fig. ZP-17. *Bemlos acuticoxa,* Funaitees. Male: a – gnathopod 1; b – gnathopod 2; c – antenna 1; d – pereopod 6; e – telson; f – pereopod 7; g – mandible; h – coxa 1 – 4. Scale lines – 0.1 mm. Designation: 1, 2, 3, and 4 – coxae 1, 2, 3, and 4.

Family Aoridae
Genus Globosolembos

Globosolembos indicus (Ledoyer, 1967).
Plates 37 – 40 and Fig. ZP-18.
Occurrence: Funaitees area, Salmiya area, Qaruh Island area, Kuwait Bay area (subtidal), Al-Bida'a area, Ras Ajuza (Kuwait Bay area), Failaka Island area, Umm Al-Maradim Island area, Kubbar Island area, Miskan Island area, and Auha Island area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, coral rubble, rocks, sponges, and macroalgae.

Description (after A. Myers, 1985; modified). Male, 5.1 mm. Body with very few, irregular brownish. Head with lateroventral corner strongly produced, very acute, eye subround. A1 missing. A2 peduncular articles in the ratio 2:5:5, primary flagellum as long as peduncular article 5 with 5 articles. Lbr ventral margin rounded. L outer plate with about **3** stout setae on the distal margin, mandibular, projections strongly produced, acute. Md palp article ratio 1:2:3, article 3 slender, distinctly falcate setiferous over 85% on the posterior margin. Mx1 inner plate with a single long, terminal pectinate seta, outer plate with 10 terminal spines. Mx2 normal. Mxp with long setae on the bases of the inner and outer plates, outer plate with setae extending over one half the length of the anterior margin, palp with dactylus equal to about one half the length of propodus. Gn1 coxa shallow, subrectangular, bases enlarged, anterior margin straight, excavate in outer face, carpus short, subtriangular, propodus elongated almost twice as long as broad, inner face of anterior margin strongly setose, palm crenulate and weakly convex over the anterior half with long, shallow excavation on the posterior half, the palmar defining spine medially placed between the terminal point of the convex portion and the point of insertion into carpus; dactylus stout, not reaching defining spine when in closed position, posterior margin strongly toothed. Gn2 coxa **subrectangular**, basis anterior margin weakly concave, carpus and propodus subequal, both articles densely setose on the anterior margin, palm oblique, dactylus fitting palm, posterior margin strongly toothed. P3 and P4 similar, dactylus less than half the length of propodus. P5 – P7 propodus with a strong palmar spine opposable to dactylus posterior margin; P7**: long fine setae only posterior margin of basis**. Ep1 – Ep3 rounded, each with a small posterodistal seta. U1 peduncle with stout distal, spine-like process about **half** the length of peduncle, inner ramus slightly longer than outer and **equal** to peduncle. U2 peduncle with stout, distal spine-like process about **80% of the length** of peduncle, inner ramus slightly longer than outer and longer than peduncle. U3 outer ramus shorter than inner, lacking a second article. Inner ramus longer than peduncle. T as breadth is similar to length, each dorsolateral crest bearing a subdistal seta.
Female, 6.3 mm. Gn1 carpus about 60% of the length of propodus, palm oblique, evenly convex, defined by a stout spine, dactylus elongated, strongly toothed on the posterior margin fitting palm. Gn2. Cox2 with several long setae on the posterior proximal margin, basis anterior margin weakly convex, propodus a little longer than carpus, anterior margins of both carpus and propodus strongly setose, palm oblique, dactylus fitting palm, posterior margin strongly toothed.
Taxonomic characters for distinguishing *Globosolembos indicus* of Kuwait from *Globosolembos indicus* by Myers, 1983 (as 1985), are expressed in **bold** text.

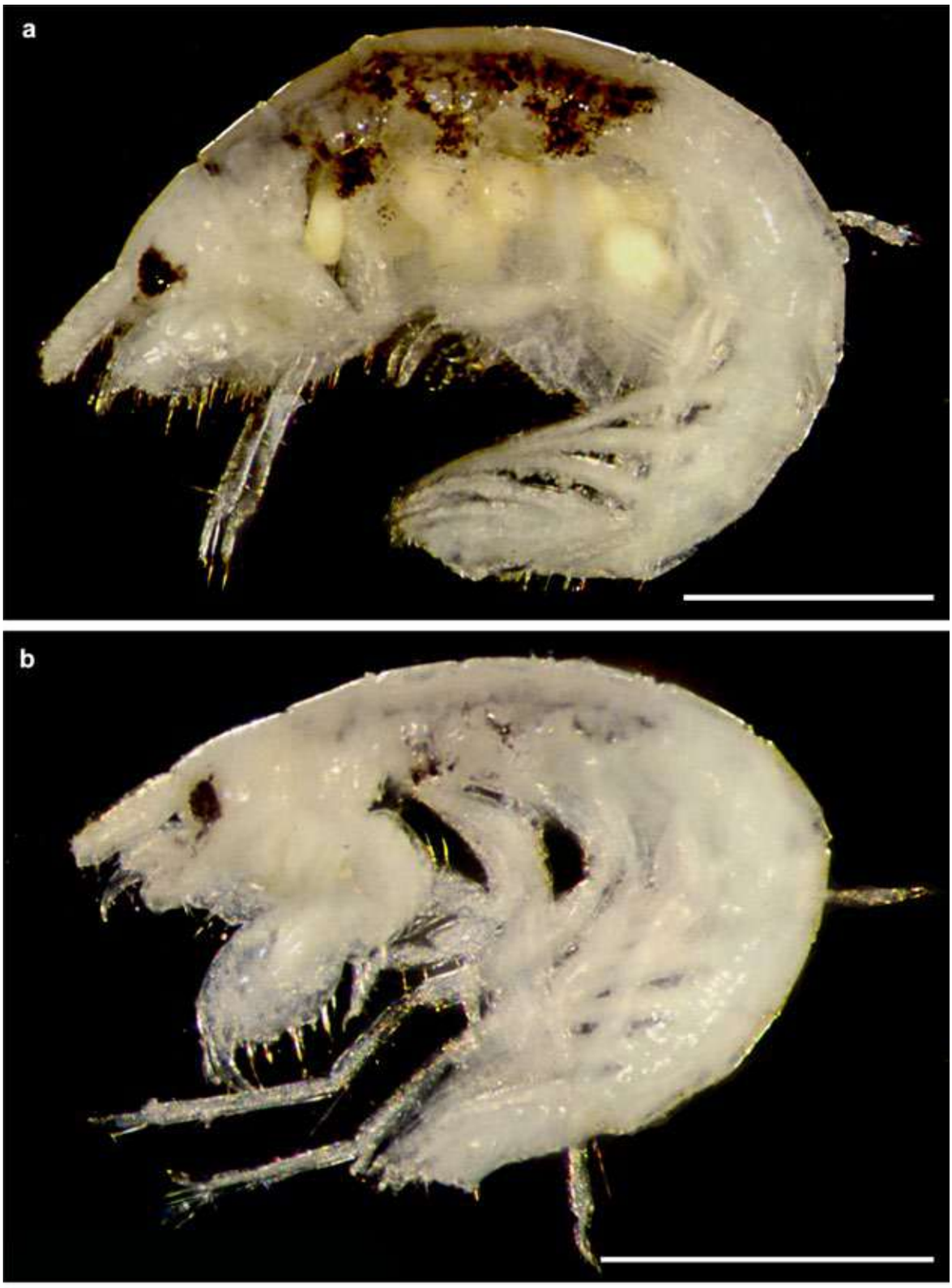

Plate 37. *Globosolembos indicus*, Al-Bida'a: a – habitus of female with eggs; b – habitus of male. Scale lines: a and b – 1 mm.

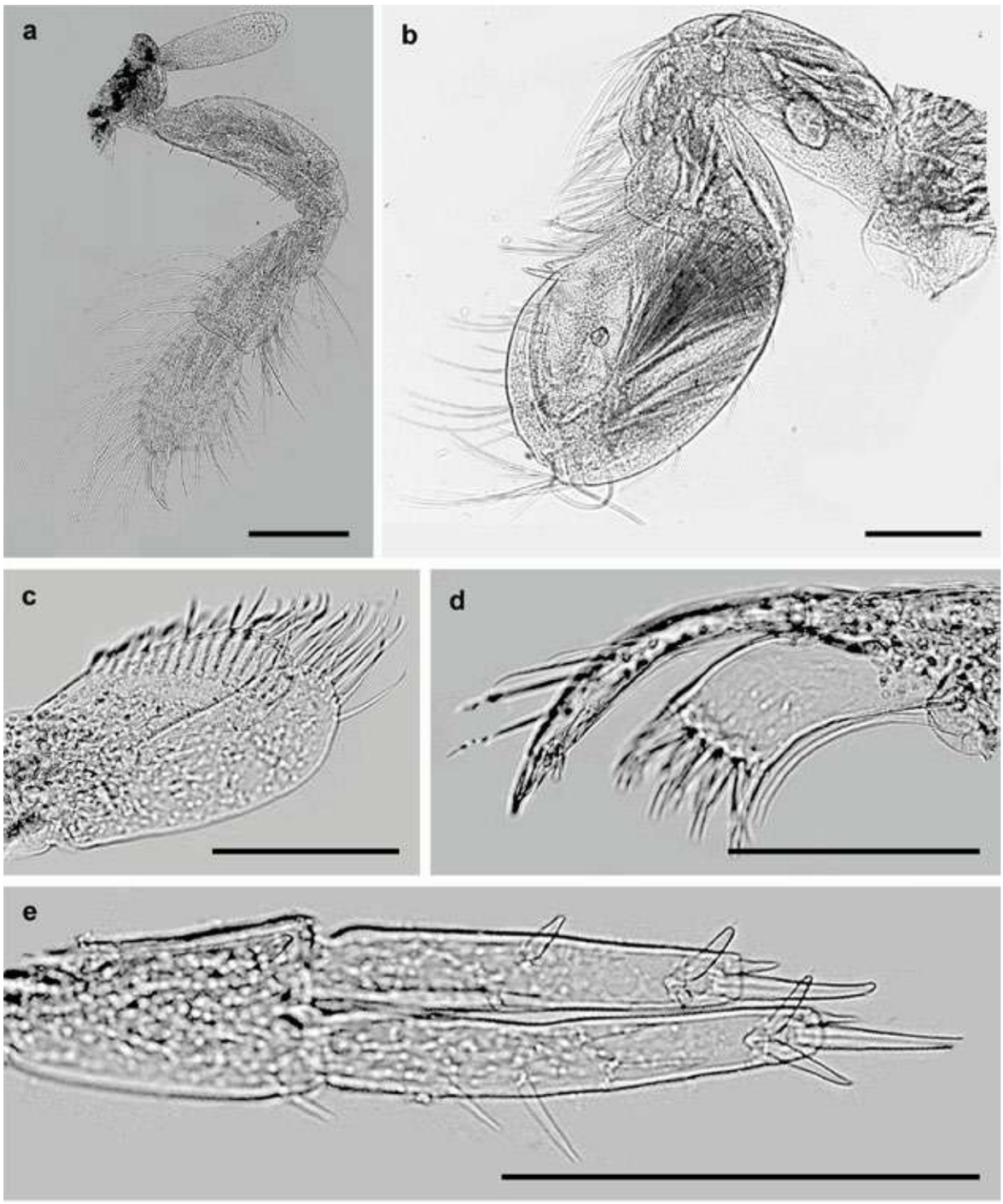

Plate 38. *Globosolembos indicus*, Al-Bida'a. Male: a – gnathopod 2; c – maxilla 2; d – maxilla 1; e – uropod 3. Female: b – gnathopod 1. Scale lines: a and b – 0.2 mm; c, d, and e – 0.1 mm.

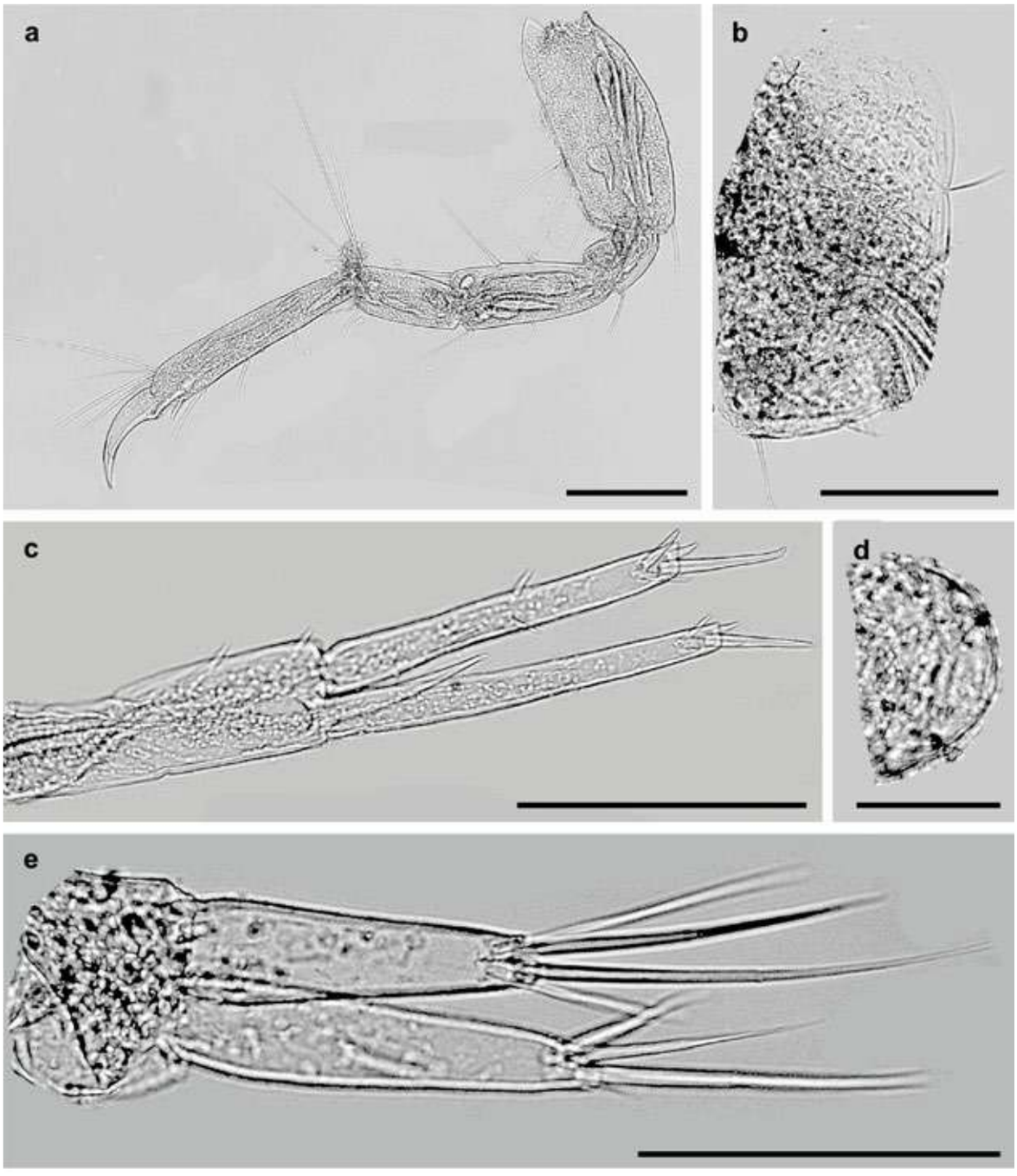

Plate 39. *Globosolembos indicus*, Al-Bida'a. Male: a – pereopod 6; b – pereopod 4, coxa; c – uropod 1; d – telson; e – uropod 3. Scale lines: a and c – 0.2 mm; b, d, and e – 0.1 mm.

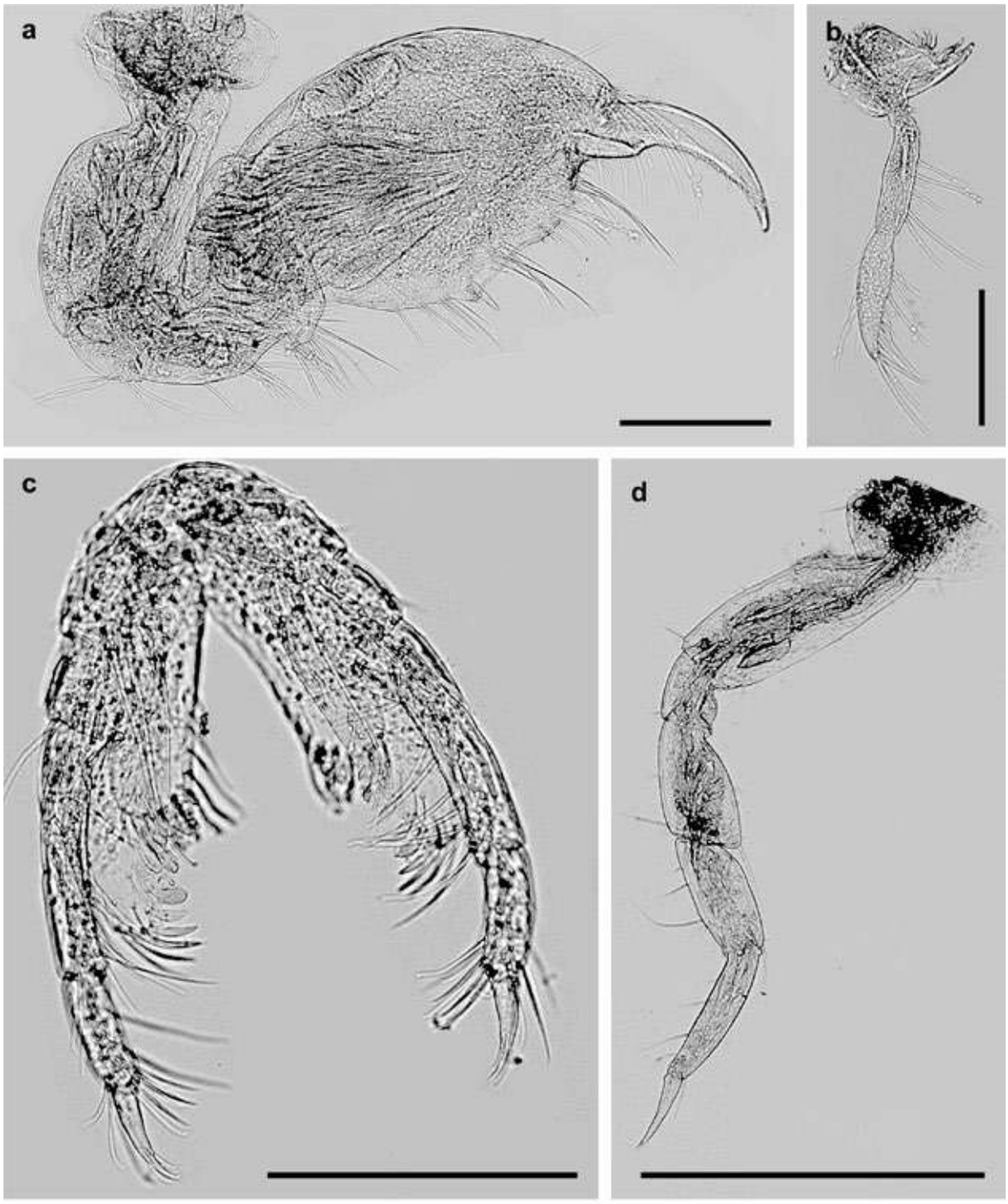

Plate 40. *Globosolembos indicus*, Al-Bida'a. Male: a – gnathopod 1; b – mandible; c – maxilliped 1; d – pereopod 4. Scale lines: d – 0.5 mm; a b, and c – 0.2 mm.

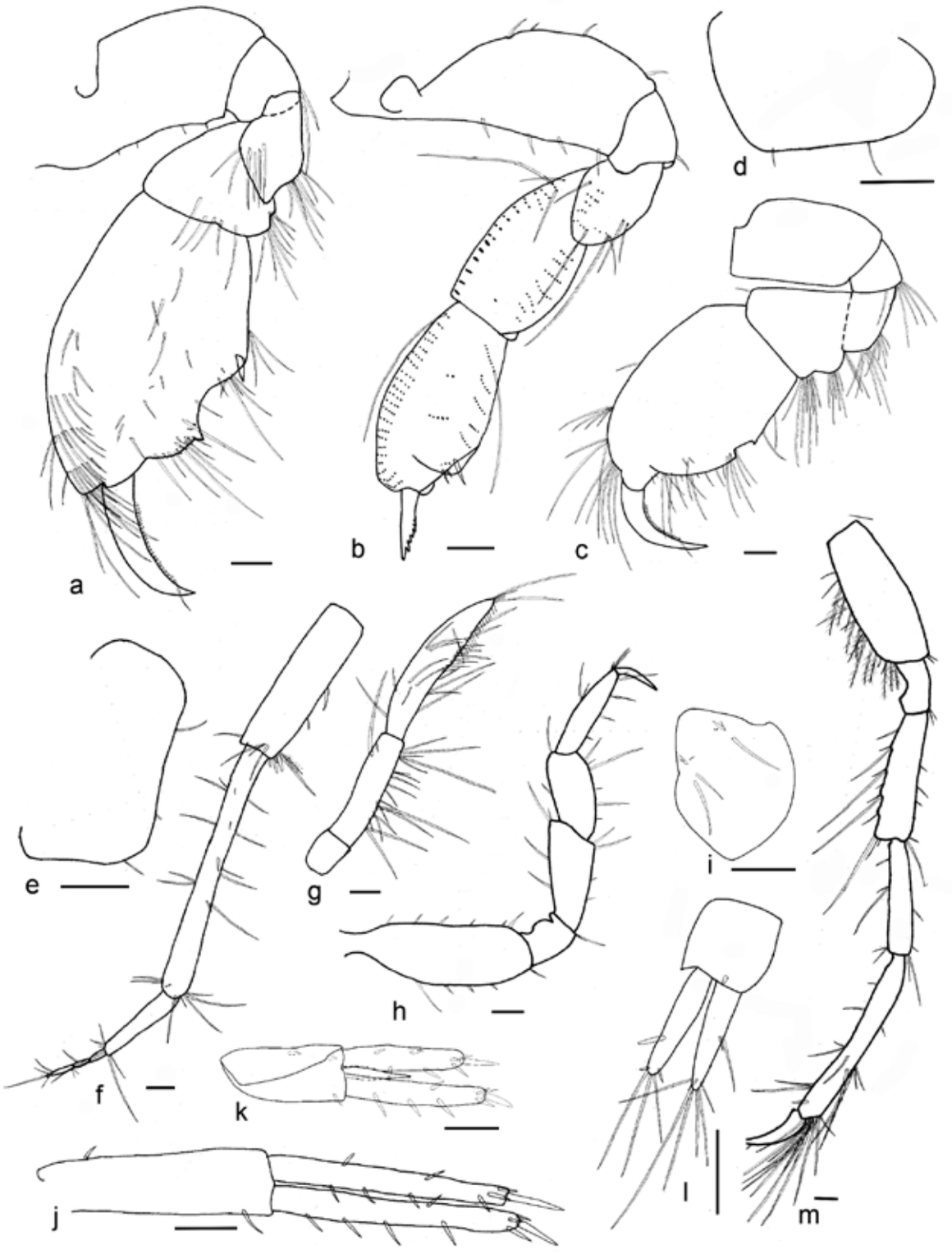

Fig. ZP-18. *Globosolembos indicus,* Al-Bida'a. Male: a – gnathopod 1; b – gnathopod 2; d – coxa 1; e – coxa 3; g – palp of mandible; h – pereopod 3; i – telson; j – uropod 1; k – uropod 2; l – uropod 3; m – pereopod 7. Female: c – gnathopod 1; f – antenna 1. Scale lines – 0.1 mm.

Family Aoridae
Genus *Grandidierella*

Grandidierella gilesi Chilton, 1921
Plates 41 and 42.
Occurrence: Al-Nuwaiseeb area, Al-Bida'a area, Al-Maghasel (Khor Al-Subiyah area), and Al-Shumaimah (Khor Al-Subiyah area).
Intertidal and Subtidal Zones.
Habitats: sand, muddy sand, mud, shells, rocks, aggregations of oyster shells, and hydroid-bryozoan associations.

Description. Male, 3.8 mm. A1 and A2 damaged. Gn1, basis stout, with seta posterodistally; ischium with setae posterodistally; merus with long plumose setae posteriorly; carpus greatly dilated with great tooth posterodistally on the palm, between this tooth and the base of the propodus is a triangular projection, carpus with numerous long plumose setae posteriorly and laterally; propodus is narrow at the base, widening slightly distally and bears an oblique row of long plumose setae; dactylus is strong, slightly curved and with setae on the inner side. Gn2 merus produced distally into a lobe bearing long plumose setae, carpus widened distally and bearing numerous long plumose setae; propodus longer than carpus bearing long plumose setae laterally and posteriorly; palm small, defined small teeth; dactylus very short. P3 and P4 similar; basis long with small setae posteriorly and posterodistally; merus long, widened distally; carpus small near oval with setae posteriorly; propodus thin, longer than carpus; dactylus very long, longer than propodus. U1 and U2 damaged. U3 ramus not expanded, about three times the length of peduncle with spines laterally and apically.

Female, 3.9 mm. A1 longer than A2; article 1 longer than article 3 with two spines distodorsally; article 2 longer than article 1; flagellum with 13-articles; acc.fl. small 1-articulate. A2 article 3 shorter than article 4; article 5 shorter article 4; flagellum 3 articles with setae and spines. Gn1 scarcely subchelate; ischium with setae posterodistally; merus with plumose setae posteriorly; carpus is broader than the propodus, but not produced into a distal tooth and bearing numerous long plumose setae; propodus is oblong, about as long as the carpus; propodus is twice the length of dactylus. Gn2 similar to with Gn2 male. U1 peduncle longer than rami bearing teeth dorsally and two big teeth dorsodistally; outer ramus as long as inner, with spines dorsally and apically; inner ramus with spines dorsally and apically. U2 peduncle as long as inner, ramus with teeth dorsally and two teeth dorsodistally; outer ramus slightly shorter than inner, both with spines dorsally and apically. Female U3 is similar to U3 male.

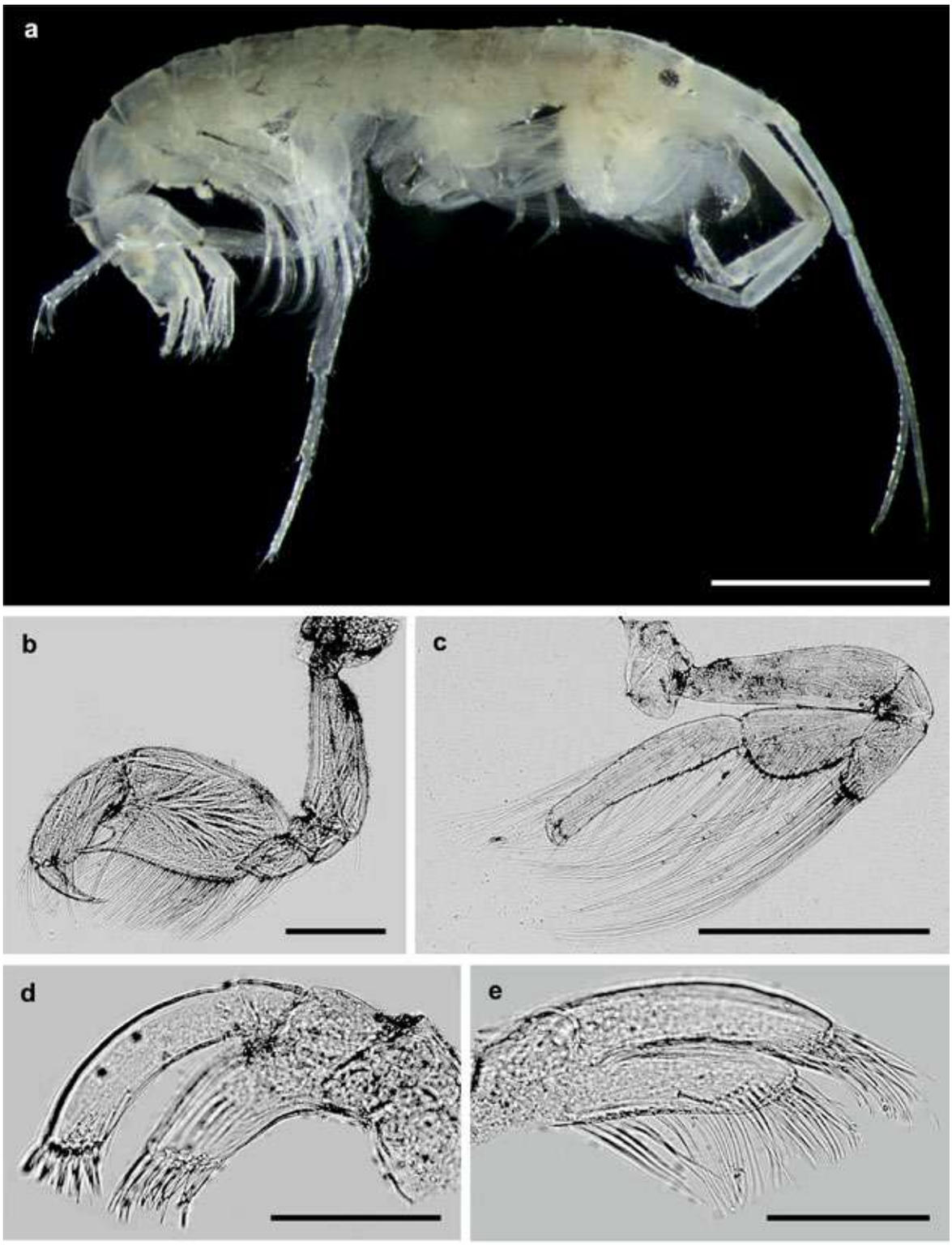

Plate 41. *Grandidierella gilesi*, Al-Bida'a. Male: a – habitus; b – gnathopod 1; c – gnathopod 2; d – maxilla 1; e – maxilla 2. Scale lines: a – 1 mm; c – 0.5 mm; b – 0.25 mm; d and e – 0.1 mm.

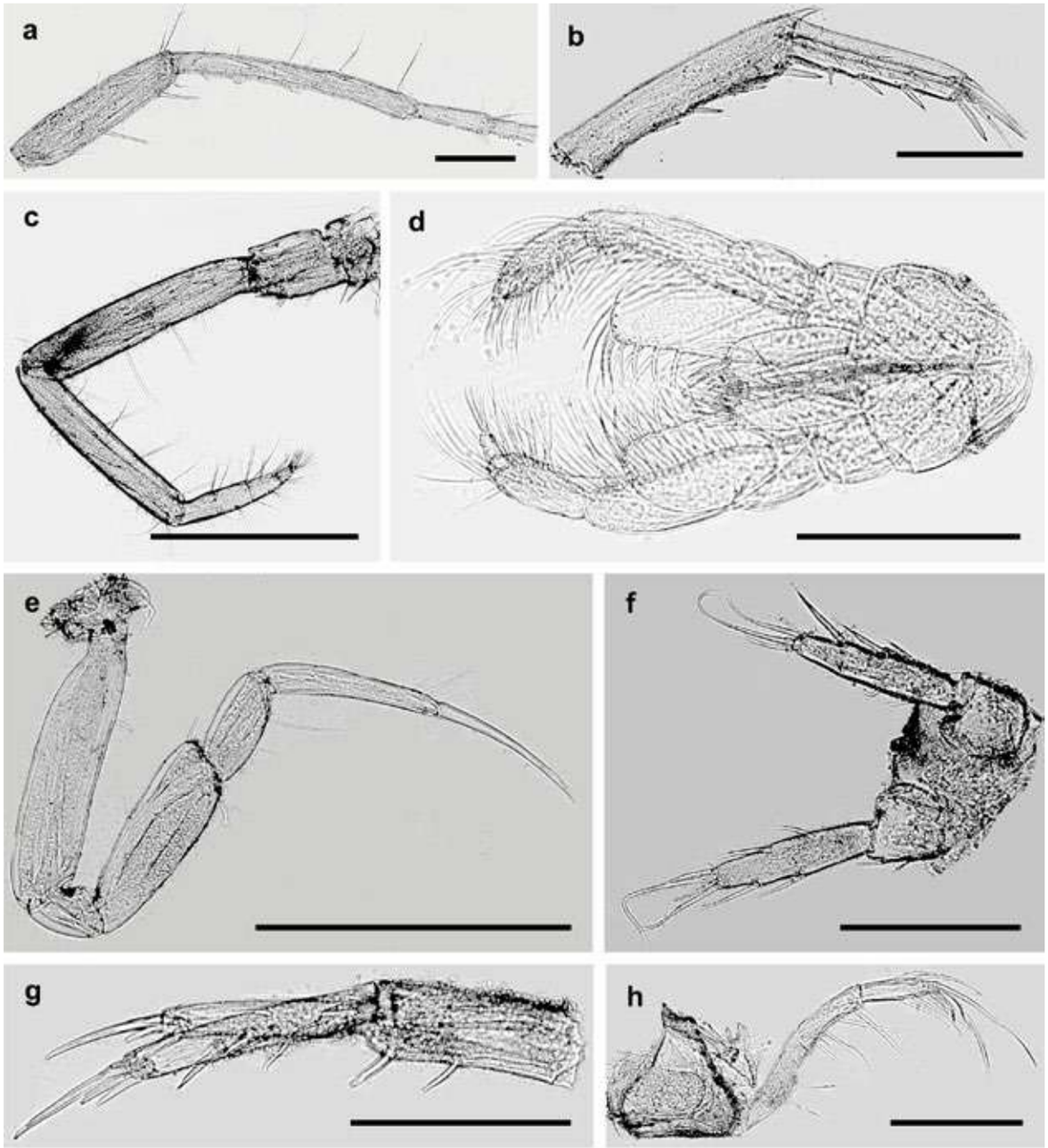

Plate 42. *Grandidierella gilesi*, Al-Bida'a. Male: a – antenna 1; b – uropod 1; c – antenna 2; d – maxilliped; e – pereopod 4; f – uropod 3; g – uropod 2; h – mandible. Scale lines: c and e – 0.5 mm; a, b, d, f, g, and h – 0.2 mm.

Family Aoridae
Genus *Grandidierella*

***Grandidierella* sp.**
Plates 43 – 45 and Fig. ZP-19.
Occurrence: Salmiya area, Al-Aushairij (East Doha) area, Al-Judailiat (West Doha) area, Al-Nuwaiseeb area, Ras Ajuza (Kuwait Bay area), Failaka Island area, Masfat Al-Ahmadi area, Al-Shumaimah (Khor Al-Subiyah area), Umm Al-Maradim Island area, Qaruh Island area, Kubbar Island area, Al-Salam beach (Kuwait Bay area), and Al-Messilah beach area.
Intertidal and Subtidal Zones.
Habitats: shells, pebbles, sand, macroalgae, dead corals, rocks, polychaete tubes aggregation; ropes (as artificial habitat), sponges, oyster aggregations, muddy sand, and hydroidea-bryozoa associations

Description. Male, 4.5 mm. A1 peduncular articles in the ratio 2: 3: 1, primary flagellum longer than peduncle with 14 articles, acc.fl. missing. A2 stout, peduncular article 5 shorter than 4, flagellum shorter than fifth peduncular article, with 5 articles. Md palp article ratio 3: 5: 5, article 3 not markedly expanded distally. Gn1. Cox1 sub-trapezoidal, basis stout, anterior margin straight, carpus about one and a half times the breadth, the posterior-distal margin produced into a long slender, acute tooth at the base of which, on the posterior margin are inserted one stout spine, propodus posterior margin sinuous, palmar edge in the middle with 2 spines and a few little setae, dactylus long and stout. Gn2 basis markedly broadening distally, merus bearing a row of long setae, carpus and propodus slender, carpus slightly longer than propodus, propodus expanded 2/3 of the length distally, palm oblique, palm ending in 4 stout spines, dactylus fitting palm. P3 basis slender, propodus and dactylus slender, subequal. U1 peduncle with short interrami tooth, rami subequal, shorter than peduncle. U2 peduncle without interramal process, inner ramus longer than peduncle. U3 ramus medially expanded, about three times the length of peduncle.

Female, 5.5 mm. Gn1 similar to Gn2, small. Gn1, basis with setae posterodistally; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus with setae posteriorly, posterodistally, and anterodistally; propodus shorter than carpus with setae anteriorly, posteriorly, and laterally, palm well defined by spines; dactylus with teeth on the inner side.

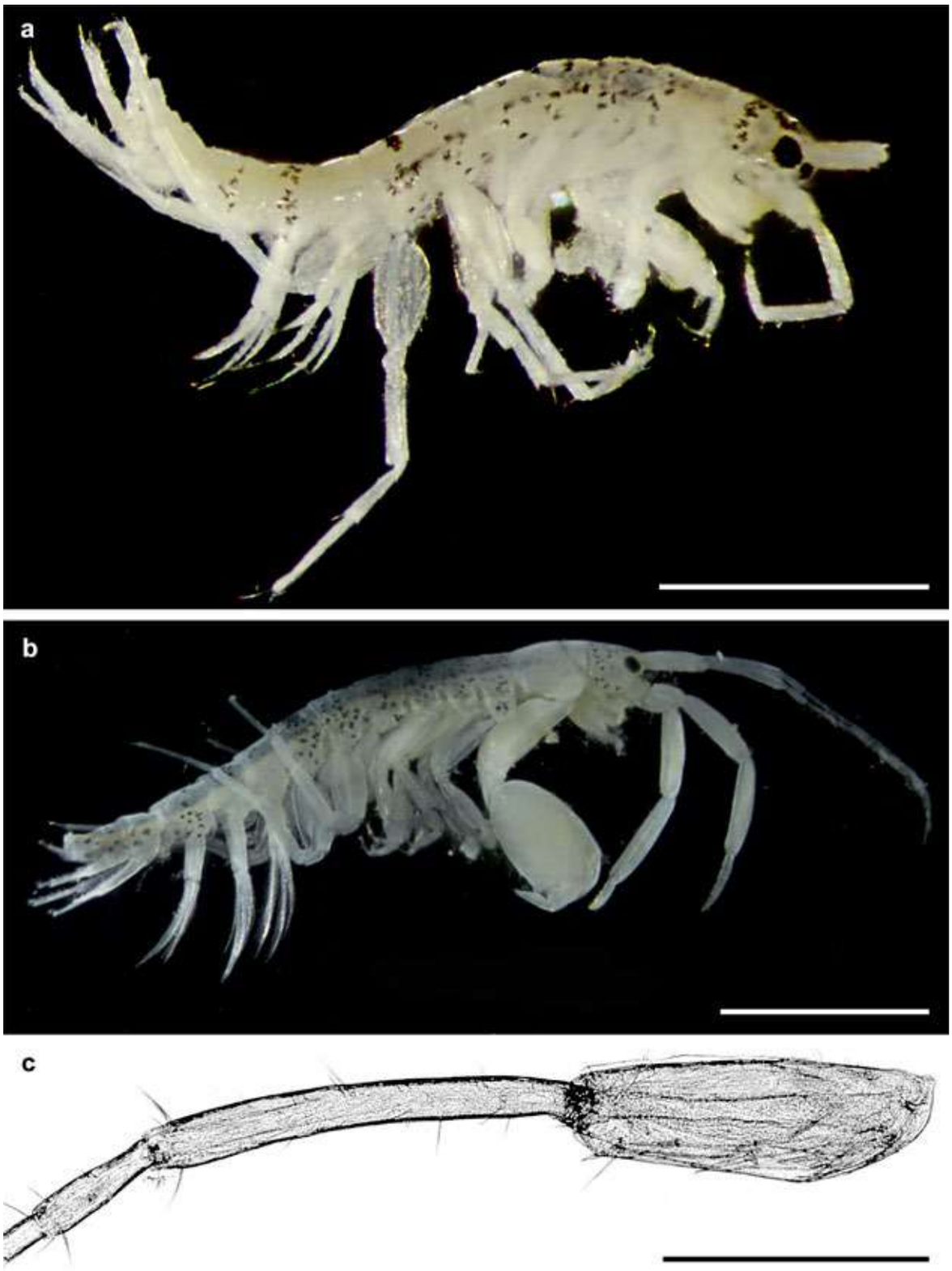

Plate 43. *Grandidierella* sp., West Doha: a – habitus of female; b – habitus of male; c – antenna 1, peduncle. Scale lines: a – 2 mm; b – 1 mm; c – 0.5 mm.

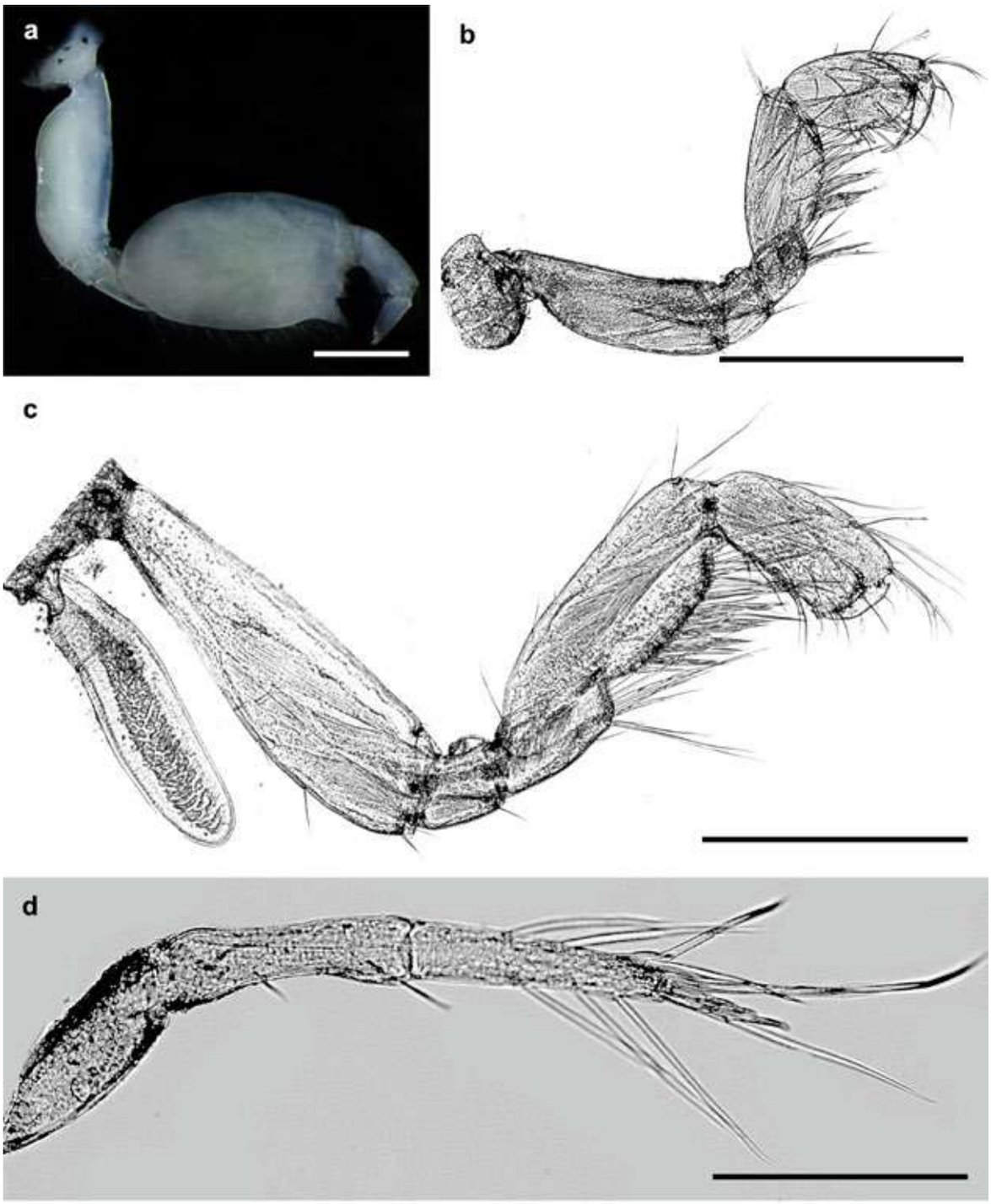

Plate 44. *Grandidierella* sp., West Doha. Male: a – gnathopod 1; c – gnathopod 2; d – palp of mandible. Female: b – gnathopod 1. Scale lines: a, b, and c – 0.5 mm; d – 0.2 mm.

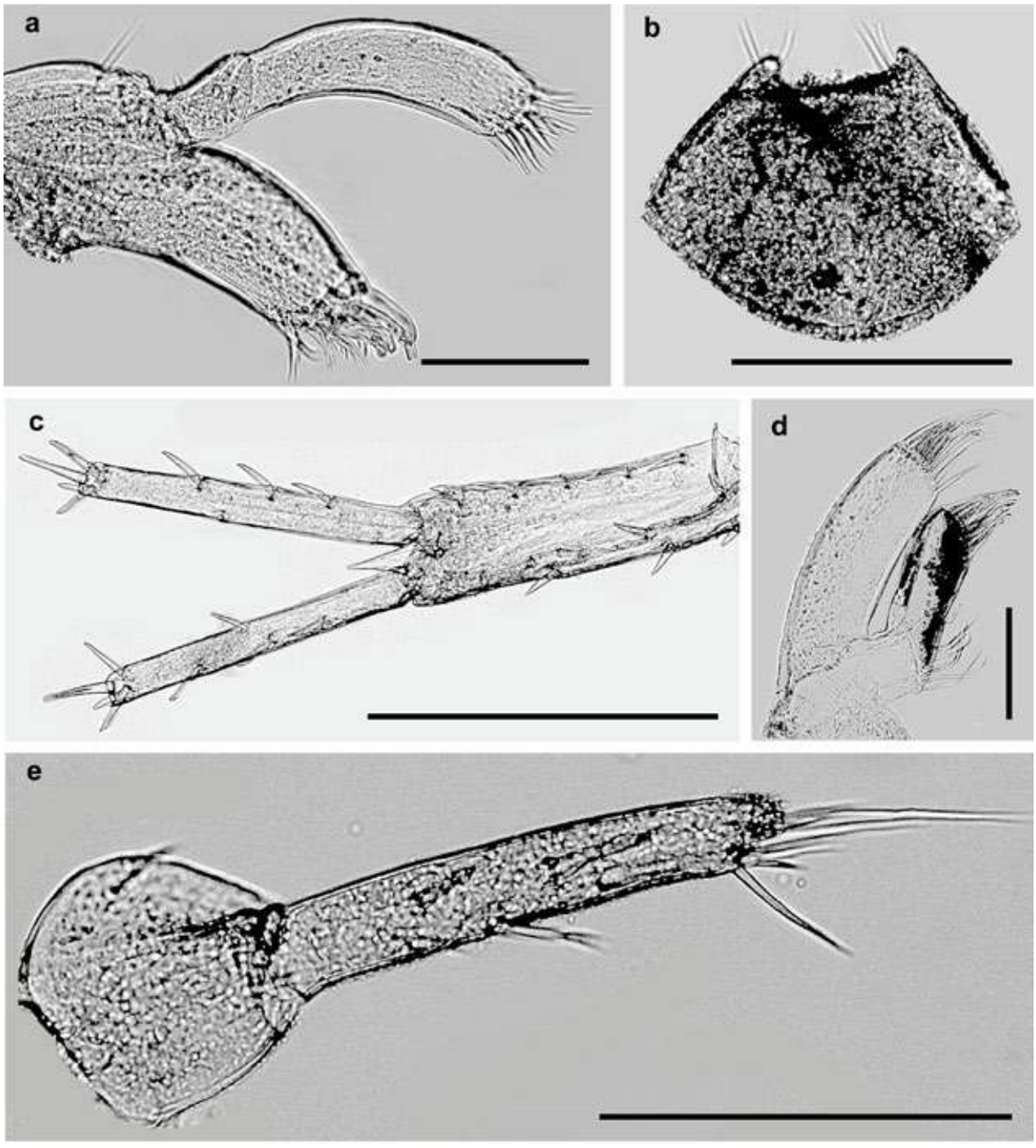

Plate 45. *Grandidierella* sp., West Doha. Male: a – maxilla 1; b – telson; c – uropod 1; d – maxilla 2; e – uropod 3. Scale lines: c – 0.5 mm; b and e – 0.2 mm; a and d – 0.1 mm.

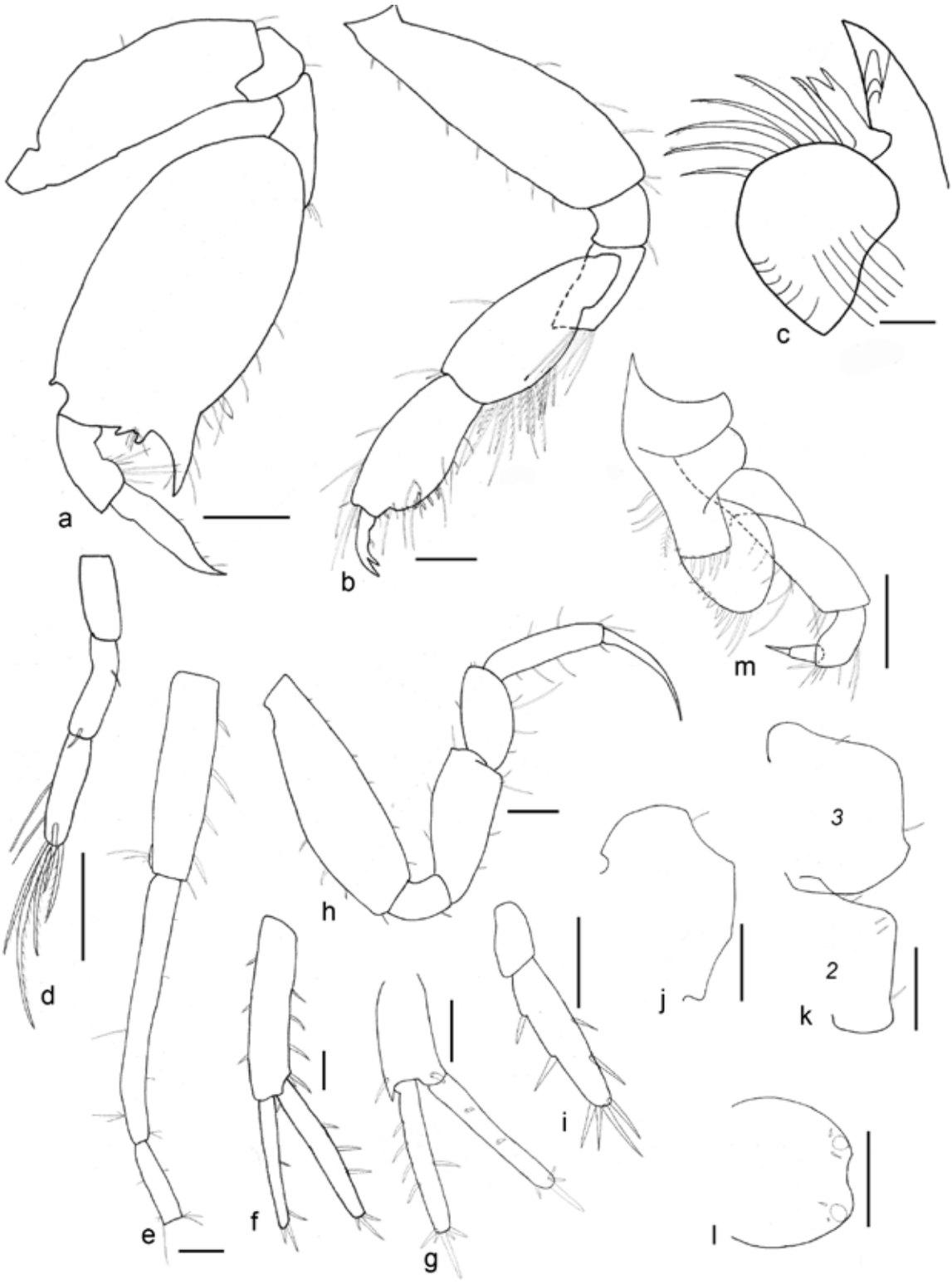

Fig. ZP-19. *Grandidierella* sp., West Doha. Male: a – gnathopod 1; b – gnathopod 2; c – mandible; d – palp of mandible; e – peduncle of antenna 1; f – uropod 1; g – uropod 2; h – pereopod 3; i – uropod 2; j – coxa 1; k – coxae 2 and 3; l – telson. Scale lines: c – 0.01 mm; other – 0.1 mm. Designation: 2 and 3 – coxae 2 and 3.

Family Caprellidae
Genus *Deutella*

***Deutella* sp.**
Plates 46 and 47.
Occurrence: Funaitees area, Qaruh Island area, Salmiya town beach area, Kuwait Bay area (subtidal), Al-Bida'a area, Auha Island area, Al-Messilah beach area, Kubbar Island area, Al-Shumaimah (Khor Al-Subiyah area), Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, Al-Aushairij (East Doha) area, and Al-Judailiat (West Doha) area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, sand, pebbles, shells, cobble rocks, hydroidea-bryozoa associations, sponges, ropes (as artificial habitat), and polychaete tubes aggregations.

Description. Male. Head rounded. Pereonite 2 dorsally with a little pair of triangular spines. Per3 dorsally with a little pair of spines near to proximal side. Per3 and Per4 dorsally smooth. Anterolateral margin of Per2 – Per4 with triangular projection. Per2 – Per5 subequal. Gills. Elongated, length about 3.5 times of width. Md: right mandible, incisor six-toothed with three-articulate palp; distal article of palp with a setal formula 1 – 7 – 1; second article with 6 simple setae, mandibular molar robust; lacinia mobilis with minute denticles; molar flake present, serrate distally; left mandible, incisor five-toothed, lacinia mobilis serrate. L with inner lobes well demarcated. Mx1 outer lobe with seven robust setae; distal article of the palp with three robust setae and five setae medially. Mx2 inner lobe near to rectangular, carrying six setae distally and one seta medially; outer lobe, a little larger than inner lobe, with ten apical setae. Mxp: inner plate rectangular with three setae and a little teeth; outer plate rectangular with one big and one small setae distally, and some setae proximally; palp four-articulate. A1 about half of body length; peduncle with a few setae, flagellum 7-articulate with aesthetascs. A2 about two third of antenna 1 length; proximal article of peduncle with an acute projection; flagellum two-articulate; peduncle and flagellum setose. Gn1: basis as long as ischium, merus and carpus combined; propodus elongated, length about 1.7 times of width, palm with a proximal grasping spine and denticulate margins; dactylus serrate on the posterior half. Gn2 inserted near to the anterior side of pereonite 2; basis as long as pereonite 2; ischium rectangular; merus with a long projection, projection about 0.6 times the length of propodus; distal side of projection with short setae and serrate; carpus short and triangular; propodus elongated, about 0.7 times as the length of the basis; palm with a proximal projection elongated and provided with one grasping spine and two more triangular projections distally; dactylus long, with setulae on the ventral margin. P3 and P4 subequal, two-articulate, length about 1/9 gills, with four setae; P5 – P7 similar, increasing in length, respectively; palm of propodus P6 and P7 with proximal row of teeth, three short spines on P6 and P7, respectively; dactylus smooth, about 0.7 – 0.9 the length of propodus. Penes situated laterally, length about two times width. Abdomen with a pair of appendages, a pair of lateral lobes, and a single dorsal lobe. Appendages two-articulate; provided with a small setula.
Female, 3.5 mm. A1 with aesthetascs and setae. Anterolateral margin of Per2 and Per4 with a little projection. Gn2 without a long projection on merus. Oostegites on Per3 and Per4. Abdomen without appendages.

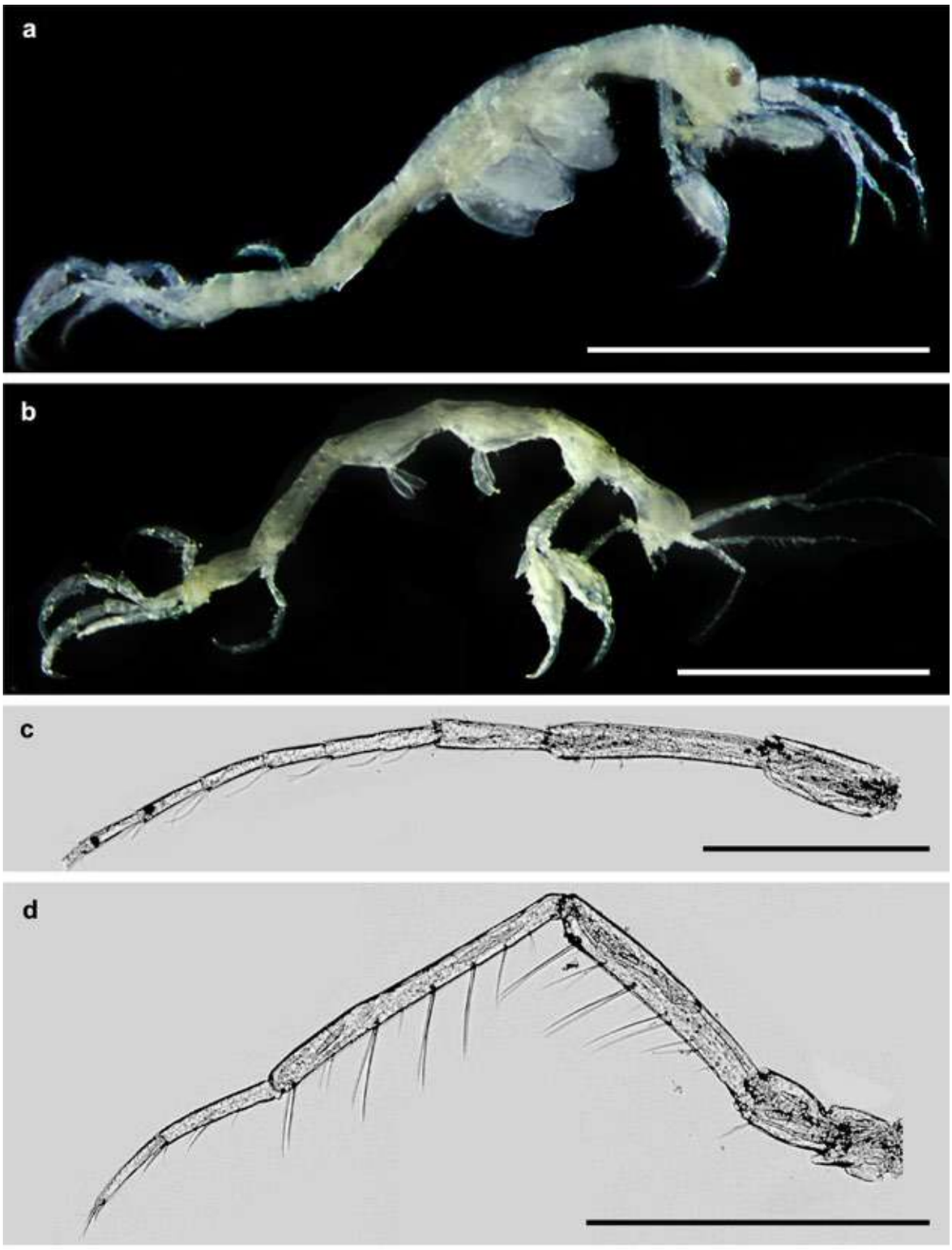

Plate 46. *Deutella* sp., Al-Bida'a: a – female habitus; b – male habitus; c – antenna 1; d – antenna 2. Scale lines: a and b – 2 mm; c and d – 0.5 mm.

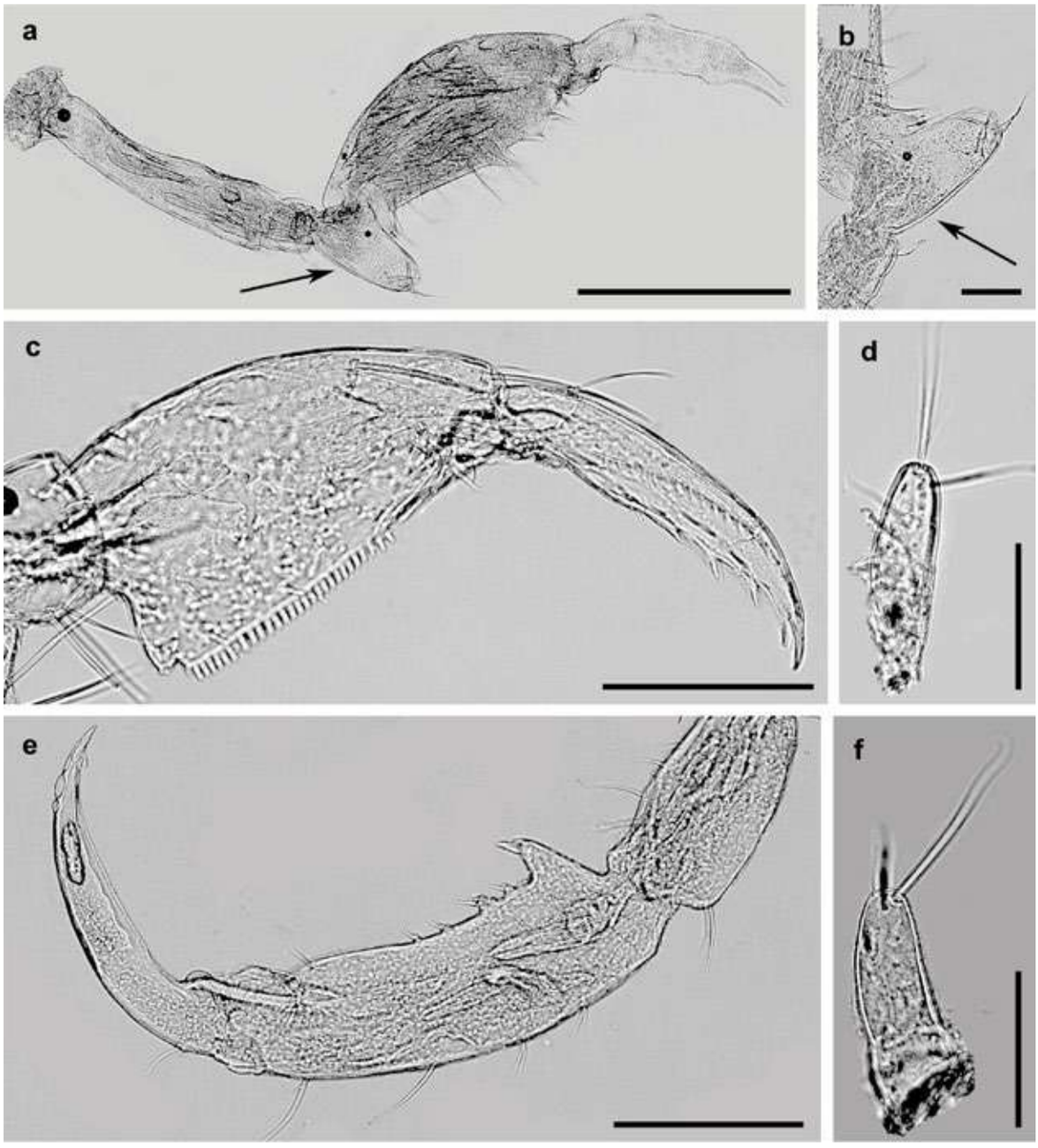

Plate 47. *Deutella* sp., Al-Bida'a. Male: a – gnathopod 2, meral segment, protrusion (arrow); b – gnathopod 2, meral segment, protrusion (arrow); c – gnathopod 1, propodus and dactylus; d – pereopod 3; e – pereopod 7, propodus and dactylus; f – pereopod 4. Scale lines: a – 0.5 mm; e – 0.2 mm; b and c – 0.1 mm; d and f – 0.05 mm.

Family Caprellidae
Genus *Metaprotella*

Metaprotella macoranicus Momtazi & Sari, 2013
Plates 48 and 49.
Occurrence: Al-Nuwaiseeb area, Al-Khiran area, Al-Messilah beach area, and Ras Al-Zour area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, sand, pebbles, shells, cobble, and rocks.

Description (after Momtazi & Sari, 2013; modified). Adult male. Lateral view. Head and Per1 fused, with marked suture between head and pereonite 1; head with a pair of small anterodorsally curved projections and subtriangular lateral projection below the eye; eye large, distinctive. Per2, with a pair of anteriorly curved middorsal projections, an unpaired dorsodistal projection, an anterior lateral projection and subtriangular lateral projection below the insertion of second gnathopod. Per3, with a trace of one pair middorsal projections and with a dorsodistal projection posteriorly orientated. Per4 longest. Per5, Per6 and Per7 completely fused. Gill 3 oval. Gill 4 oval, smaller than Gill 3. Mouthparts: Lbr notched, wider than long, with small setae on the anterior surface. L well developed, finely setose on the inner lobes and outer lobes. Left Md; incisor with 5 teeth followed by lacinia mobilis with 5 teeth and 3 accessory setae; molar well developed, truncate; palp 3 articulate; article 2 with 6 simple setae; article 3 with setal formula 1+10+1, several setules along the terminal margin and an anterodistal projection. Right Md; incisor with 5 teeth and lacinia mobilis with 5 teeth and 2 accessory setae; molar well developed with flakes; palp 3 articulate; article 2 with 5 setae; setal formula 1+10+1 on article 3. Mx1 outer plate with 7 stout apical setal-teeth; palp biarticulate; article 2, with 4 triangular projections at the distal margin and armed with 3 robust setae, 2 slender setae, 3 facial setae and some fine setae on the inner margin. Mx2; inner plate with 4 apical, one subapical and 3 medial setae; outer plate with 8 apical setae and 2 subapical setae. Mxp inner plate subrectangular with 1 stout tooth, 2 simple setae and 2 plumose setae apically; outer plate with 1 plumose setae apically; inner margin with many blade-like setae and 2 setae medially; palp 4-articulated; article 2 longest and setose on the inner margin; article 3 with a large triangular distal projection, 8 setae on the inner margin and 1 seta on the outer margin; palp dactylus falcate, with a row of setules at inner and outer margins, and one proximal seta on the outer margin. A1, peduncular article 2 longer than article 1; article 2 longest, longer than article 3; flagellum with more than 11 articles, proximal article composed of 3 articles. A2 slender, flagellum with 2 articles. Gn1, basis length subequal to propodus with carina; ischium with dorsal carina; merus and carpus combined; carpus subtriangular and setose posterodistally; propodus subtriangular, longer than the width with 3 rows of submarginal setae, palm with 1 robust proximal seta, serrated and with some fine setae; dactylus slightly curved distally, inner margin with serratiform teeth. Gn2, basis with 2 fine distal setae and an acute anterodistal projection; carpus triangular; propodus enlarged, subovate and subequal in length to basis, outer margin with one medial seta and one distal seta; palm convex, proximal projection with 1 robust seta, mid-palmar projection oriented distally provided by 3 setae followed by a deep sinus and a well-developed distal shelf with 2 projections, distal sinus small, palm with serratiform teeth between proximal grasping spine and mid-palmar projection; dactylus falcate, with several fine setae. P3, slender, 1-articulated with 4 distal setae. P4, slender, 1 articulate with 4 distal setae. P5 well – developed propodus longer than carpus with a pair of grasping spines near the proximal end of palm, dactylus falcate with several fine setae along the inner and outer margins. P6 and P7, similar in shape but P7 larger than P6. Abdomen with one pair of appendages, a pair of lateral lobes, and a single dorsal lobe. Appendages 1-articulated with 4 setae along the outer margin and two medial setae, tuff of minute setae and 3 longer seta at distal margin, 5 setae between penes and appendages. Dorsal lobe with a pair of plumose setae and one fine seta on the dorsal surface.
Female with eggs. Lateral view: Head and pereonite 1 fused, with a markedly concaved area between head and P1. Head with a pair of anterodorsally curved projections, subtriangular lateral projection below the eye; eye large,

distinctive; P2 with a pair of anteriorly curved middorsal projection, an unpaired dorsodistal projection, a small knoblike anterolateral projection and a subtriangular projection at the base of the second gnathopod; P3, smooth; P5, longest; P6 and P7 completely fused. Gill 3 oval. Gill 4 oval. Mouthparts same as males. A1, peduncular article 1 shortest; article 2 longest, article 3 longer than article 1; flagellum with 11 articles. A2, slender, about 0.6 times the length of antenna 1; flagellum with 2 articles. Gn1, basis longer than propodus, merus and carpus combined; carpus subtriangular, setose posterodistally; propodus subtriangular, longer than width, palm with serratiform teeth along the entire margin and a strong proximal spine; dactylus slightly curved distally, inner margin with serratiform teeth. Gn2, basis subequal to propodus, scarcely setose, with an anterodistal projection with a single seta; carpus triangular; propodus enlarged, and subovate; palm with three slightly distal projections, setose along the entire margin, proximal projection with 1 robust seta; dactylus falcate, fitting on palm. P3, slender, 1 articulate, with 5 distal setae and 1 lateral seta; oostegite 3 setose along the entire margin. P4 slender, 1 articulate with 4 distal setae; oostegite 4 with 11 setae on the anterior margin. P5, P6, and P7 similar, becoming more robust progressively. Abdomen, a pair of lateral lobes and a single dorsal lobe. Dorsal lobe with 2 apical plumose setae and 4 lateral simple setae.

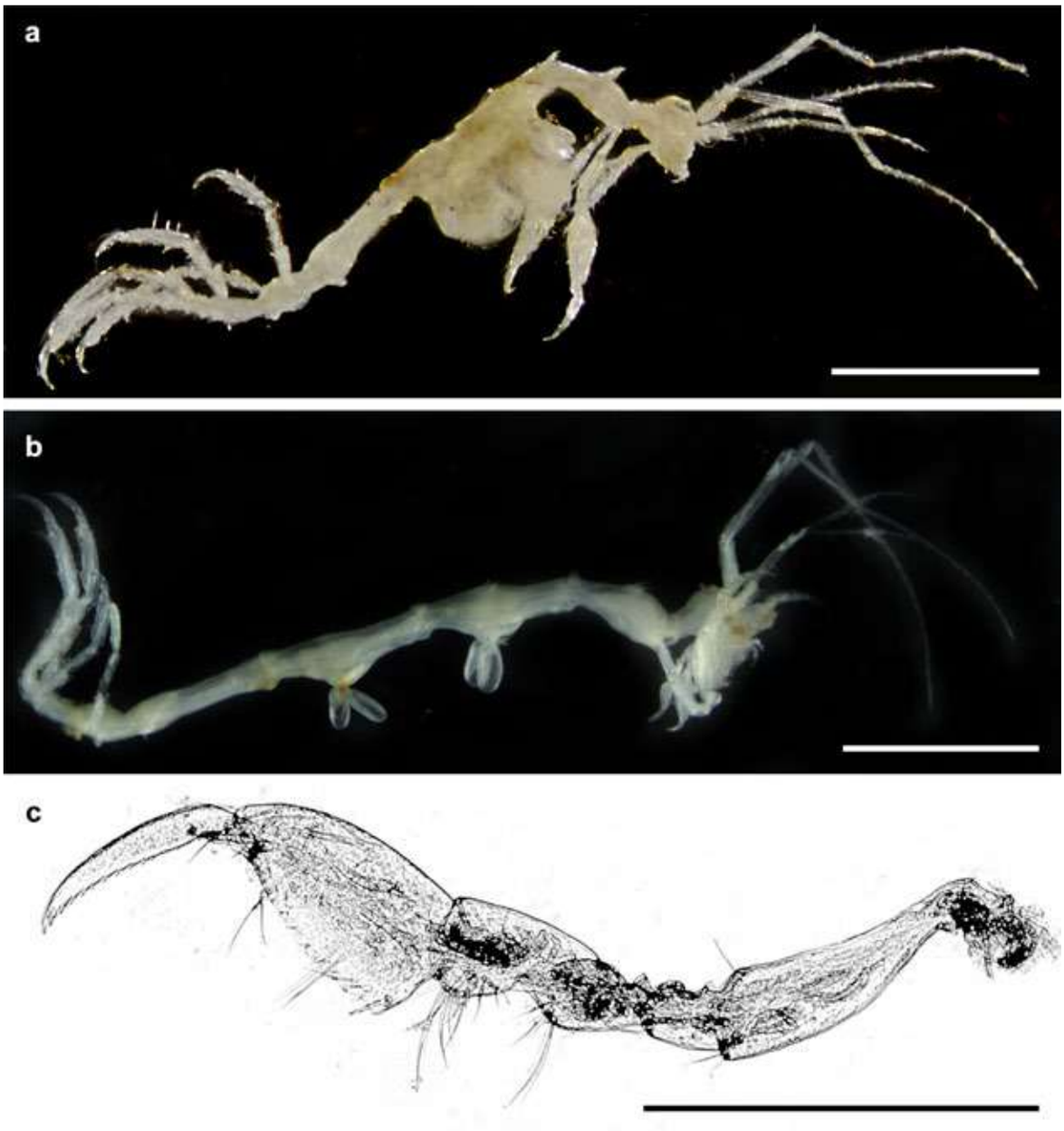

Plate 48. *Metaprotella macoranicus*, Al-Nuwaiseeb: a – female habitus; b – male habitus; c – gnathopod 1. Scale lines: a and b – 2 mm; c – 0.5 mm.

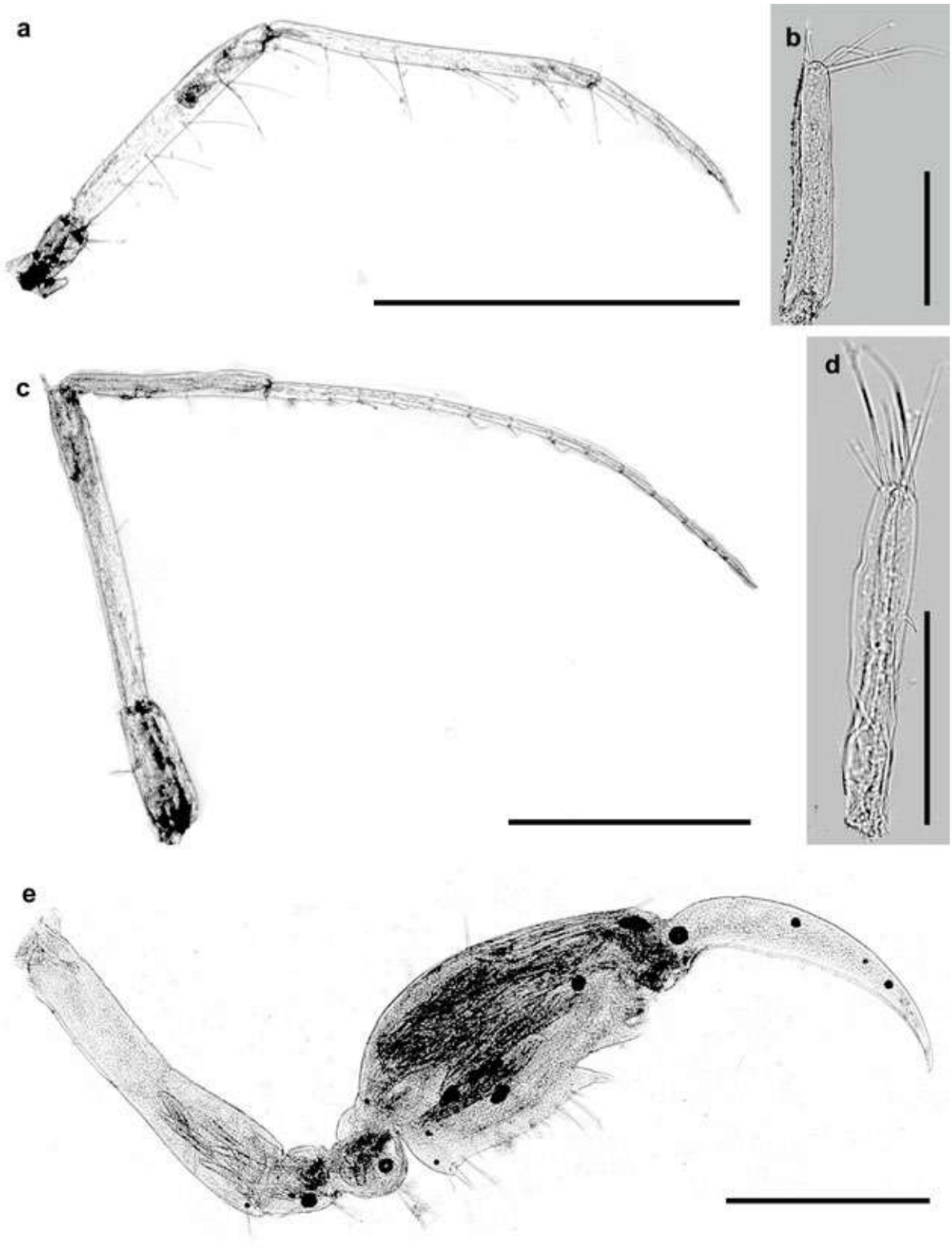

Plate 49. *Metaprotella macoranicus*, Al-Nuwaiseeb. Male: a – antenna 2; b – pereopod 3; c – antenna 1; d – pereopod 4; e – gnathopod 2. Scale lines: a and c – 1 mm; e – 0.5 mm; b and d – 0.1 mm.

Family Cheirocratidae
Genus *Cheirocratus*

***Cheirocratus* sp.**
Plates 50 – 52 and Fig. ZP-20.
Occurrence: Qaruh Island area**.**
Subtidal Zone.
Habitats: sand, shells, coral pebble.

Description. Female, 5.5 mm. Pleon segments smooth, Us1 with 1 large dorsomedial tooth, but no spines. Us2 and Us3 smooth without teeth or spines. Lateral cephalic lobes moderately prominent, rounded, with caves anterodistally. Eyes moderately large, round. A1 shorter than A2; peduncular article 3 shorter than article 2, flagellum slender, acc.fl. 3-articulate. Md palp article 1 longer than article 2, article 3 sub-falsciform. Cox1 with anterodistal corner rounded, Cox4 without posterodistal lobe. Gn1 simple, basis pyriform, carpus slightly shorter than propodus, propodus narrowed distally with spines and many setae along the posterior margin. Gn2 similar to Gn1, but longer, carpus shorter than propodus, propodus narrowed distally with marginal bunches of setae. P3 and P4 slender, dactylus less than 1/2 propodus. P5-P7 moderately long, basis much longer, than breadth, posterodistal lobe absent, merus-propodus with marginal spines, dactylus shorter than propodus. Ep1 small, Ep2 and Ep3 with strong tooth at posterodistal corner, without slender spines along distal margin. U1 peduncle with long distal spine reaching about 2/5 along the outer ramus, outer ramus slightly shorter than inner. U2 outer ramus shorter than inner. T lobes cleft almost whole with 1 pair of plumose setae.
Male specimens were not found in our investigations.

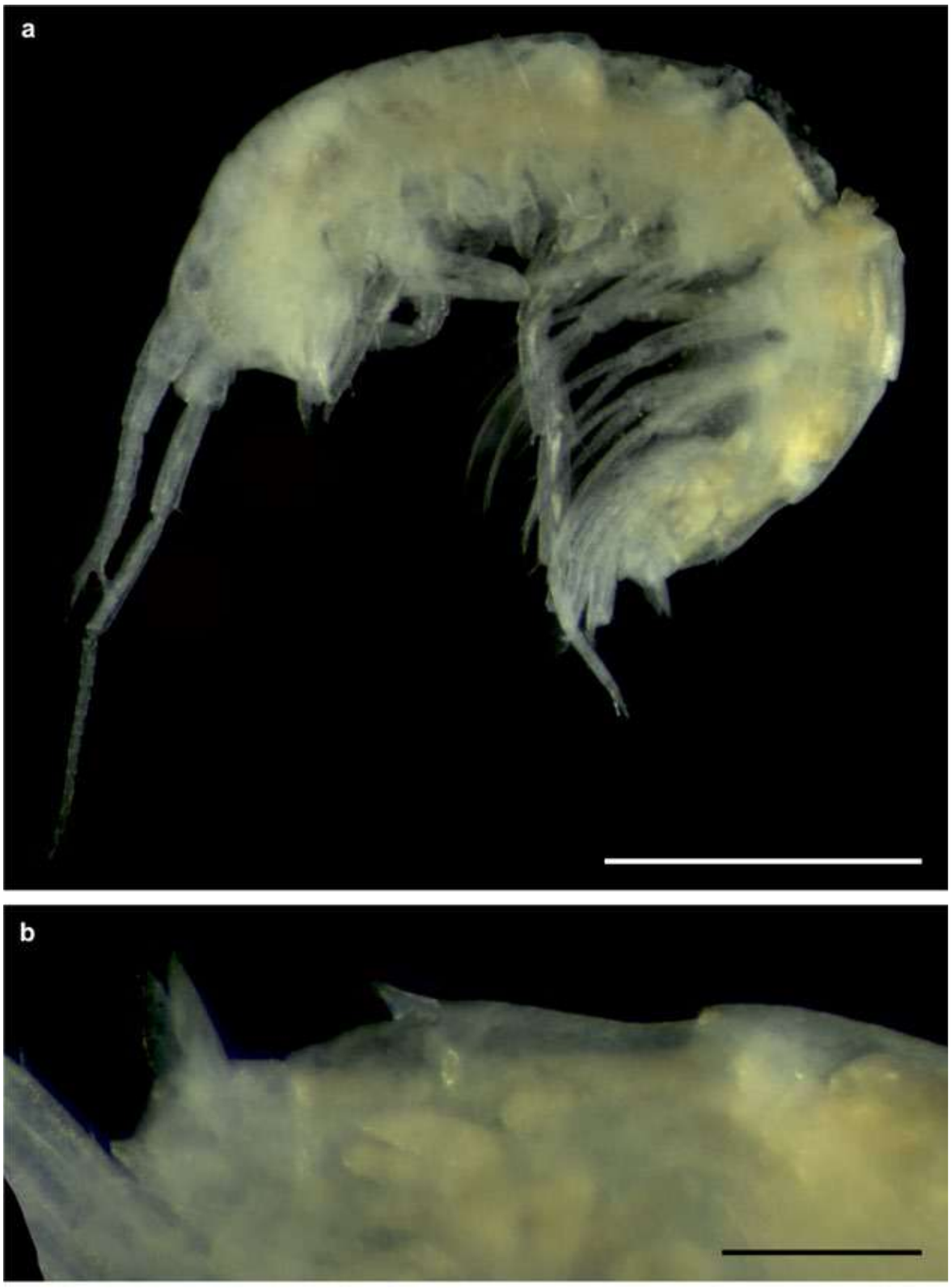

Plate 50. *Cheirocratus* sp., Qaruh Island. Female: a – habitus; b – urosome. Scale lines: a – 1 mm; b – 0.2 mm.

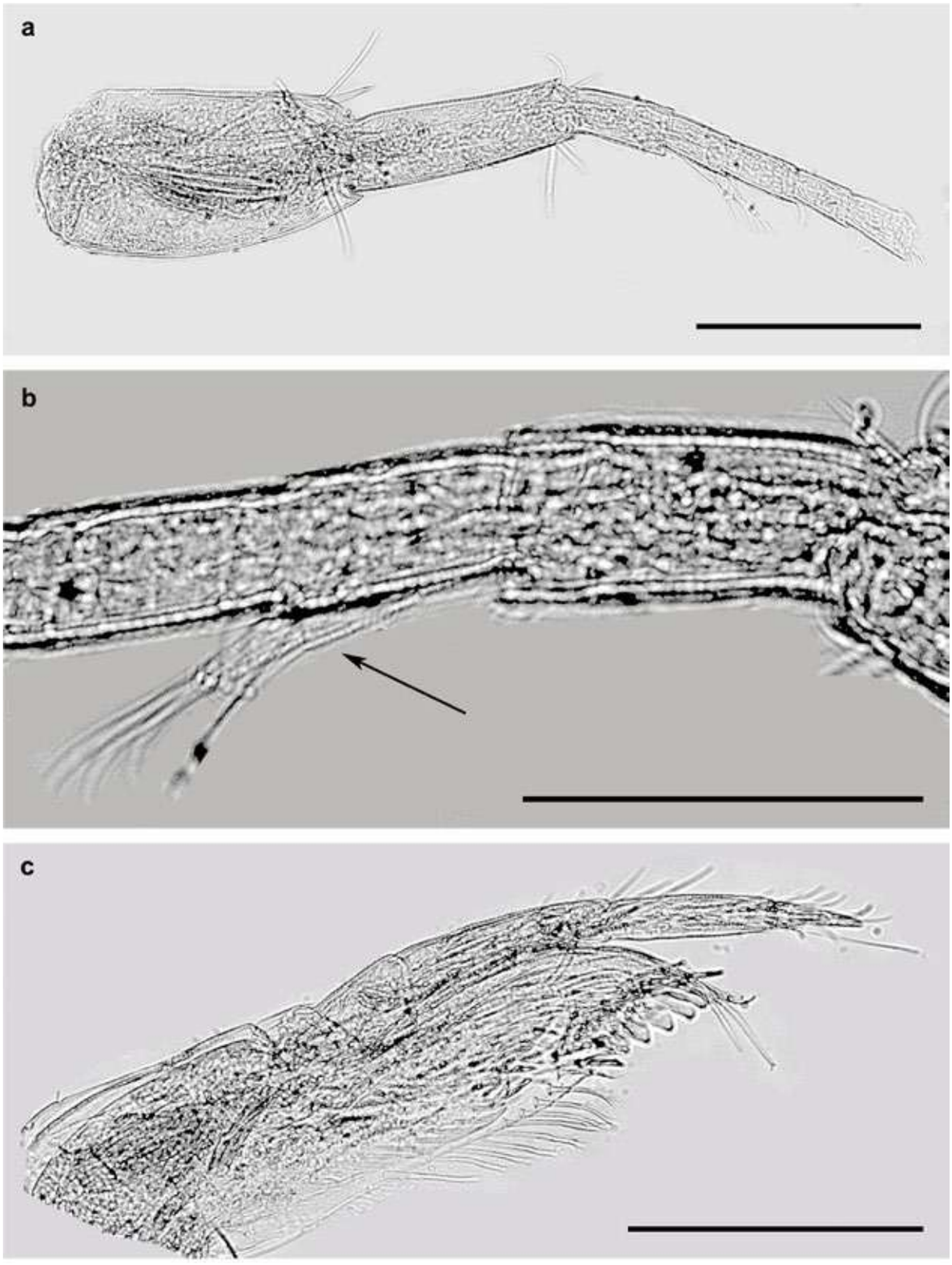

Plate 51. *Cheirocratus* sp., Qaruh Island. Female: a – antenna 1, peduncle; b – antenna 1, accessory flagellum (arrow); c – maxilliped. Scale lines: a and c – 0.2 mm; b – 0.1 mm.

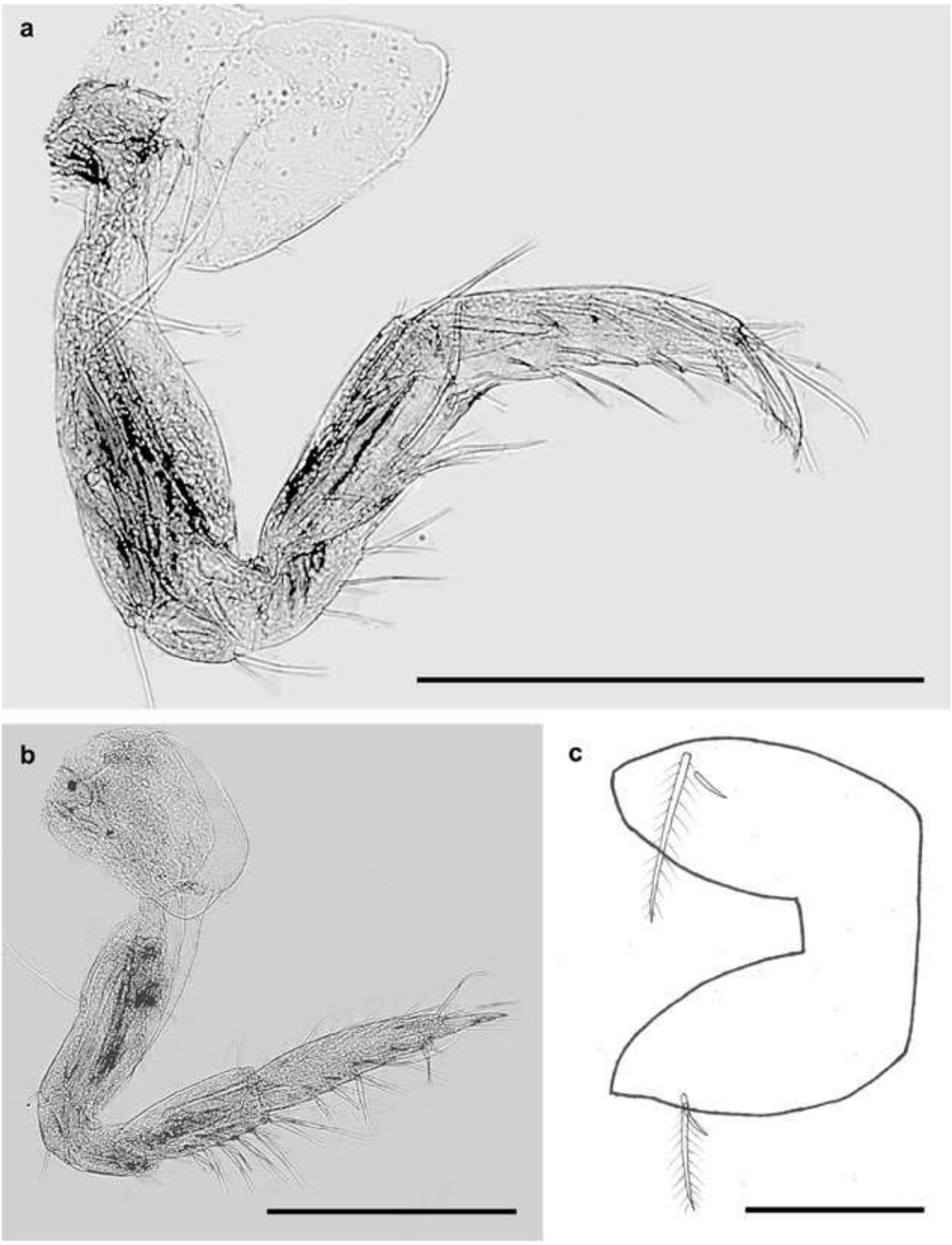

Plate 52. *Cheirocratus* sp., Qaruh Island. Female: a – gnathopod 1; b – gnathopod 2; c – telson (picture). Scale lines: a and b – 0.5 mm; c – 0.1 mm.

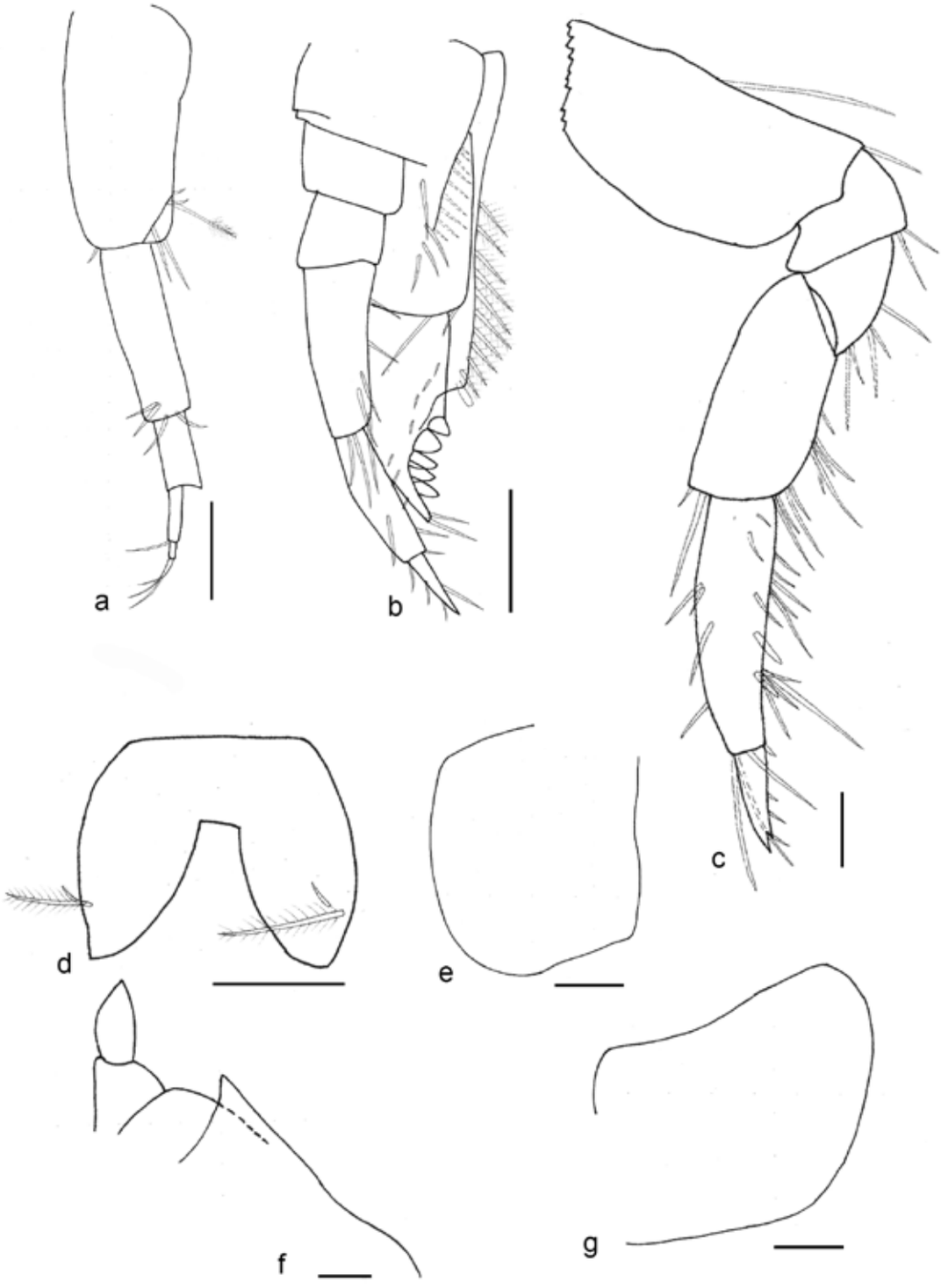

Fig. ZP-20. *Cheirocratus* sp., Qaruh Island. Female: a – antenna 1; b – maxilliped; c – gnathopod 1; d – telson; e – coxa 3; f – urosome 1; g – coxa 1. Scale lines – 0.1 mm.

Family Colomastigidae
Genus *Colomastix*

Colomastix sp. 1

Plates 53 and 54, and Fig. ZP-21.
Occurrence: Al-Nuwaiseeb area, Al-Khiran area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitat: living sponges.

Description. Male, 5.8 mm. Head slightly longer than deep. A1 as long as A2. A1 peduncular article 1, dorsomedial margin with 2-3 small, triangular robust setae; flagellum short, 3-articulate. A2 peduncle articles 3-5, ventolateral margin with small, triangular robust setae. Mxp moderately reduced, inner plate small, basal shell expanded to form a little ventral keel, palp 4-articulate. Cox1 concave, anteroventral angle produced. Cox2 and Cox3 with small anteroventral cusp. Gn1 are missing. Gn2 basis greatly expanded distally, anterior margin entire, without anterodistal notch, without anterodistal process; ischium with inner anterodistal lobe expanded, carpus much shorter than propodus, inner ventral surface with a patch of setae, setae short, very fine, propodus greatly enlarged, inner ventral surface with a patch of setae, palm with 2 dissimilar processes, palmar angle with 1 subtriangular process, process at dactylar hinge broad and short. Dactylus insertion on propodus apical, with small process posterior margin, tip lanceolate, subacute. P3 and P4 basis slightly produced anterodistally. P3 – P7 basis slightly expanded. U1 inner ramus modified, strongly falcate, not expanded proximally, ventral margin curved, tip rounded with a little subapical setae; outer ramus 40% the length of inner ramus, slightly concave. U2 both rami, ventral margin lacking setae. U3 peduncle less twice long of the deep; inner and outer ramus equal; inner ramus suboval; outer ramus lanceolate, concave dorsally. T broadly subquadrate, dorsal surface slightly concave.

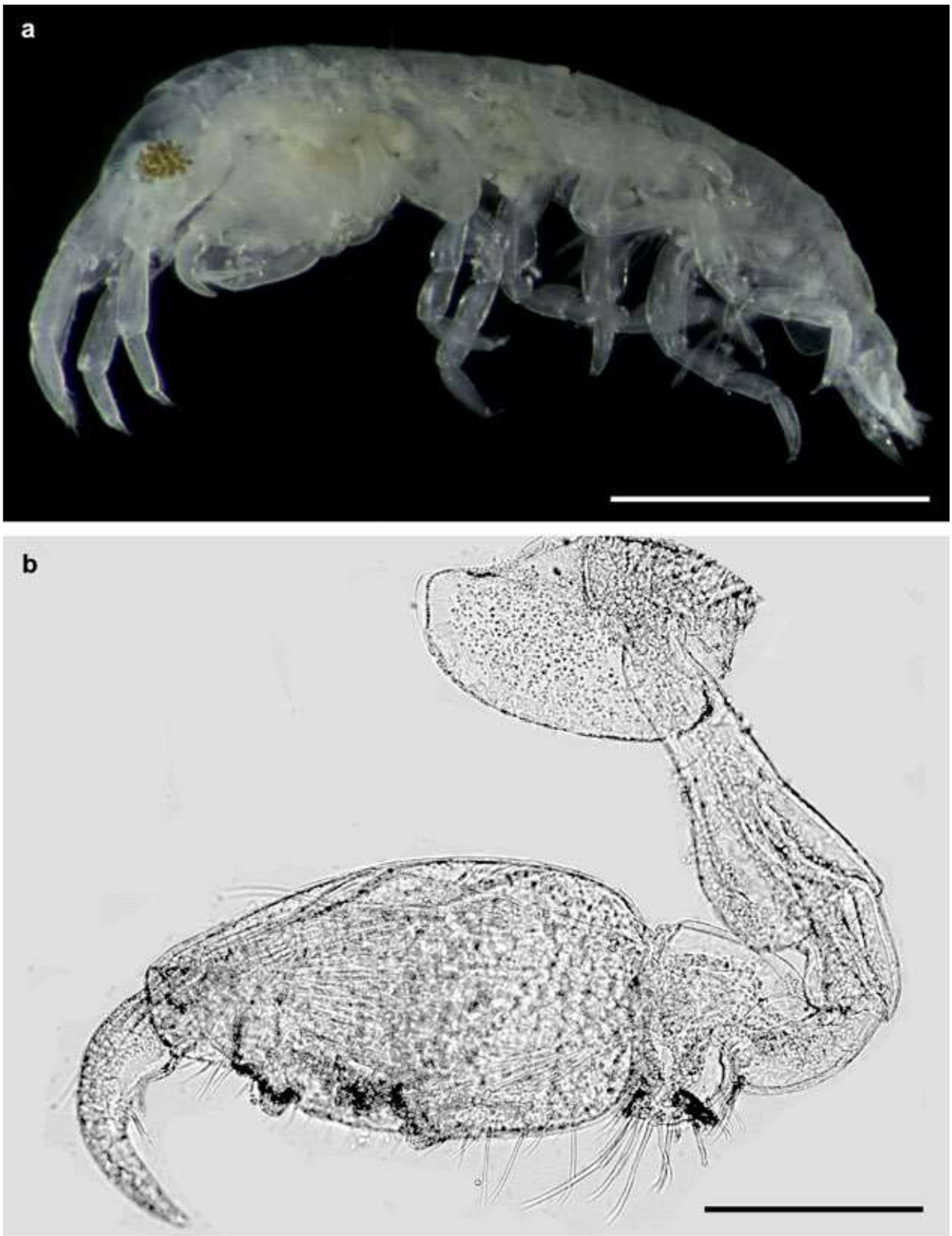

Plate 53. *Colomastix* sp. 1, Al-Nuwaiseeb. Male: a – habitus; b – gnathopod 2. Scale lines: a – 1 mm; b – 0.2 mm.

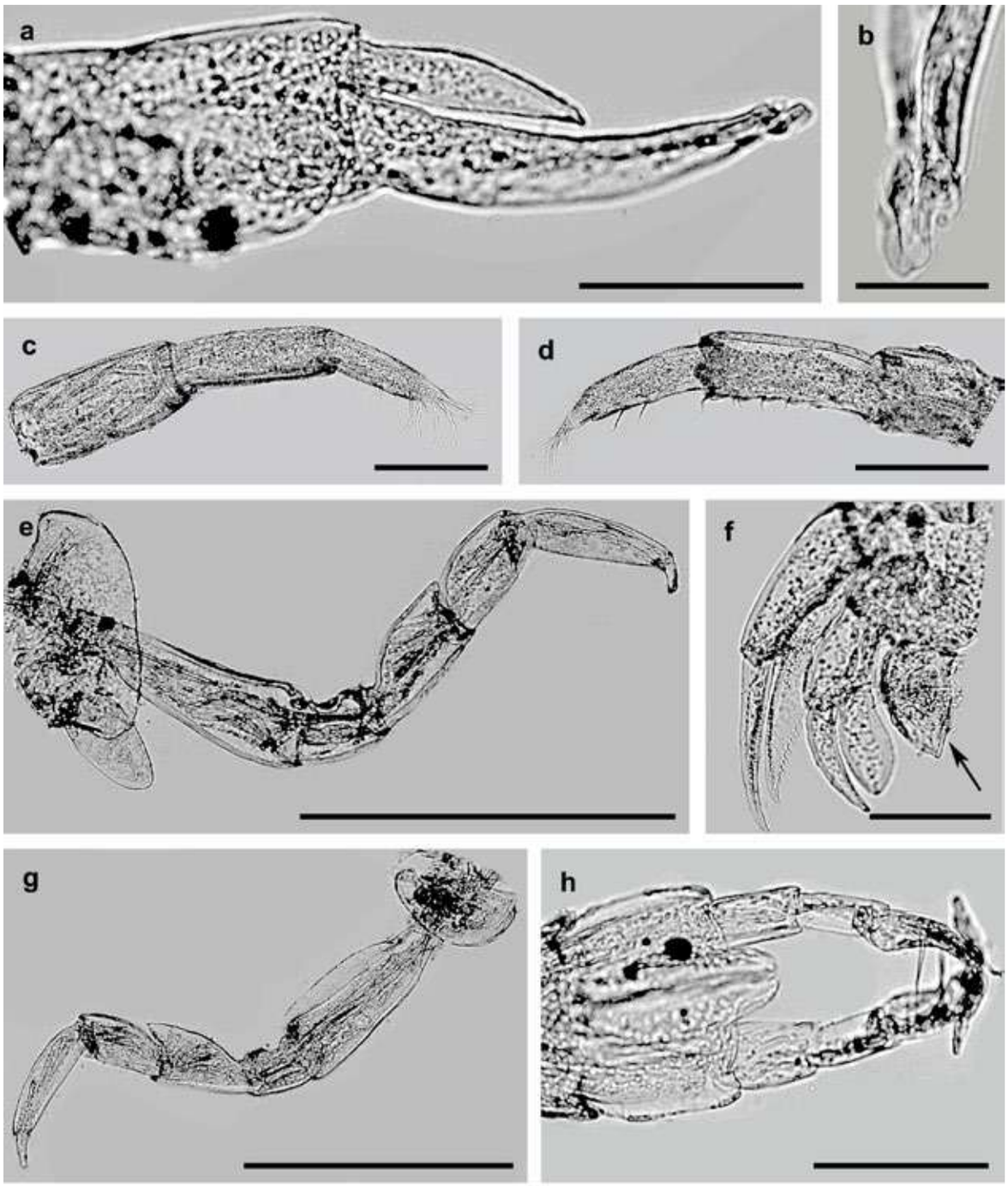

Plate 54. *Colomastix* sp. 1, Al-Nuwaiseeb. Male: a – uropod 1; b – uropod 1, tip of outer rami; c – antenna 1; d – antenna 2; e – pereopod 3; f – uropods 2, 3, and telson (arrow); g – pereopod 7; h – maxilliped. Scale lines: e and g – 0.5 mm; c and d – 0.2 mm; a, f, and h – 0.1 mm; b – 0.025 mm.

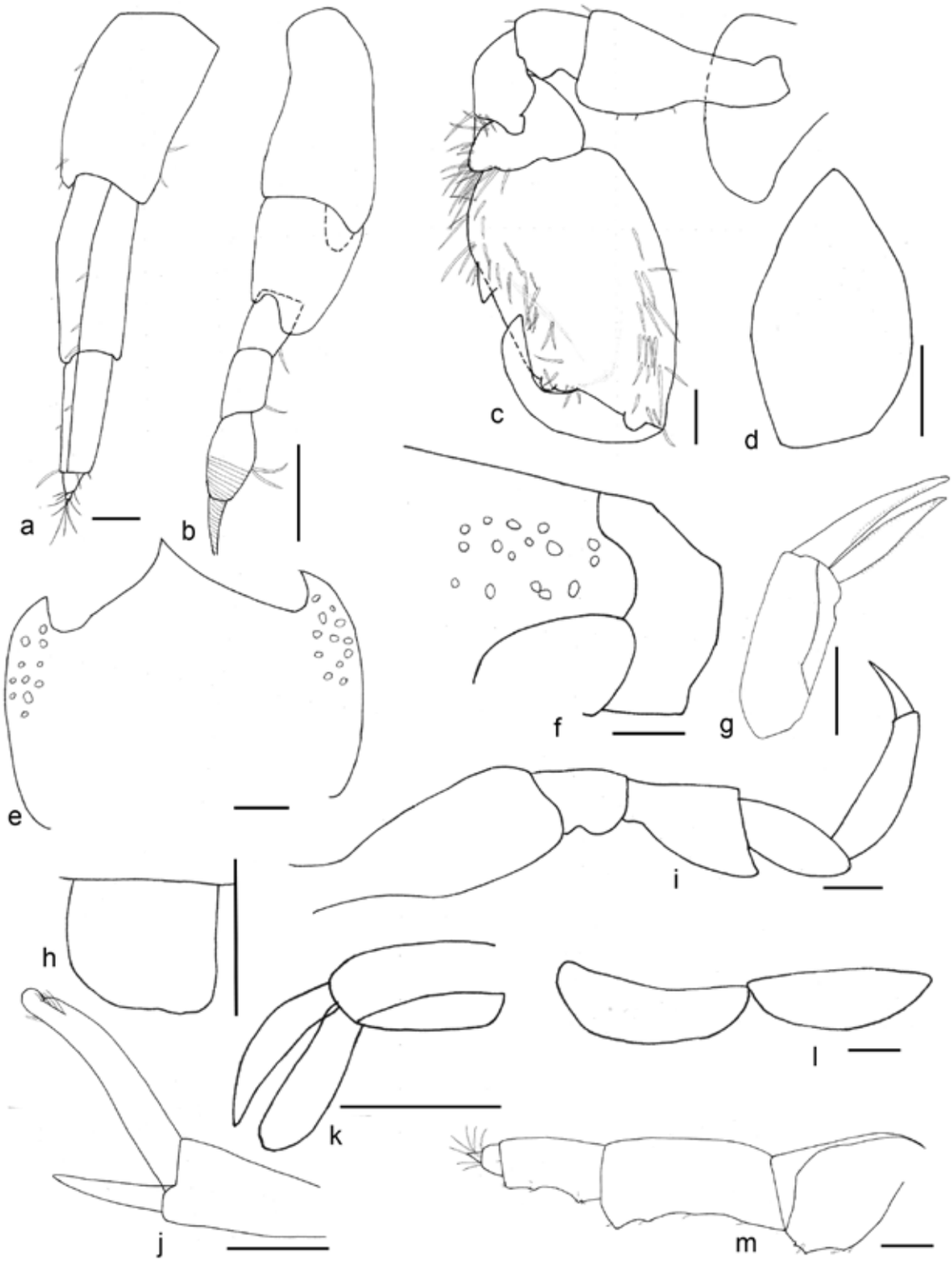

Fig. ZP-21. *Colomastix* sp. 1, Al-Nuwaiseeb. Male: a – antenna 1; b – antenna 2; c – gnathopod 2; d – coxa 1; e – head, dorsal view; f – head, lateral view; g – uropod 2; h – telson; i – pereopod 7; j – uropod 1; k – uropod 3; l – coxae 6 and 7; m – antenna 1 lateral view. Scale lines – 0.1 mm.

Family Colomastigidae
Genus *Colomastix*

Colomastix sp. 2

Plates 55 and 56, and Fig. ZP-22.
Occurrence: Al-Nuwaiseeb area, Al-Khiran area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitat: living sponges.

Description. Male 3 mm. Head eyes oval. A1 peduncular article 1 with 2-3 dorsomedial small robust setae. A2 peduncular article 3-5 without small, triangular robust setae. Mxp moderately reduced, inner plates completely fused, basal shell expanded in form ventral keel, outer plates exceeding proximal part of palp of second article. Cox1 anterior margin concave. Cox1 – Cox4 without small anteroventral cusp. Gn1 elongated, slender; propodus with apical setae. Gn2 basis moderately expanded, distally with a little anterodistal notch, ischium with a little anterodistal lobe; carpus shorter than propodus, inner ventral surface with a patch of setae, setae elongated, very fine; propodus enlarged, inner ventral surface with a patch of setae, setae elongated, slender; palm not excavate, without processes, without spine; dactylus insertion on propodus apical, without the process of posterior margin. U1 inner ramus modified, slightly falcate, tip produced; outer ramus slightly shorter than inner, more slender, lanceolate. U2 rami longer than peduncle; outer ramus slightly shorter than inner, without setae. U3 like U2 but shorter; rami slightly longer than peduncle; outer ramus slightly longer than inner; both without setae. T broadly subtriangular, without lobes or processes.
Female, 3.6 mm. Similar to male. A2 peduncle with dorsoventral spine. Gn2 basis, carpus and propodus more slender; carpus more longer. U1 inner ramus not modified, lanceolate, slightly longer than outer ramus.

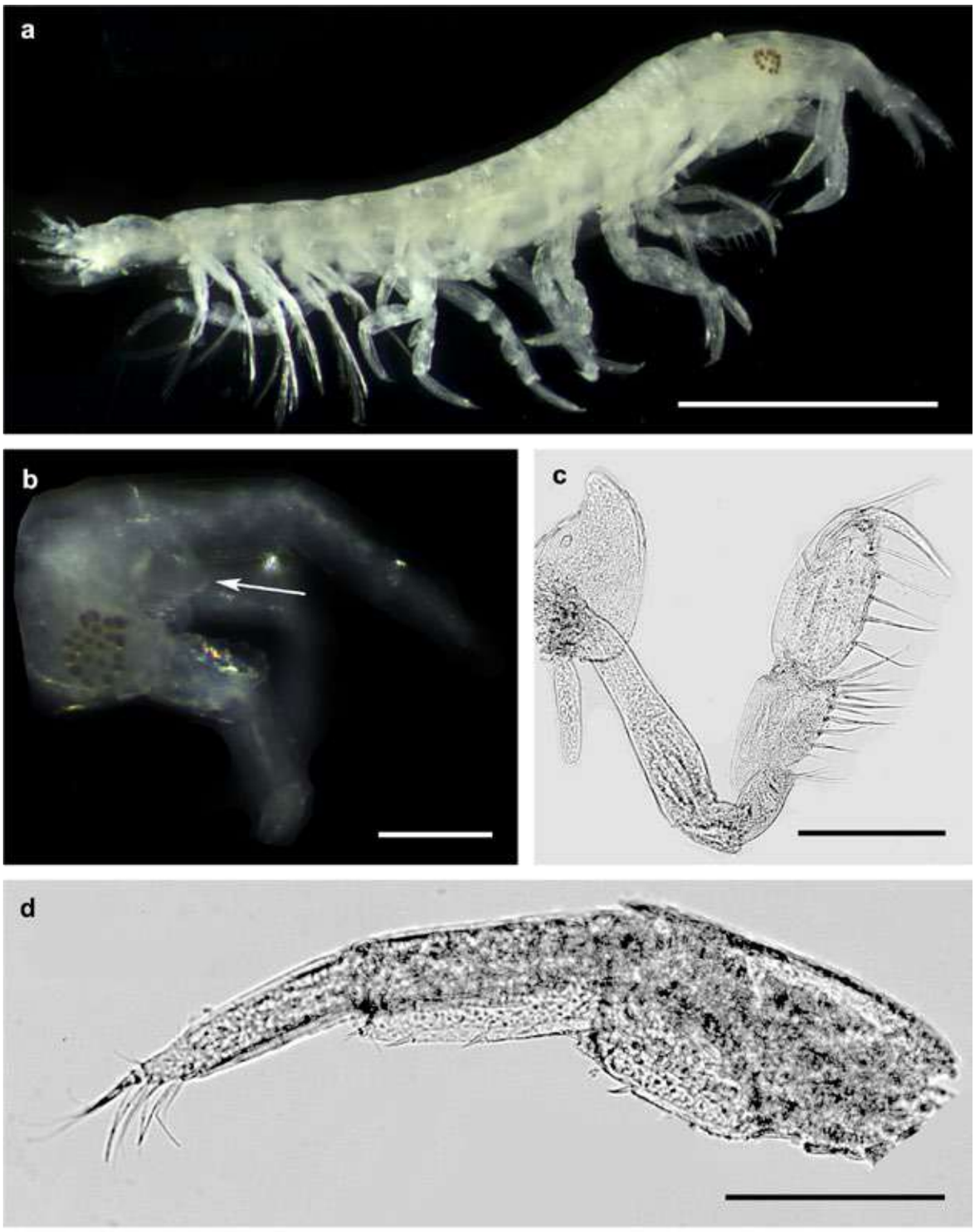

Plate 55. *Colomastix* sp. 2, Al-Khiran. Male: a – habitus; b – head, dorsolateral view, rostrum (arrow); c – gnathopod 2; d – antenna 1. Scale lines: a – 1 mm; b, c, and d – 0.2 mm.

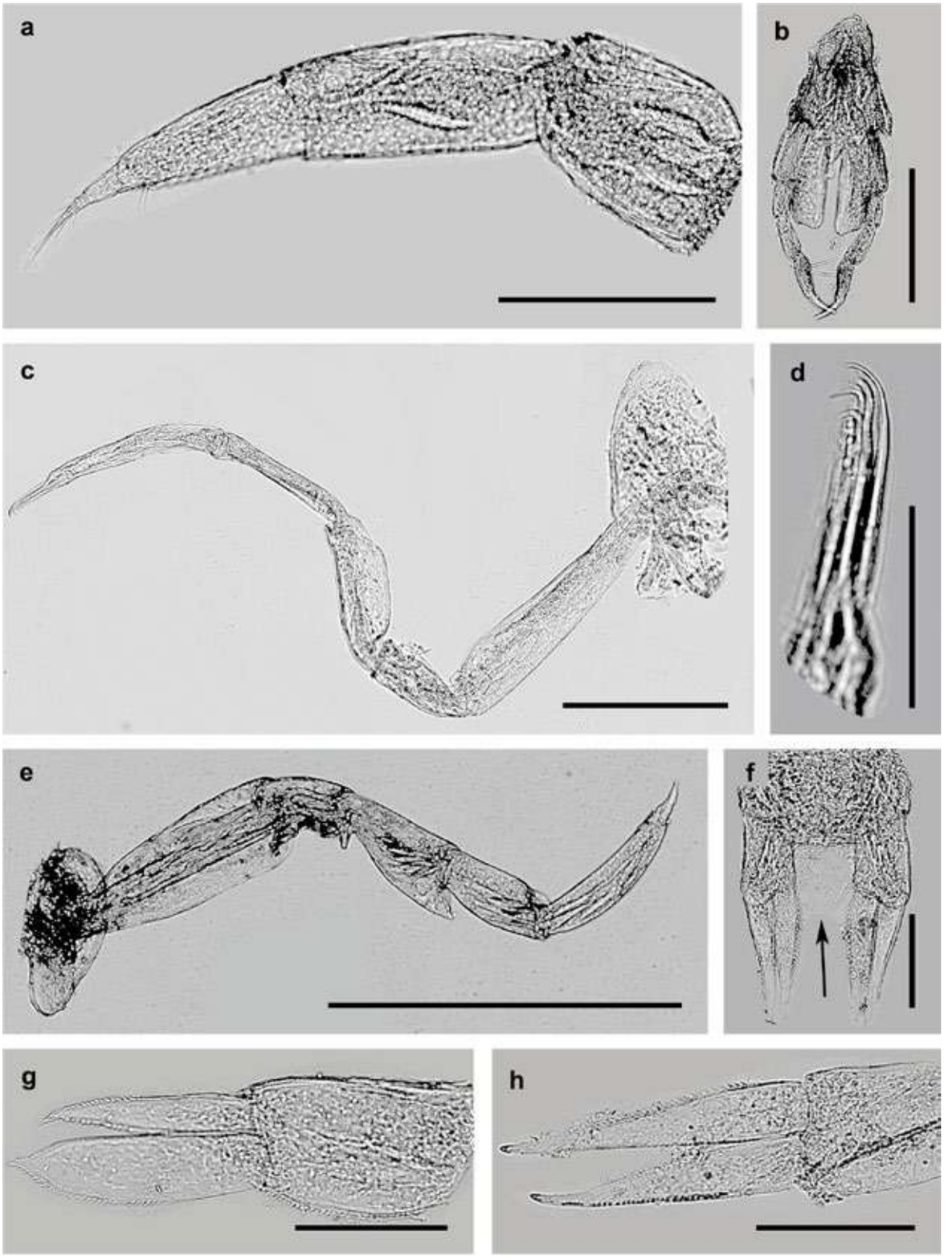

Plate 56. *Colomastix* sp. 2, Al-Khiran. Male: a – antenna 2; b – maxilliped; c – gnathopod 1; d – gnathopod 1, tip of dactylus; e – pereopod 7; f – uropods 3, telson (arrow); g – uropod 1; h – uropod 2. Scale lines: e – 0.5 mm; a, b, and c – 0.2 mm; f, g, and h – 0.1 mm; d – 0.05 mm.

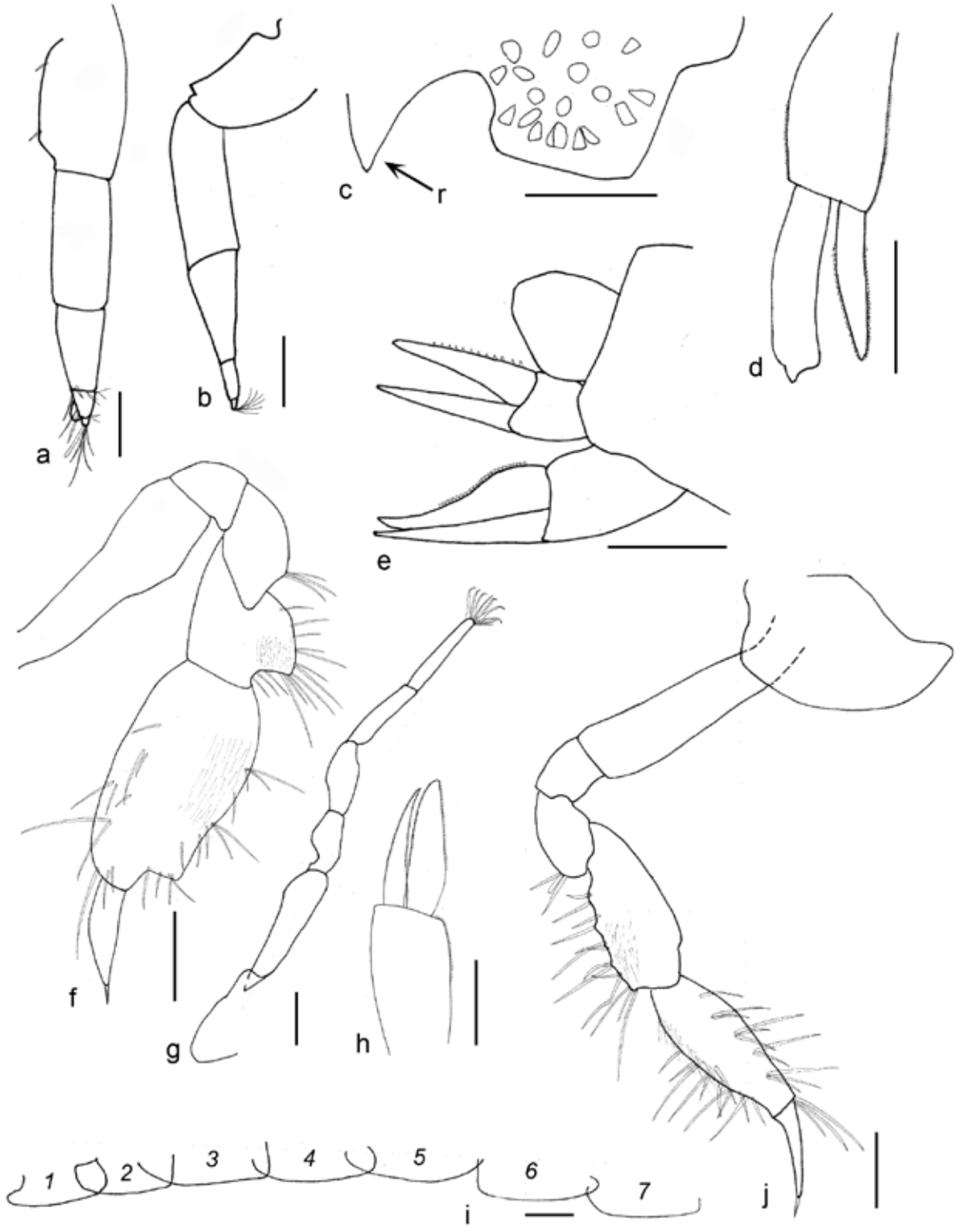

Fig. ZP-22. *Colomastix* sp. 2, Al-Khiran. Male: a – antenna 1; b – antenna 2; c – head; d – uropod 1; e – urosome, telson, uropod 2, uropod 3; f – gnathopod 2; i – coxae 1 – 7. Female: g – gnathopod 1; h – uropod 1; j – gnathopod 2. Scale lines – 0.1 mm. Designation: r – rostrum; 1, 2, 3, 4, 5, 6, and 7 – coxae 1, 2, 3, 4, 5, 6, and 7.

Family Corophiidae
Genus *Laticorophium*

Laticorophium bifurcatum Myers & Nithyanandan, 2016
Plates 57 – 60 and Fig. ZP-23.
Occurrence: Al-Judailiat (West Doha) area, Al-Aushairij (East Doha) area, pier constructions of Marinas' area, Funaitees area, Ras Al-Ard area, Al-Bida'a area, Auha Island area, Al-Salam beach (Kuwait Bay area), Masfat Al-Ahmadi area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: fouling, macroalgae, shells, pebbles, cobble, ropes (as artificial habitat), rocks, aggregations of polychaete tubes, and sponges.

Description (after Myers & Nithyanandan, 2016; modified). Male, 2.2 mm. Head with short triangular rostrum; eyes subround. A1 peduncular articles 1 and 2 subequal, article 1 with two robust setae on the posterior proximal margin, the basal one recurved and two robust setae on the inner proximal margin; article 3 short; peduncular articles clothed with long fine setae; flagellum short, with three articles. A2 grossly enlarged; peduncular article 4 subrectangular with two strong spines on the posterodistal margin, a short inner one and a longer, recurved outer one; article 5 much more slender and about two thirds the length of article 1, posterodistal margin with one spine, subdistal margin with one spine; flagellum composed of two stout, setose articles. Mxp palp well developed, palp article 2 extending beyond the end of outer plate. Pereon. Gn1, dactylus bifid, tip exceeding short, oblique palm. Gn2, carpus short, deep, posterodistal margin setose; propodus lacking palm; dactylus short, bidentate. P3 and P4 short; basis broad; segment 4 broadened distally, slightly overhanging short article 5. P5 and P6 short, similar in form but bases unequal in size; segment 5 short, with 2 posterolateral clusters of short hook spines. P7 not elongated; basis medium broad; dactylus short. Us segments 1–3 fused, plate-like. U1 peduncle broad elongated, rami much shorter than peduncle, inner ramus longer than outer, both rami with robust setae. U2 peduncle stout, short; outer ramus shorter than peduncle rounded, with robust and fine setae, inner ramus slender, subequal with peduncle with robust setae. U3 peduncle short with large outer lobe; ramus short subround. T small, rounded.
Female, up to 3.0 mm (sexually dimorphic characters). A2 peduncular article 4 less robust than that of male, inner margin with one basal, one mediodistal, and one distal robust seta; article 5 shorter and more slender than article 4, lacking spines or robust setae.

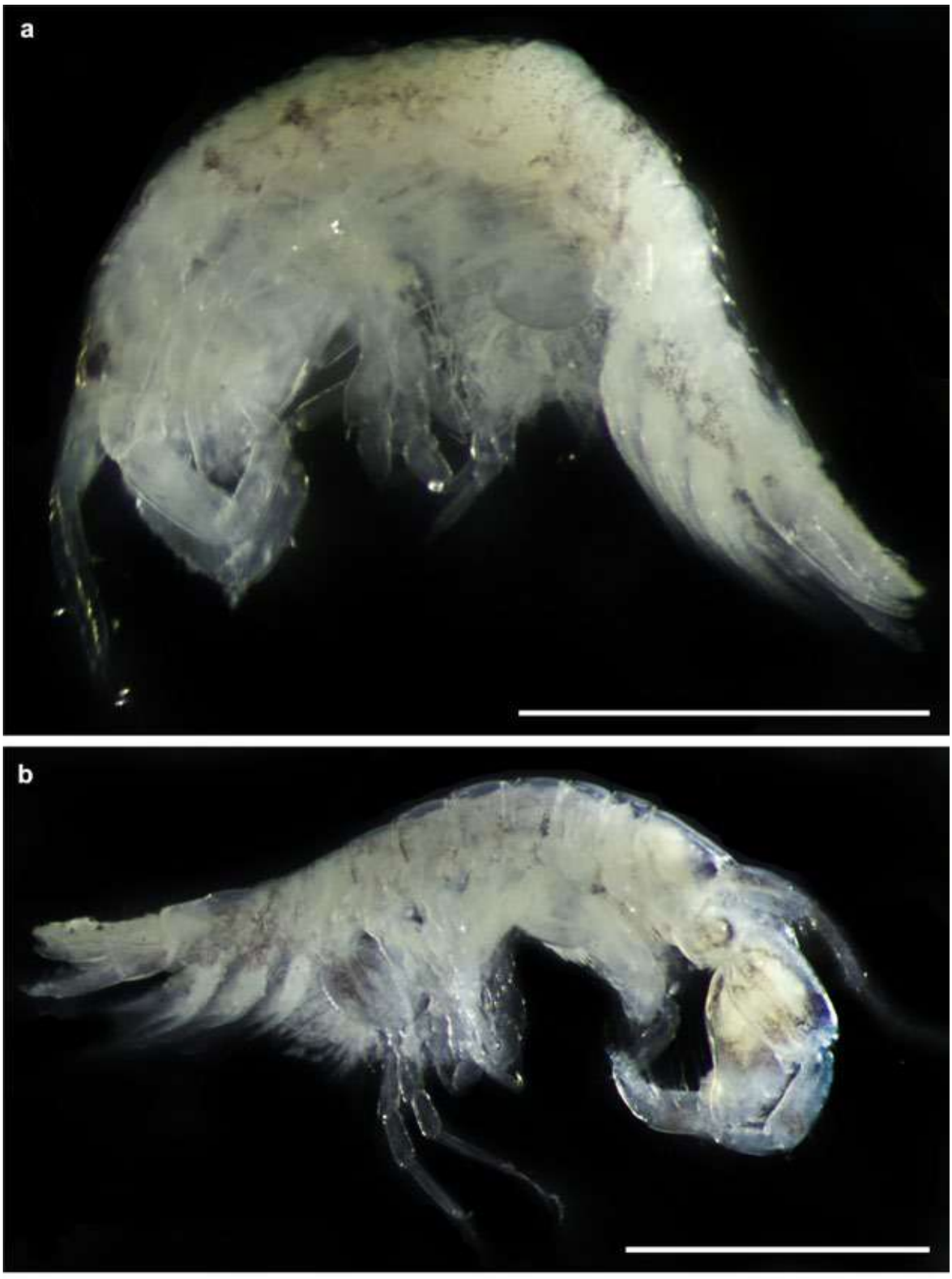

Plate 57. *Laticorophium bifurcatum*, East Doha: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

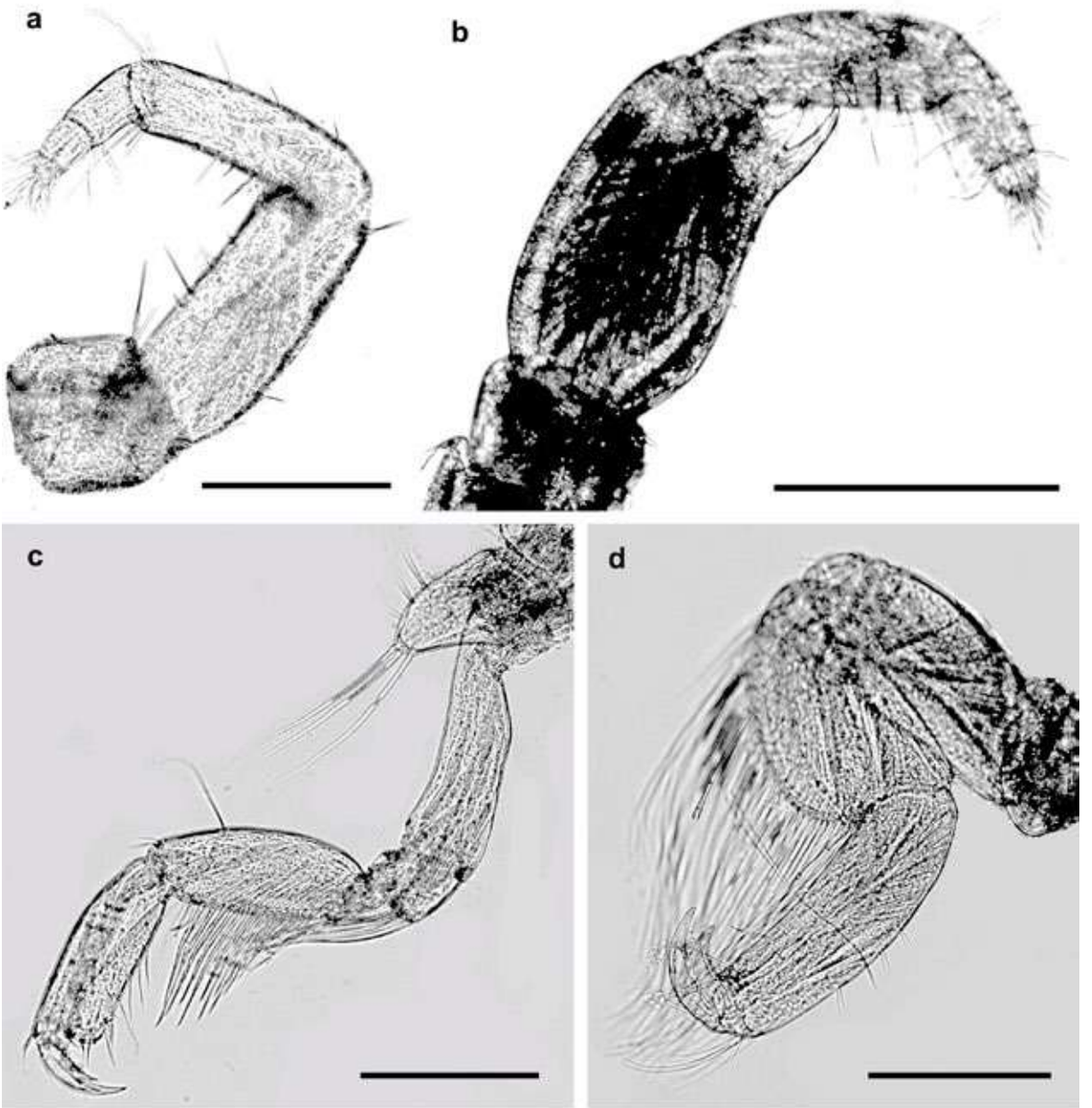

Plate 58. *Laticorophium bifurcatum*, East Doha. Female: a – antenna 2. Male: b – antenna 2; c – gnathopod 1; d – gnathopod 2. Scale lines: a, c, and d – 0.2 mm; b – 0.1 mm.

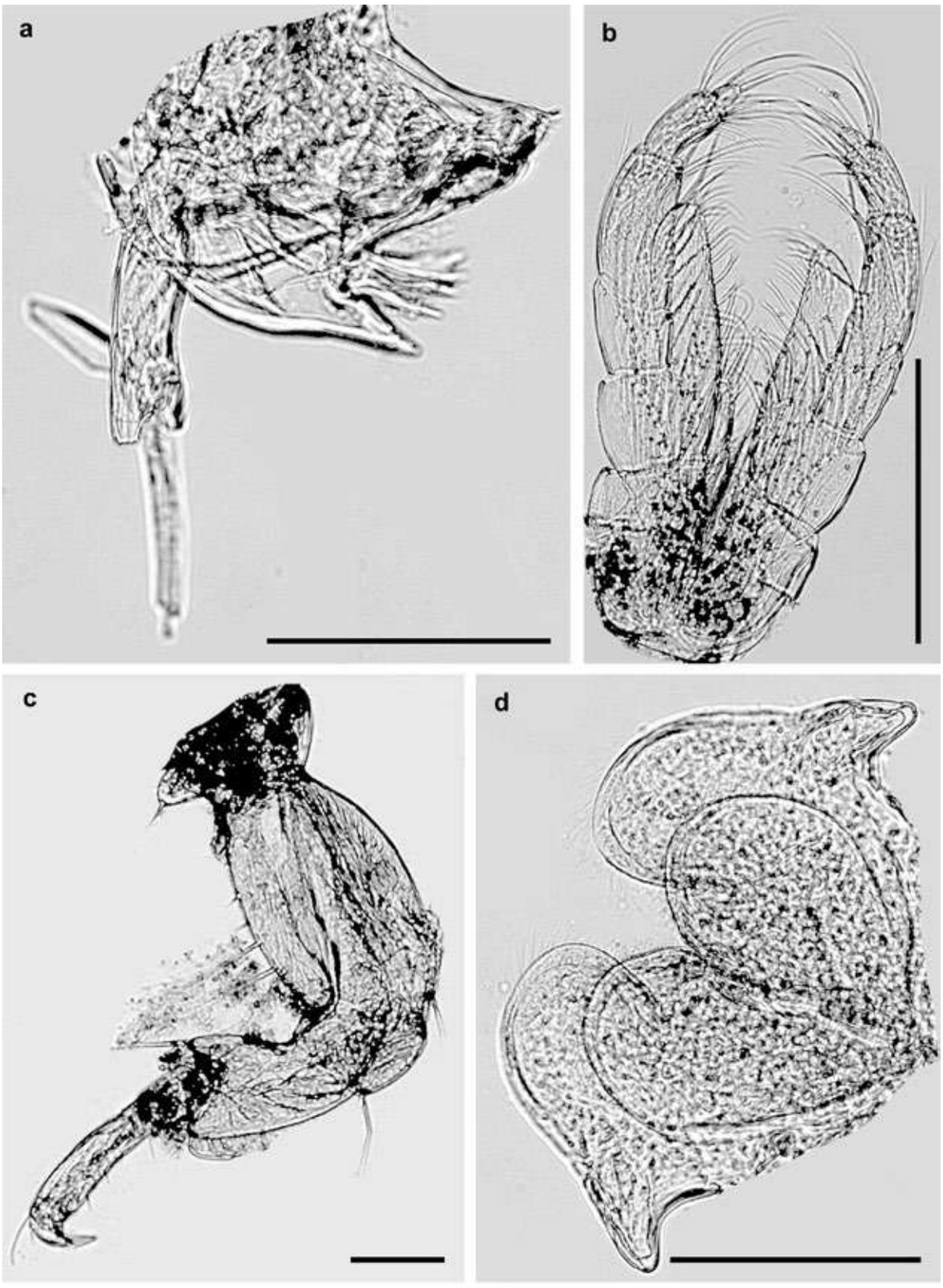

Plate 59. *Laticorophium bifurcatum*, East Doha. Male: a – mandible; b – maxilliped; c – pereopod 6; d – labium. Scale lines: c – 0.5 mm; b and d – 0.2 mm; a – 0.1 mm.

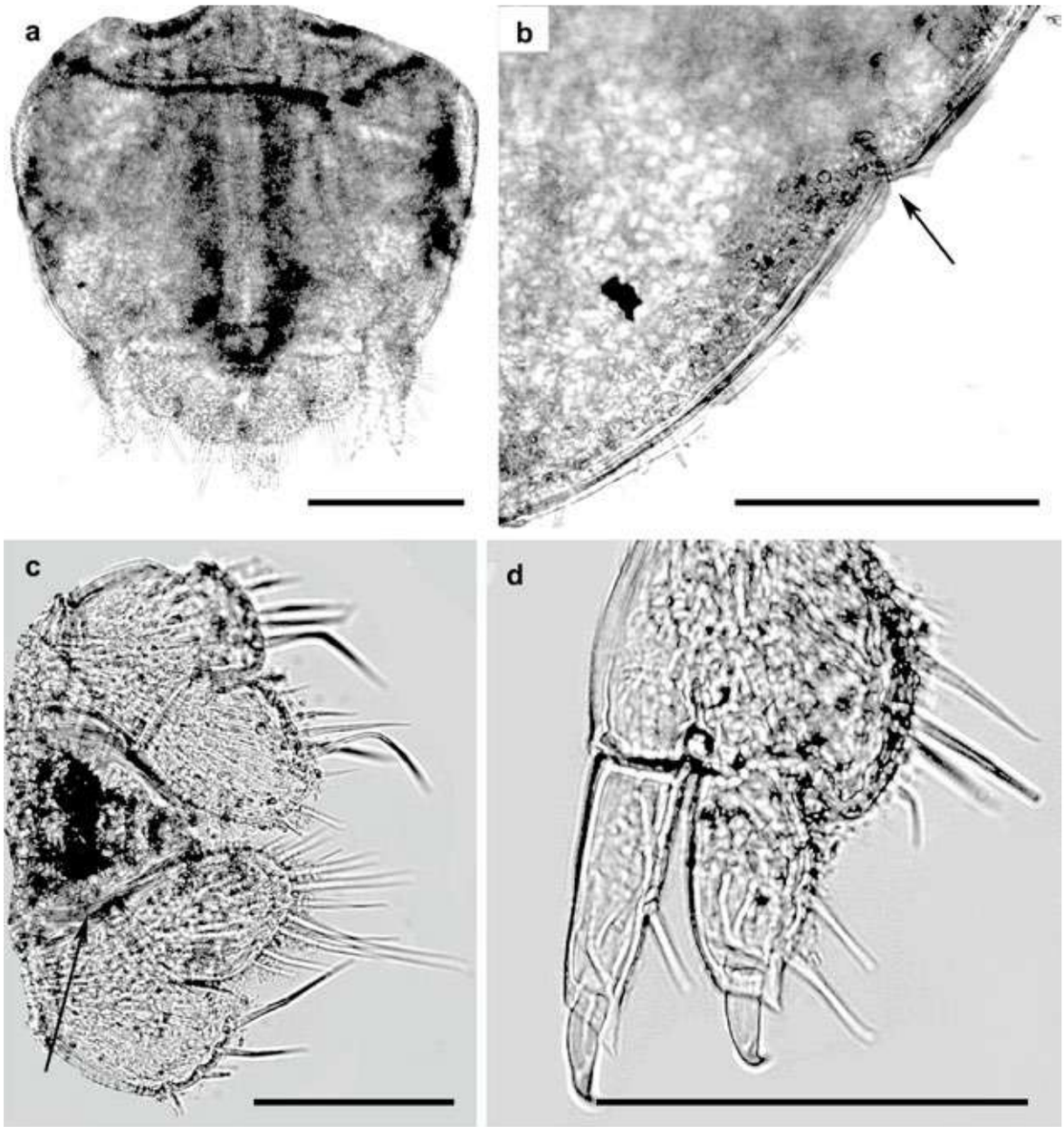

Plate 60. *Laticorophium bifurcatum*, East Doha. Female: a – urosome; b – urosome, channel (arrow). Male: c – uropod 3, telson (arrow); d – uropod 2. Scale lines: a – 0.2 mm; b, c, and d – 0.1 mm.

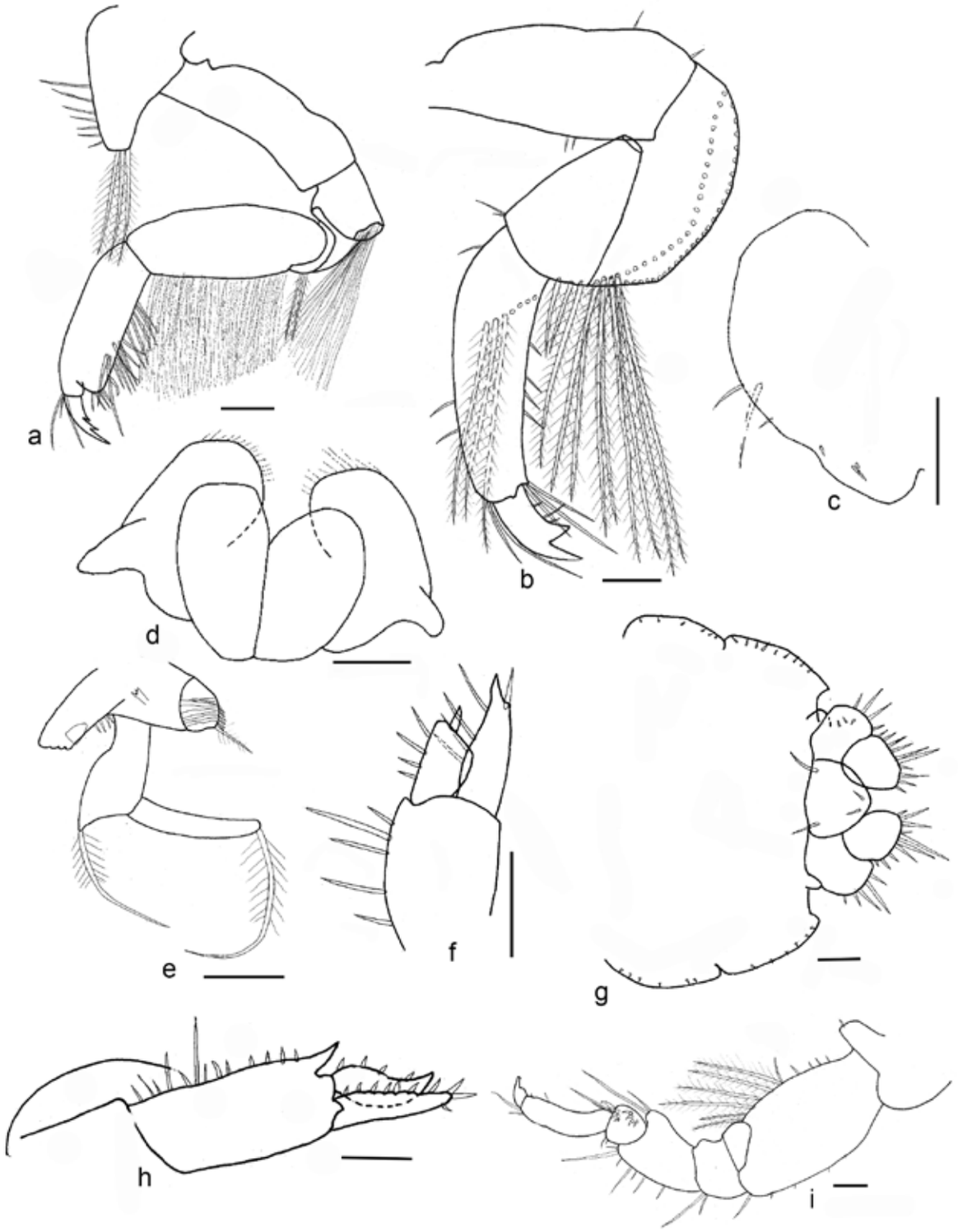

Fig. ZP-23. *Laticorophium bifurcatum,* West Doha. Female: a – gnathopod 1; b – gnathopod 2; c – coxa 4; d – labium; e – mandible; f – uropod 2; g – urosome, uropod 3, telson; h – uropod 1; i – pereopod 6. Scale lines – 0.1 mm.

Family Corophiidae
Genus *Cheiriphotis*

Cheiriphotis megacheles (Giles, 1885)
Plates 61 – 64.
Occurrence: Funaitees area, Al-Bida'a area, Auha Island area, Al-Shumaimah (Khor Al-Subiyah area), Failaka Island area, Auha Island area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, rocks, muddy sand, sponges, and *Sargassum* spp. (macroalgae).

Description (Salman & Jabar, 1990). Male, 5.8 mm. Lateral cephalic lobe slightly extended forward; eye of medium size occupying most of cephalic lobe; head length slightly more than head width; Cox1 slightly larger than Cox2. A1 slightly longer than A2, peduncle longer than flagellum, article 1 peduncle as long as article 3, article 2 longest, acc.fl. 4-articulate, flagellum 12-articulate; articles peduncle and flagellum with long setae, articles flagellum with aesthetascs. A2 peduncular article 4 near the long of article 5; flagellum 10-articulate, nearly as long as the ultimate peduncular article. Md; Left incisor with 4 ridges; right incisor with 5; left and right lacinia mobilis with 4 and 3 ridges, respectively. Lower lip. Inner lobe small, outer lobe with apical spines. Mx1 inner lobe small with an apical pointed process and 3 inner marginal setae; outer lobe reaching about 2/3 of the length of palp, with about 8 strong toothed spines; palps symmetrical 2-articulate. Mx2; inner lobe reaching beyond 3/4 of the length of outer lobe. Mxp; inner lobe reaching slightly beyond palp article 1, with 4 apical teeth, outer lobe reaching more than 3/4 of the length of article 2 palp, and with strong teeth; palp 4-articulate, article 4 with terminal claw. Gn1; basis slender slightly longer than carpus; ischium and merus subequal, posterior margin of latter with many setae; carpus longer than propodus, broad medially, with many posterior marginal setae and a few setae on the anterior margin; propodus subtriangular, anterior margin with many setae; palm oblique, not well defined from the posterior margin of propodus, with many facial setae, dactylus falcate. Gn2; basis much shorter than propodus, anterodistal corners each with a strong narrow mammilliform lobe; ischium subquadrate, shorter than merus; carpus completely fused with propodus, later enormous, longer than wide, anterior margin with many plumose setae, palm nearly transverse, longer than the posterior margin of propodus with a strong tooth at the defining corner and 3 pointed marginal teeth and single proximal one at the inner surface; dactylus falcate. P3 and P4 setose slender, basis longer than the following three articles combined; ischium small, subquadrate, merus, carpus and propodus subequal in length, latter very slender narrowed distally; dactylus curved. P5 – P7, basis to merus densely setose, just as carpus P5. Basis very wide, that of P5 nearly as long as the following articles combined; propodus very slender, anterior margin with a few spines and setae, posterior margin of P5 naked; dactylus falcate. U1 reaching well beyond the apex of U2 and U3, peduncle longer than rami and with many dorsomarginal spines, rami subequal with inner and outer dorsomarginal spines. U2, peduncle slightly longer than rami and with few dorsomarginal spines, rami subequal, each with inner and outer dorsomarginal spines. U3 biramous, peduncle broad, nearly as long as the outer ramus, latter bearing about 4 inner marginal spines, a single terminal spine, and terminal and subterminal setae, inner ramus very small, about 1/4 the length of outer ramus and with one terminal spine. T broader than long with groups of subterminal and marginal setae.
Female, 6.6 mm. Gn1; basis slender slightly longer than carpus; ischium and merus subequal, posterior margin with setae; carpus longer than propodus, broad medially, with many posterior marginal setae and a few setae on the anterior margin; propodus subtriangular, anterior margin with many setae; palm oblique, not distinctly defined from the posterior margin of propodus, with many facial setae, dactylus falcate. Gn2; basis slender, longer than the following three articles combined, with a few setae on the anterior margin; ischium and merus subequal, each with setae on the posterior margin; carpus subtriangular with distoposterior margin produced into a truncate lobe; propodus large, longer than wide; palm oblique, palmar angle with a strong tooth and with deep median incision and a strong spine; dactylus falcate with incision proximally on the outer margin.

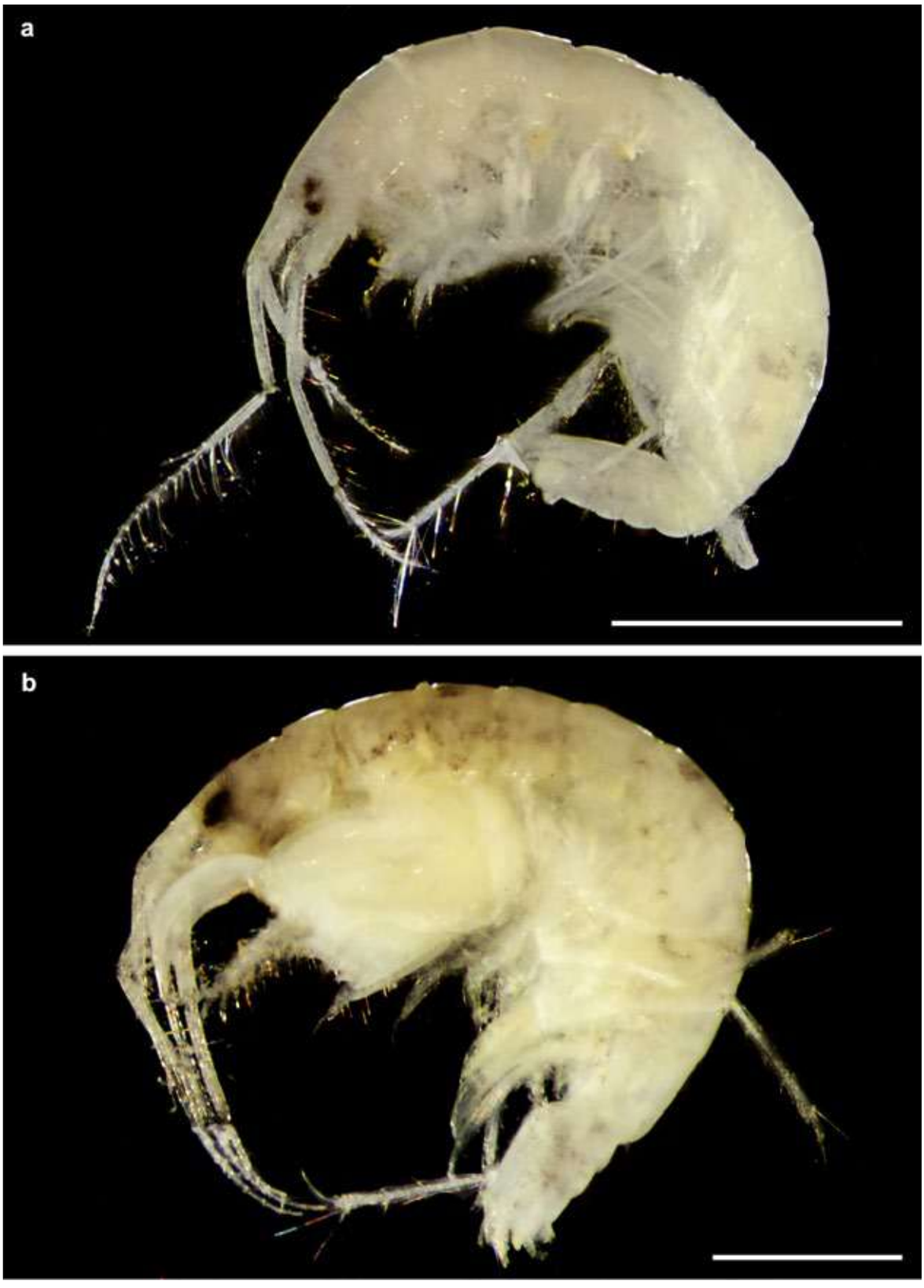

Plate 61. *Cheiriphotis megacheles*, Al-Bida'a: a – female habitus; b – male habitus. Scale lines: a – 2 mm; b – 1 mm.

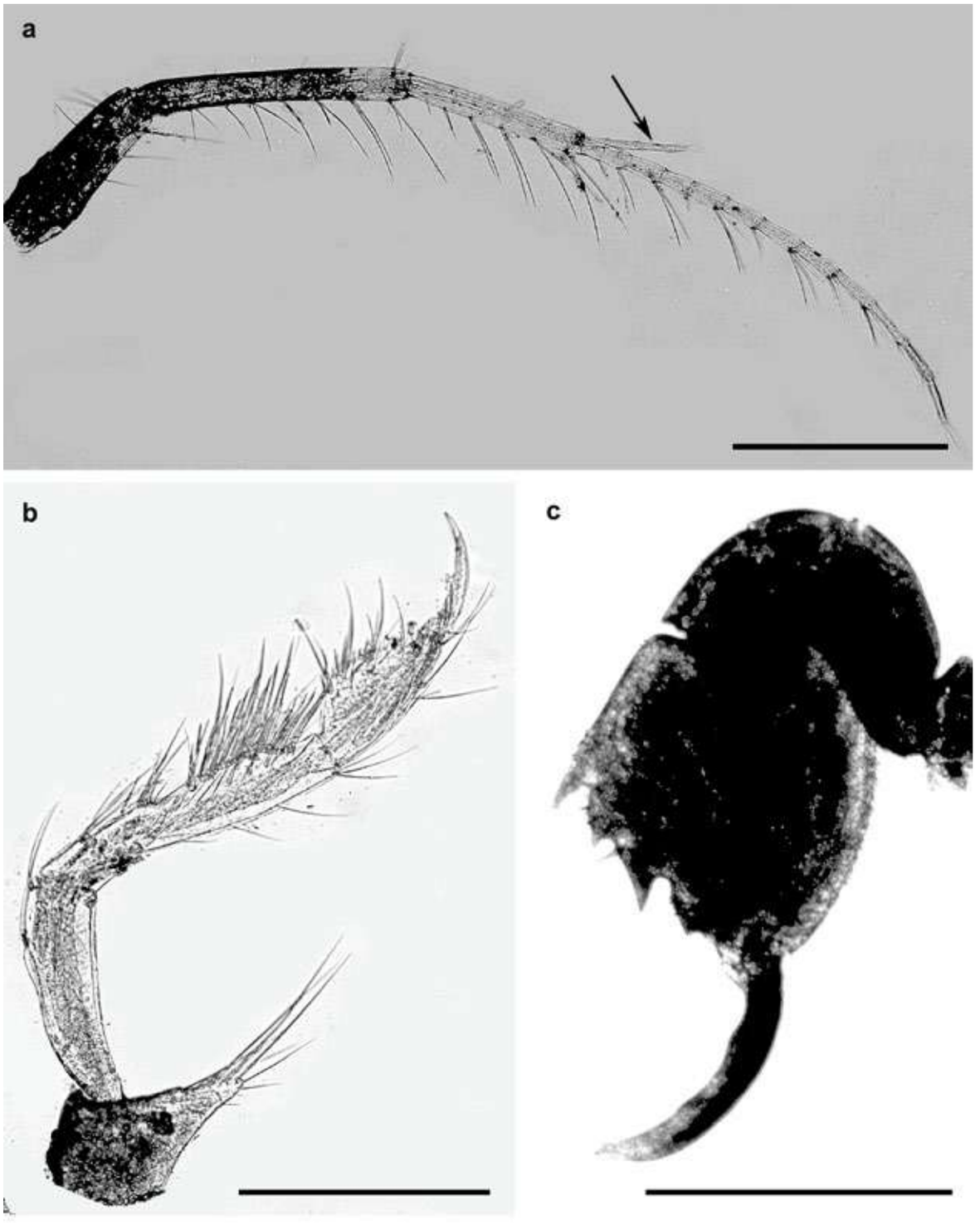

Plate 62. *Cheiriphotis megacheles*, Al-Bida'a. Male: a – antenna 1 accessory flagellum (arrow); b – gnathopod 1; c – gnathopod 2. Scale lines: a and b – 0.5 mm; c – 0.2 mm.

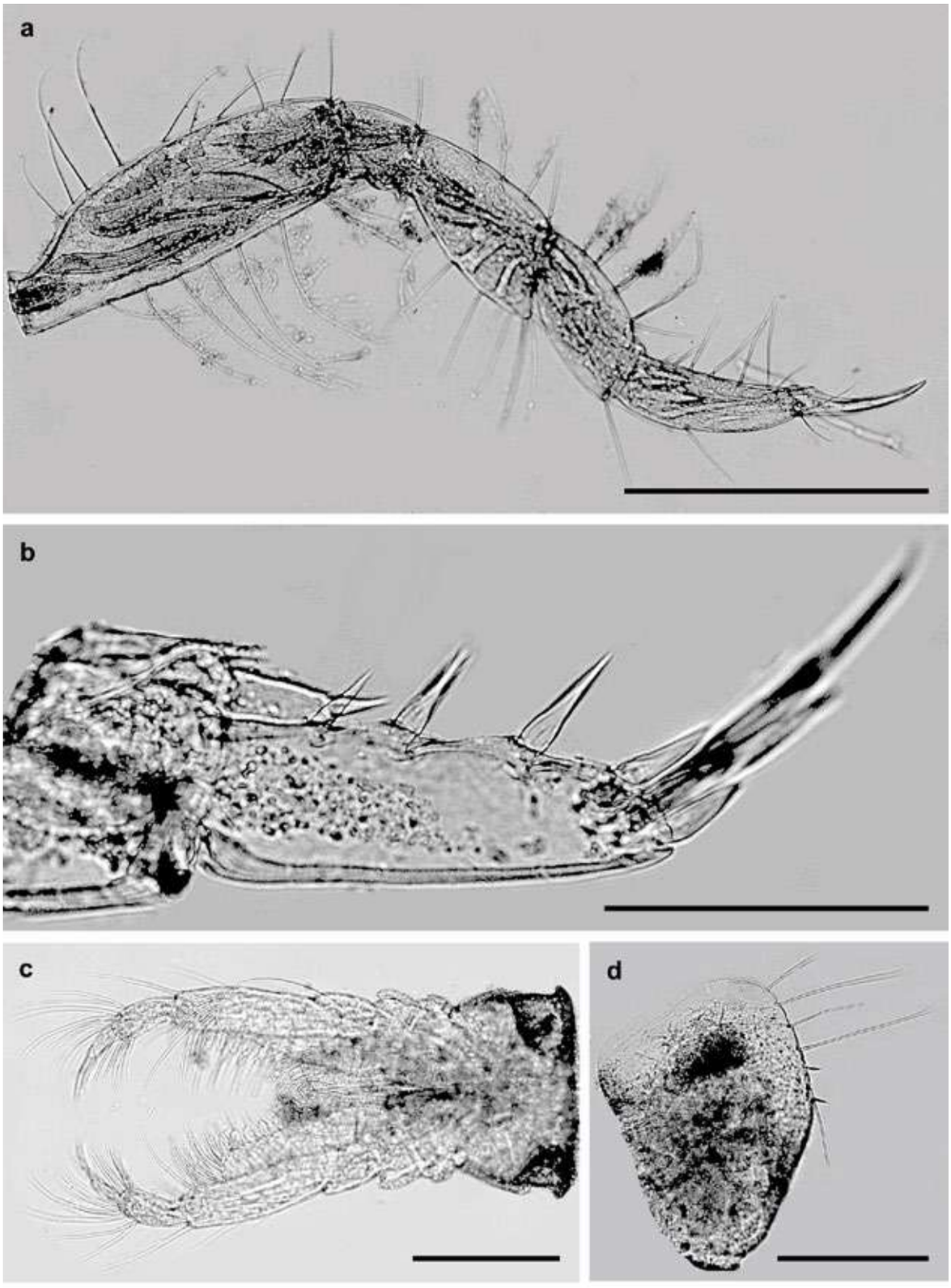

Plate 63. *Cheiriphotis megacheles*, Al-Bida'a. Male: a – pereopod 3; b – uropod 3; c – maxilliped; d – coxa 4. Scale lines: a – 0.5 mm; c and d – 0.2 mm; b – 0.1 mm.

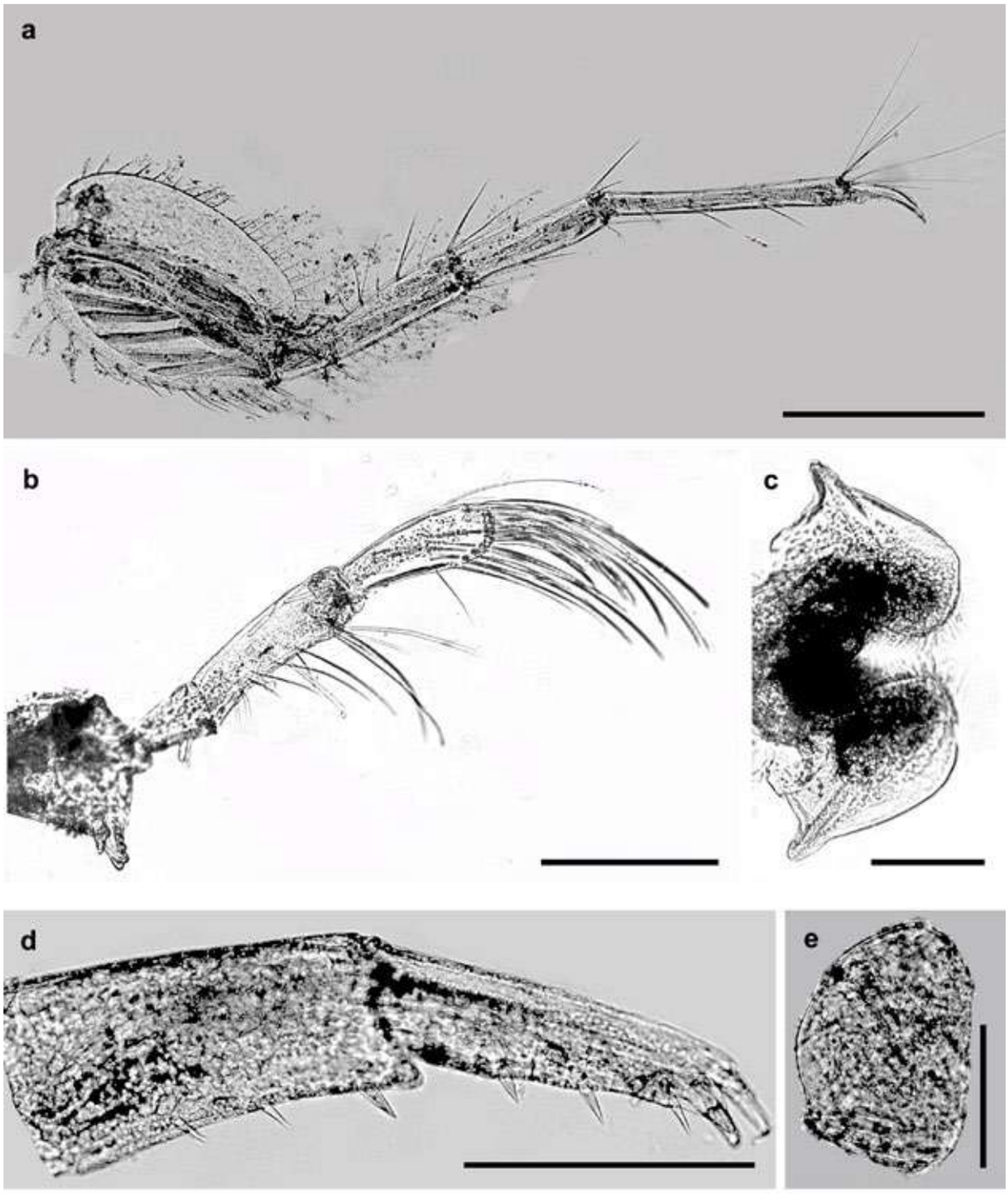

Plate 64. *Cheiriphotis megacheles*, Al-Bida'a. Male: a – pereopod 7; b – mandible; c – labium; d – uropod 2; e – telson. Scale lines: a – 0.5 mm; b and d – 0.2 mm; c and e – 0.1 mm.

Family Corophiidae
Genus *Cheiriphotis*

Cheiriphotis* sp. cf. *walkeri
Plates 65 – 68.
Occurrence: Funaitees area, Kuwait Bay area (subtidal), Al-Salam beach (Kuwait Bay area), Al-Shumaimah (Khor Al-Subiyah area), Masfat Al-Ahmadi area, Failaka Island area, Al-Judailiat (Kuwait Bay area), Auha Island area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, rocks, sponges, macroalgae, and aggregation of polychaete tubes.

Description. Male, 5.7 mm. Lateral cephalic lobe slightly extended forward; eye of medium size occupying most of the cephalic lobe; head length slightly more than the head width; Cox1 slightly larger than Cox2. A1 slightly shorter than A2, peduncle longer than flagellum, article 1 peduncle as long as article 3, article 2 longest, acc.fl. 4-articulate, flagellum 11-articulate; articles peduncle and flagellum with long setae, articles flagellum with aesthetascs. A2 peduncular article 4 nearly as long as article 5; flagellum 7-articulate, nearly as long as the ultimate peduncular article. Md; left incisor with 4 ridges; right incisor with 5; left and right lacinia mobilis with 4 and 3 ridges, respectively. L; inner lobe slightly shorter than outer, outer lobe with apical spines. Mx1 inner lobe small with an apical pointed process and 2 inner marginal setae; outer lobe reaching about 3/4 of the length of palp, with about 9 strong toothed spines; palps symmetrical, 2-articulate. Mx2, inner lobe reaching beyond 3/4 of the length of outer lobe. Mxp, inner lobe reaching slightly beyond palp article 1, with 4 apical teeth, outer lobe reaching more than 3/4 of the length of article 2 palp, and with strong teeth; palp 4-articulate, article 4 with terminal claw. Gn1; basis slender, slightly longer than carpus; ischium and merus subequal, posterior margin lateraly with setae; carpus slightly longer than propodus, broad medially, with many posterior marginal setae and a few setae on the anterior margin; propodus subtriangular, anterior margin with many setae; palm oblique with cave, defined spine from the posterior margin of propodus, with many facial setae, dactylus falcate with tiny spines on inner margin. Gn2; basis much shorter than propodus; ischium subquadrate, shorter than merus; carpus completely fused with propodus, later enormous, longer than wide, anterior margin with a few setae, palm nearly transverse, slightly longer than the posterior margin of propodus with a strong tooth at the defining corner and 4 pointed marginal teeth and 2 proximal teeth at the inner surface; dactylus falcate. P3 and P4 setose slender, basis subequal with the following three articles combined; ischium small, subquadrate, merus and propodus subequal in length, carpus slightly shorter than merus or propodus, later very slender narrowed distally; dactylus curved. P5 – P7; basis to merus densely setose, just as carpus P5. Basis very wide, that of P5 nearly as long as the following articles combined; propodus very slender, anterior margin with a few spines and setae, posterior margin of P5 naked; dactylus falcate. U1 reaching well beyond the apex of U2 and U3, peduncle longer than rami and with many dorsomarginal spines, rami subequal with inner and outer dorsomarginal spines. U2, peduncle slightly longer than rami and with a few dorsomarginal spines, rami subequal, each with inner and outer dorsomarginal spines. U3 uniramous, peduncle broad, nearly as long as ramus, latter bearing 2 inner marginal spines, a single terminal spine, and terminal and subterminal setae. T broader than long with groups of subterminal and marginal setae.
Female, 5.5 mm. Gn1; basis slender slightly longer than carpus; ischium and merus subequal, posterior margin of latter with setae; carpus slightly longer than propodus, broad medially, with many posterior marginal setae and a few setae on the anterior margin; propodus subtriangular, anterior margin with many setae; palm oblique without cave, not distinctly defined from the posterior margin of propodus, with many facial setae, dactylus falcate with tiny spines on the inner margin. Gn2; basis slender, longer than the following three articles combined, with a few setae on the anterior margin; ischium and merus subequal, each with setae on the posterior margin; carpus subtriangular with distoposterior margin produced into a truncate lobe; propodus large, longer than wide; palm oblique, palmar angle with a strong tooth; with two incisions and strong spines; dactylus falcate with serrations on the inner margin.

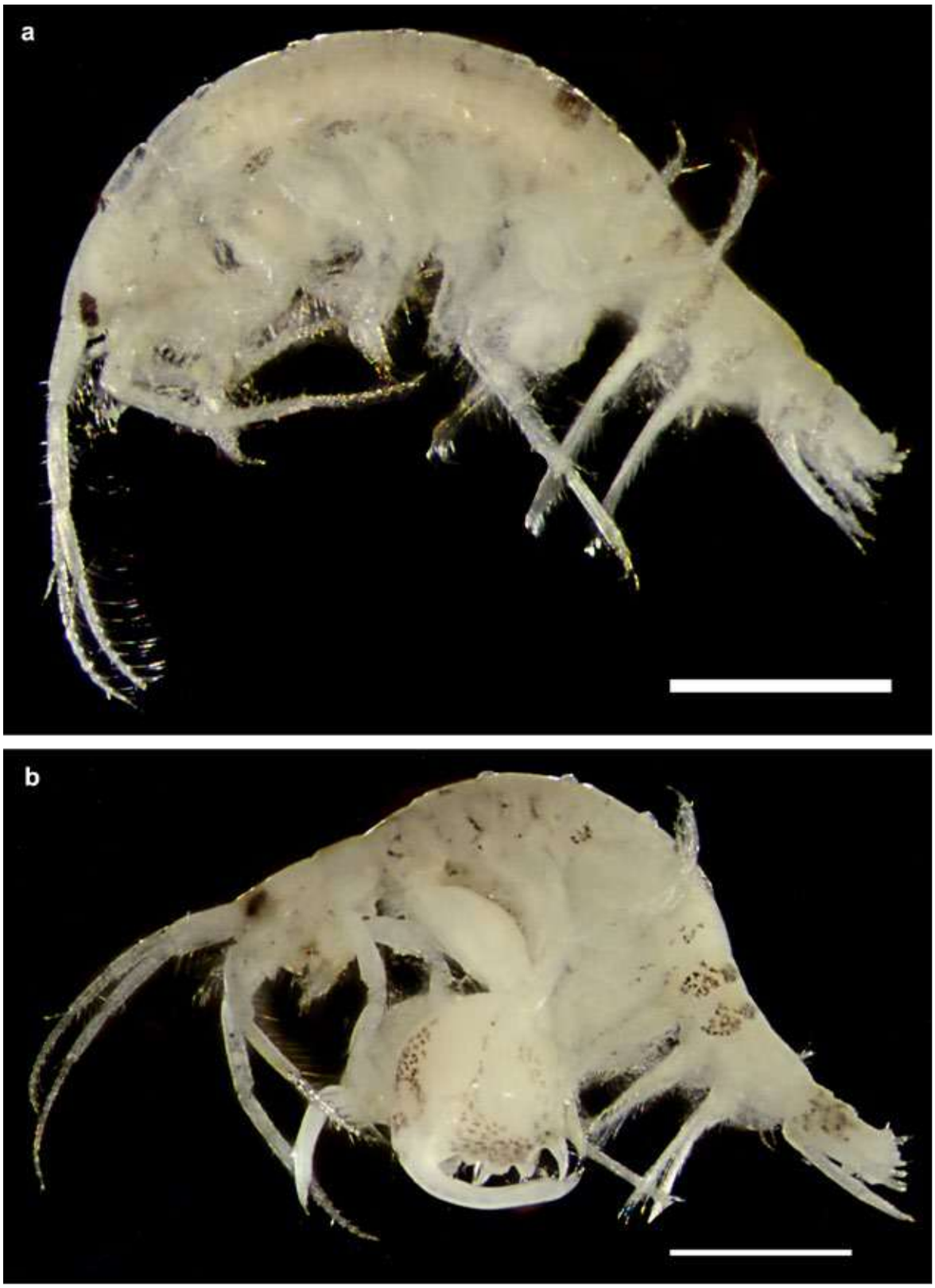

Plate 65. *Cheiriphotis* sp. cf. *walkeri*, Funaitees: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

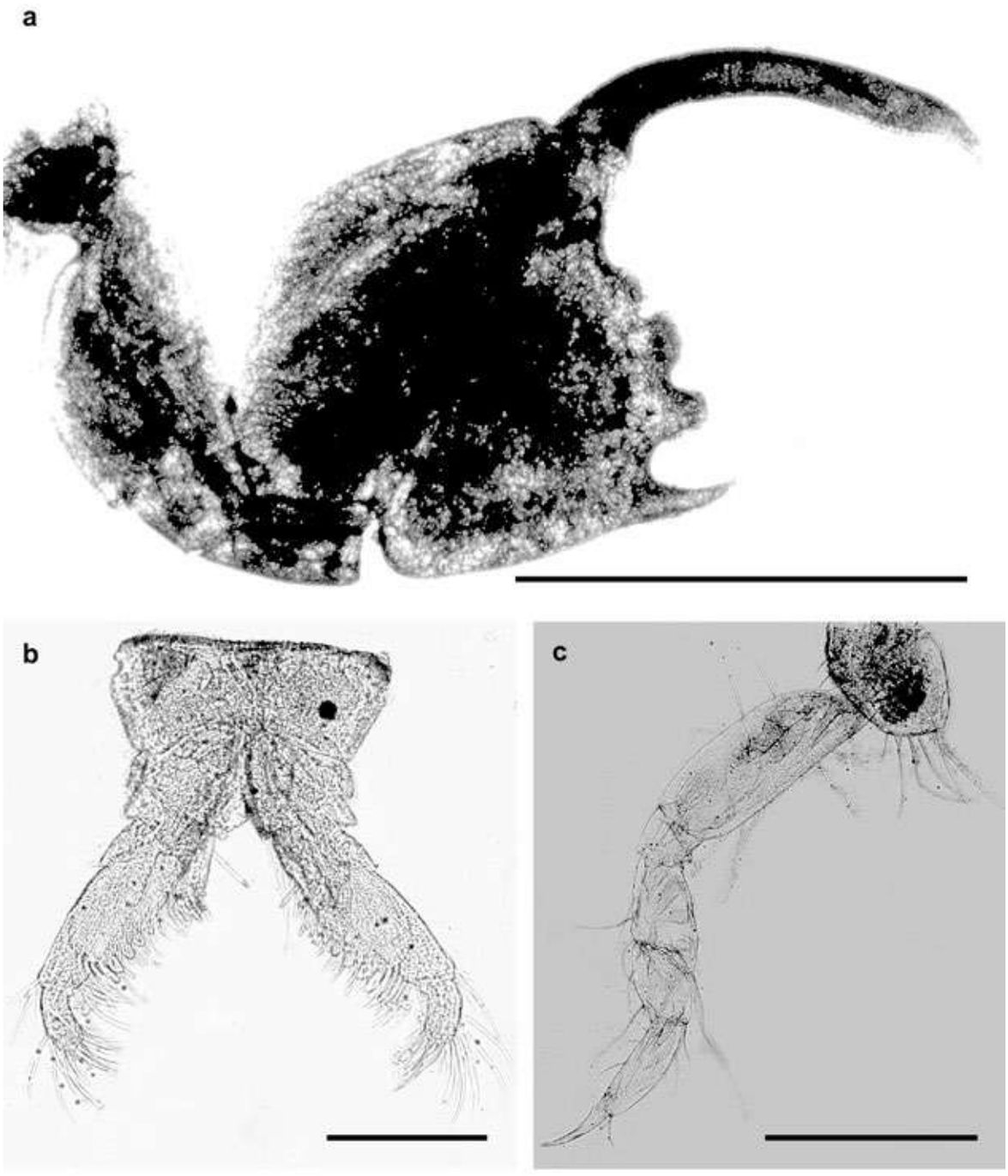

Plate 66. *Cheiriphotis* sp. cf. *walkeri*, Funaitees. Male: a – gnathopod 2; b – maxilliped; c – pereopod 4. Scale lines: a – 1 mm; c – 0.5 mm; b – 0.2 mm.

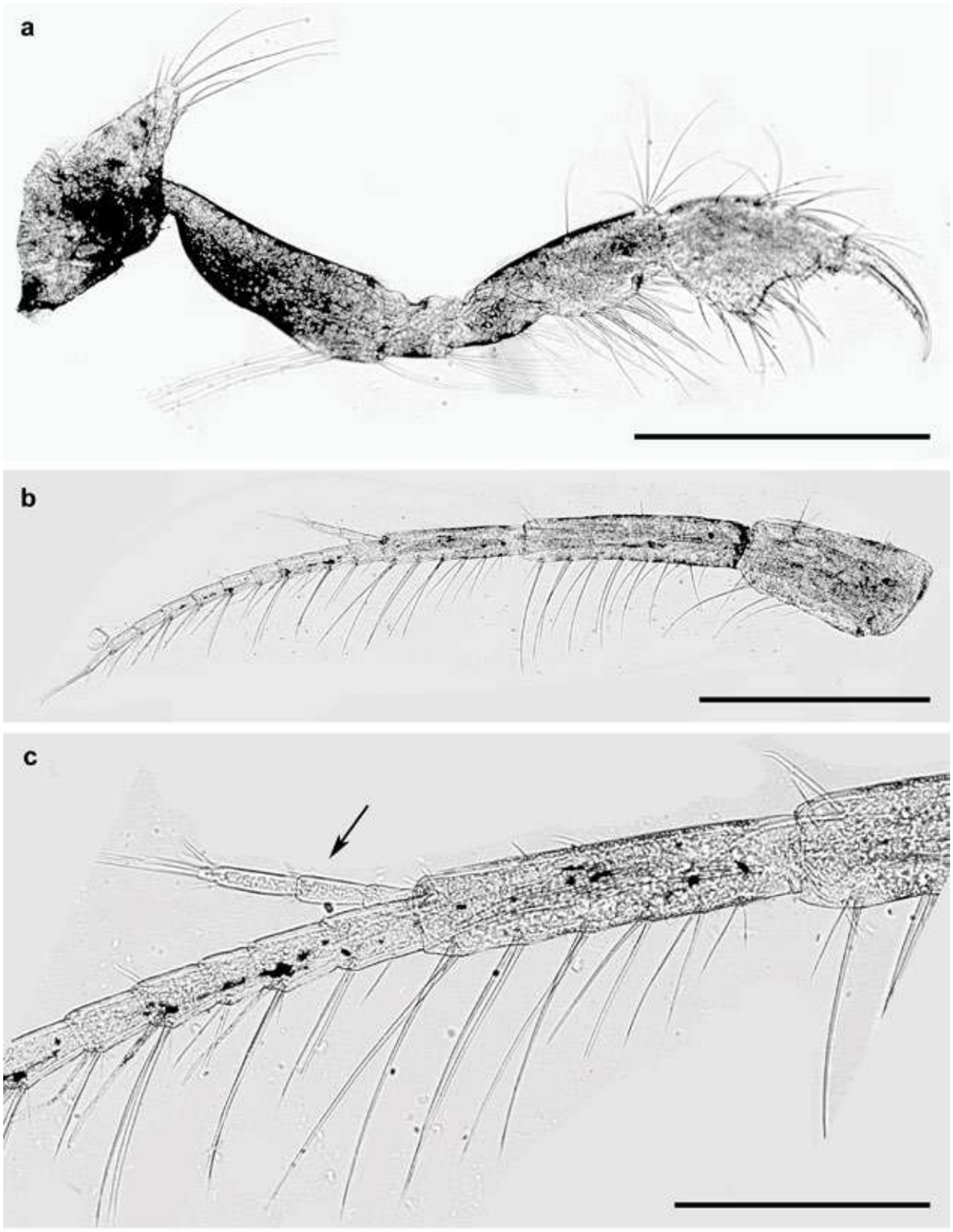

Plate 67. *Cheiriphotis* sp. cf. *walkeri*, Funaitees. Male: a – gnathopod 1; b – antenna 1; c – antenna 1, accessory flagellum (arrow). Scale lines: a and b – 0.5 mm; c – 0.2 mm.

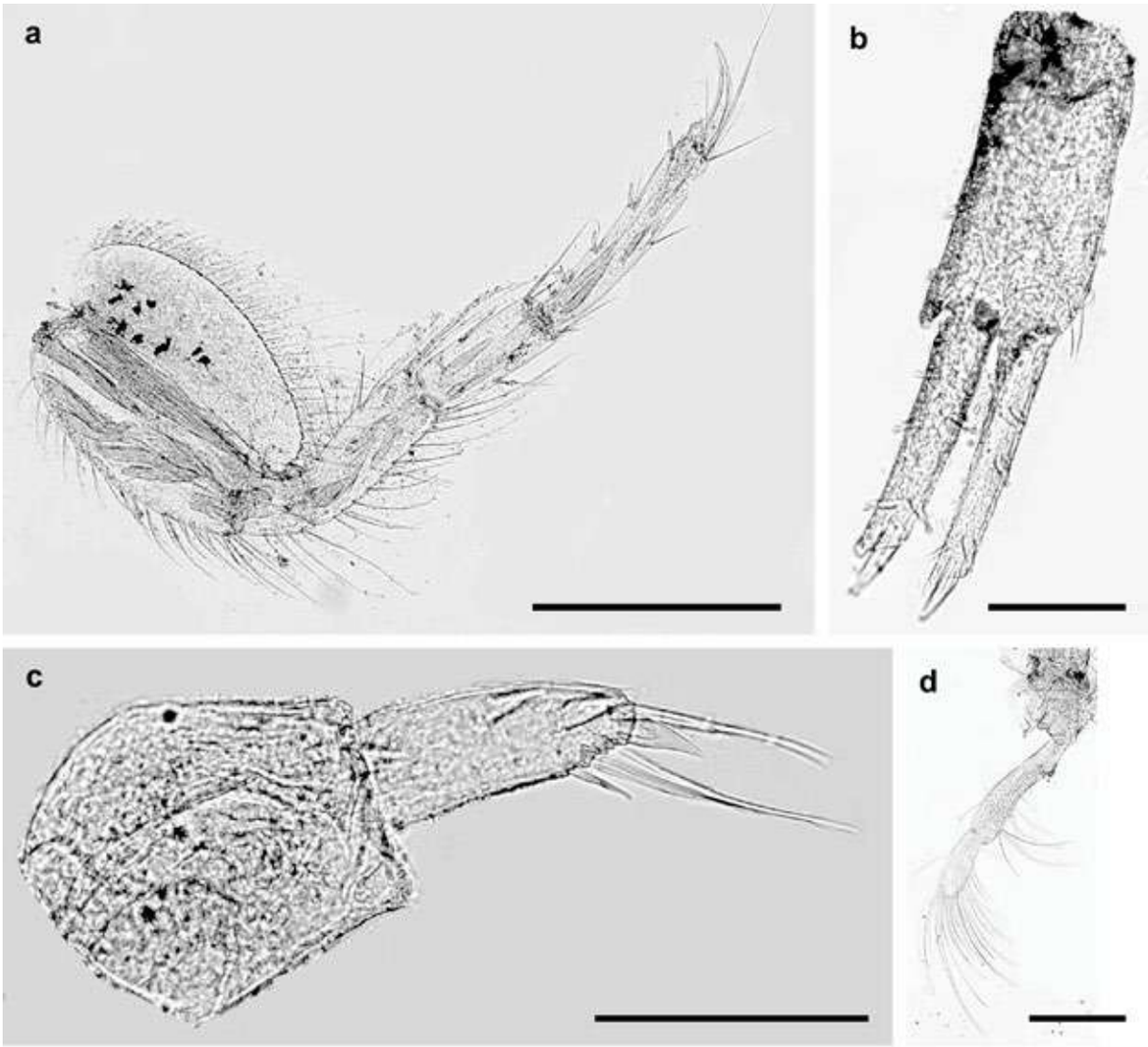

Plate 68. *Cheiriphotis* sp. cf. *walkeri*, Funaitees. Male: a – pereopod 6; b – uropod 2; c – uropod 3; d – mandible. Scale lines: a – 0.5 mm; d – 0.2 mm; b and c – 0.1 mm.

Family Cyproideidae
Genus *Cyproidea*

Cyproidea* sp. cf. *serratipalma
Plates 69 and 70, and Fig. ZP-24.
Occurrence: Al-Khiran area, Auha Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitat: *Sargassum* spp. (macroalgae).

Description. Female, 2.1 mm. Head not hidden. A1 with second peduncular article expanded distally into a dorsal process overhanging article 3. Acc.fl. vestigial, 1-segmented with a long seta basally and seta terminally; flagellum of 6 articles, bearing aesthetasc ventodistally. A2 elongate, with a few small setae; peduncle 4 and 5 elongated, 4 longer than 5; flagellum short, with 3 articles. Md with prominent incisor, spine row with 4 spines, molar visible but without triturative surface; palp with 3 articles, article 2 the longest with 1 tiny seta medially, article 3 bearing one long and one short seta terminally. Mx1 palp 1 segmented, reaching beyond the distal margin of outer plate bearing simple spines; outer plate bearing stout curved spines; inner plate reduced. Mx2, outer plate longer than inner, outer with 2 setae terminally, inner with 1 seta terminally. Mxp outer plate not reaching the distal margin of palp article 1; palp 4-segmented, article 4 dactylate, all palp segments setose. Gn1, basis the longest; ischium and merus subequal; carpus slightly shorter than propodus with distoposterior margin produced; propodus with serration along the palmar face, dactylus with thick spines on the inner margin. Gn2, basis the longest; ischium and merus subequal; carpus subtriangular with distoposterior margin produced into a long truncate; propodus with serration along the palmar face; dactylus curved with spines on the inner margin. Cox3 expanded, broadly triangular. Cox4 expanded, bigger than Cox3. P3 slender, basis the longest. P7 slender, basis not expanded. Ep3 rounded. U1 peduncle longer than rami; outer ramus slightly longer than inner. U2 peduncle longer than rami. U3 peduncle slightly shorter than inner ramus, outer ramus shorter than inner. T round-ended, boat shaped, substantially overhung by the tecticaudal process of Us3.
Male is similar to female but body is smaller, antennae are slightly longer, A1 flagellum is with numerous long aesthetascs.

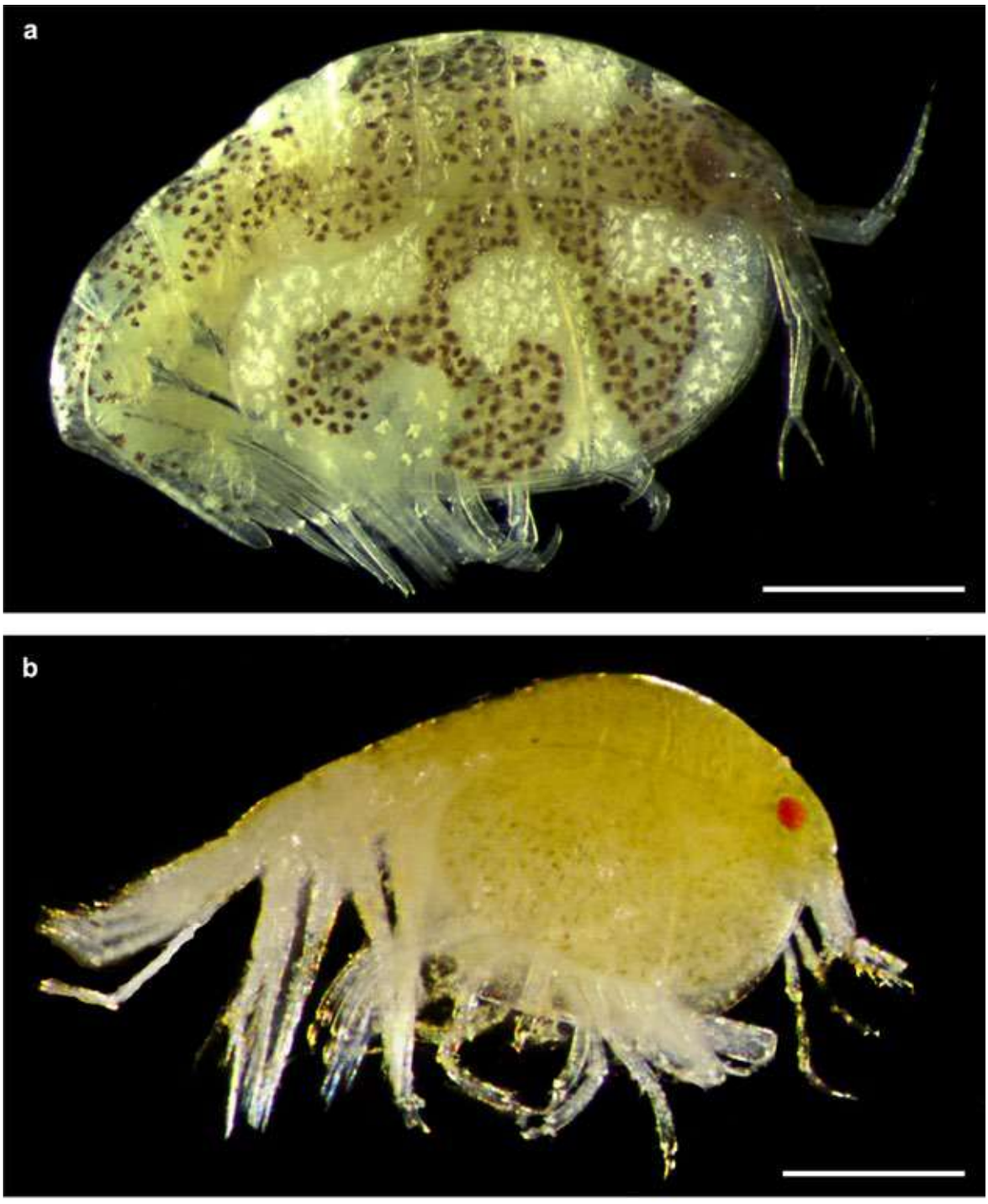

Plate 69. *Cyproidea* sp. cf. *serratipalma*, Al-Khiran. Female: a and b – different colors. Scale lines: a and b – 0.5 mm.

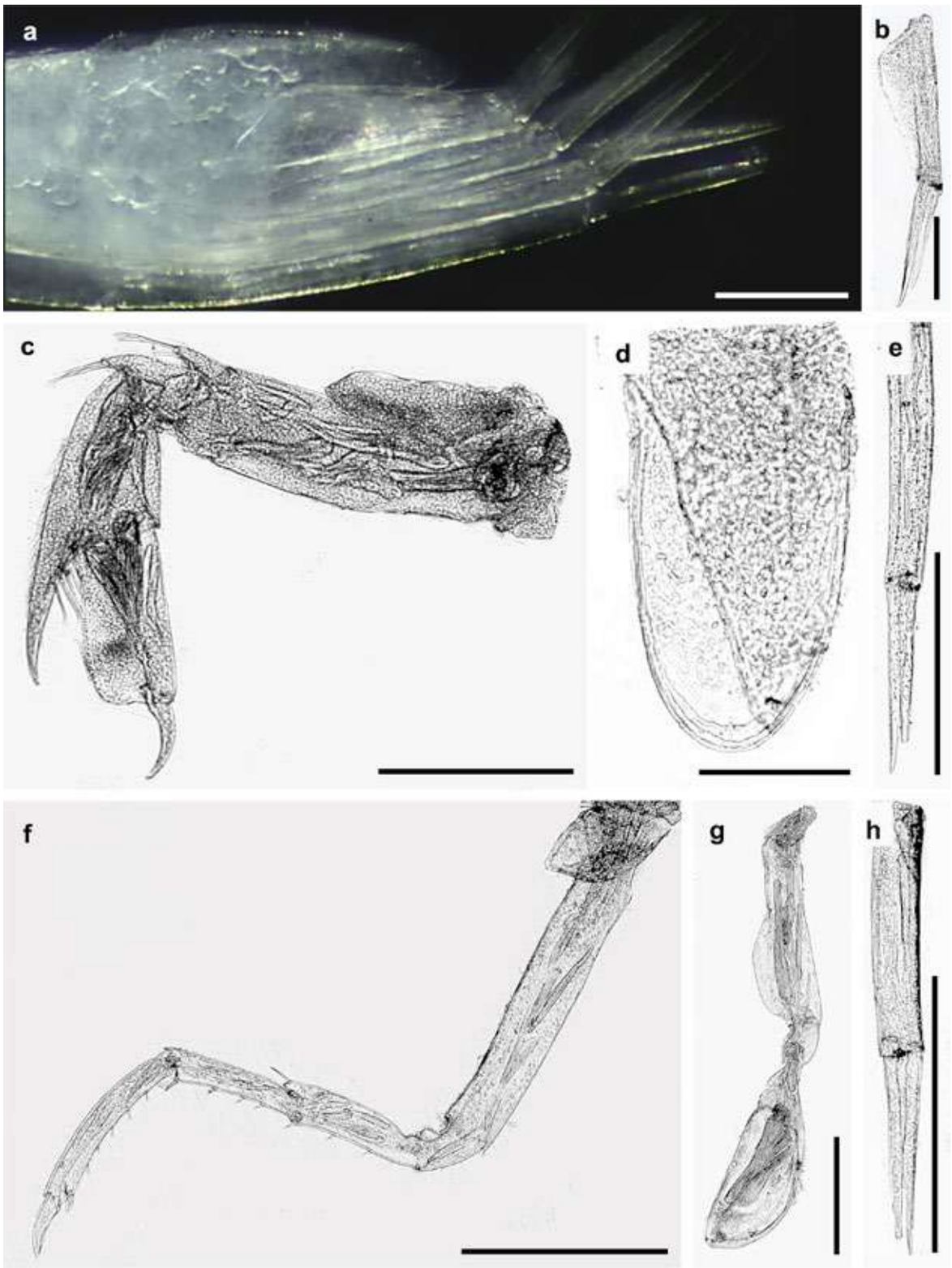

Plate 70. *Cyproidea* sp. cf. *serratipalma*, Al-Khiran. Female: a – urosome; b – uropod 3; c – gnathopod 2; d – telson; e – uropod 1; f – pereopod 7; g – gnathopod 1; h – uropod 2. Scale lines: c, e, f, g, and h – 0.5 mm; b – 0.2 mm; d – 0.1 mm.

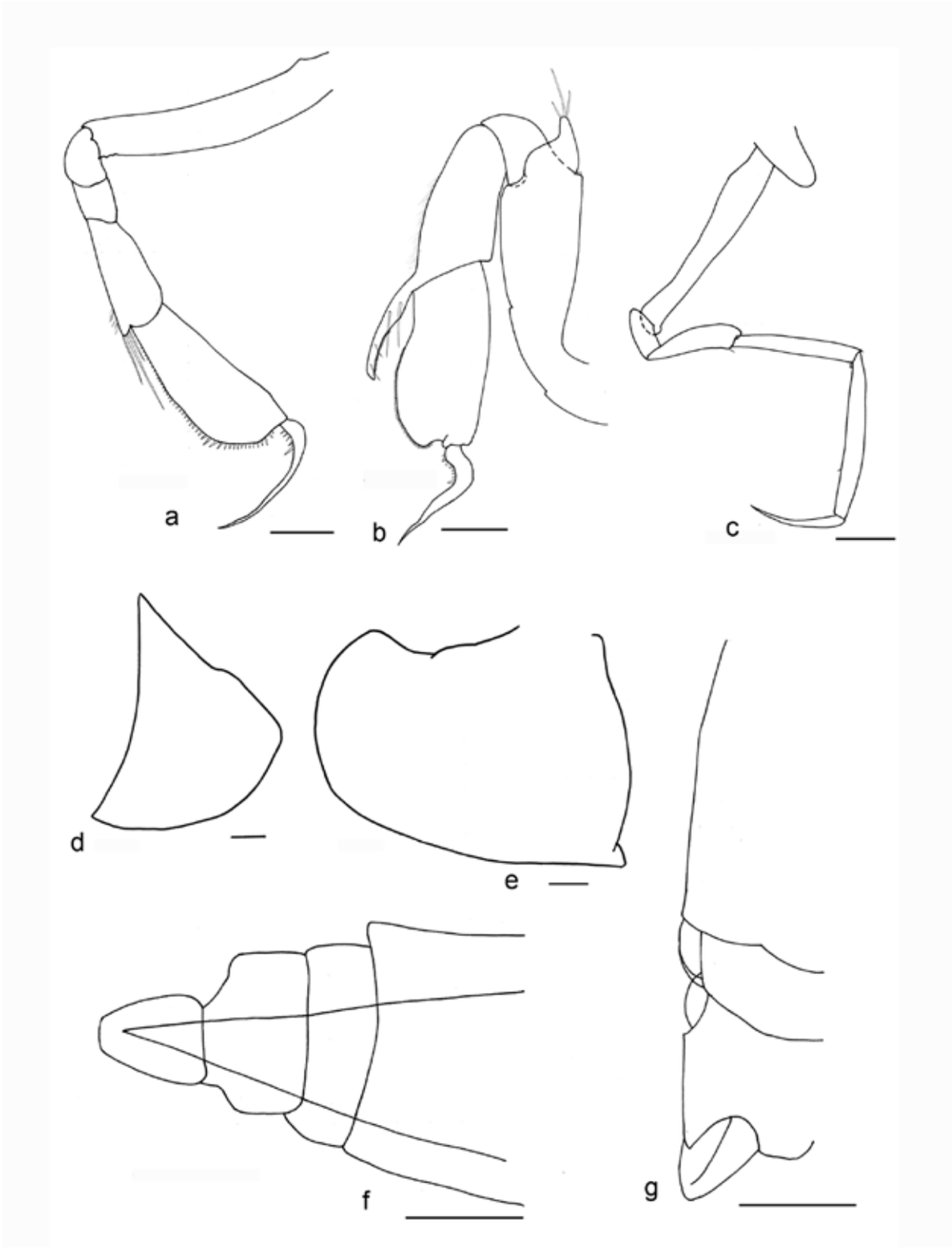

Fig. ZP-24. *Cyproidea* sp. cf. *serratipalma*, Al-Khiran. Female: a – gnathopod 1; b – gnathopod 2; c – pereopod 7; d – coxa 3; e – coxa 4; f – urosome, telson, dorsal view 2; g – urosome, telson lateral view. Scale lines – 0.1 mm.

Family Dexaminidae
Genus *Paradexamine*

Paradexamine* sp. 1 cf. *latifolia

Plates 71 – 73 and Fig. ZP-25.

Occurrence: Funaitees area, Qaruh Island area, Salmiya town beach area, Al-Bida'a area, Auha Island area, Al-Messilah beach area, Kubbar Island area, Umm Al-Maradim Island area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, Miskan Island area, and Umm Al-Namil Island area.

Intertidal and Subtidal Zones.

Habitats: sand, pebbles, shells, cobble, rocks, dead corals, sponges, macroalgae, and ropes (as artificial habitat).

Description (after Ren, 2006; modified). Female, 6.1 mm. Lateral cephalic lobe round. Eyes oval. Peduncle A1 shorter than flagellum. Peduncular article 1 as long as 1/2 the length of article 2; peduncular article 3 shorter; flagellum 19-articulated; acc.fl. vestigial, small. A2 shorter than A1, peduncular article 4 and 5 subequal; ventral margin article 4 with 5 spines, dorsal with a single spine. Md incisor and molar developed, palp absent. L with inner lobe. Inner plate of Mx1 smooth. Spines of outer plate developed, palp thin, with 1 apical seta. Outer plate of Mxp broad beyond the palp in length, palp 4-articulated. Gn1 and Gn2 with carpus and propodus subequal in length, medial face of propodus with prickly spines, dactylus lacking pectinate besides the main inner tooth pectinate of palm vestigial. P5, carpus equal in length to propodus. Pereon 7 with lateral teeth. Pl1 – Pl3 each with 3 dorsal teeth. Ep1 – Ep3 with lateral ridges. Posteroventral angle of Pl1 round; posteroventral angle of Pl2 -– Pl3 acutely projected, posterior margin of Pl3 minutely serrated. Us1 with 3 dorsal teeth. Us2 – Us3 fused with dorsal teeth and 2 dorsal lateral spines. T narrow and long, distal end of telson with small teeth and spines, outer end longer than inner, lateral margin of lobes with small spines.

Male, 3.7 mm. Eyes enlarged, antennal peduncles with numerous marginal setules. Lateral cephalic lobe anteriorly rounded. Md with thick spines, three spines on the left and two on the right; outer lobes of lower lip with 2 spines on each. Palp of Mx1 narrow, setae only apical, palp not exceeding the outer plate, inner plate slightly enlarged and naked. Mxp, outer plate and palp extending equally, inner plate very vestigial. Cox5 and Cox6 with spinulose posteroventral margin; coxa 3 with posterior spines. Gn1 and Gn2 with carpus and propodus subequal in length, medial face of propodus with prickly spines, dactylus lacking pectinate besides the main inner tooth pectinate of palm vestigial. P5, carpus equal in length to propodus. P7 basis with stout posterior spines. Ep1 – Ep3 with lateral ridge, sharp posteroventral tooth. Ep3 with serration posteroventrally. Pl1 – Pl3 with three dorsal teeth each (two lateral and one medial) and small ventral teeth. Us1 with two lateral teeth and one medial tooth. Us2 and Us3 (fused) with 2 medium spines on each side. T with moderately broad apices bearing three serrations and apical spine, lateral margins of telsonic lobes armed with small spines.

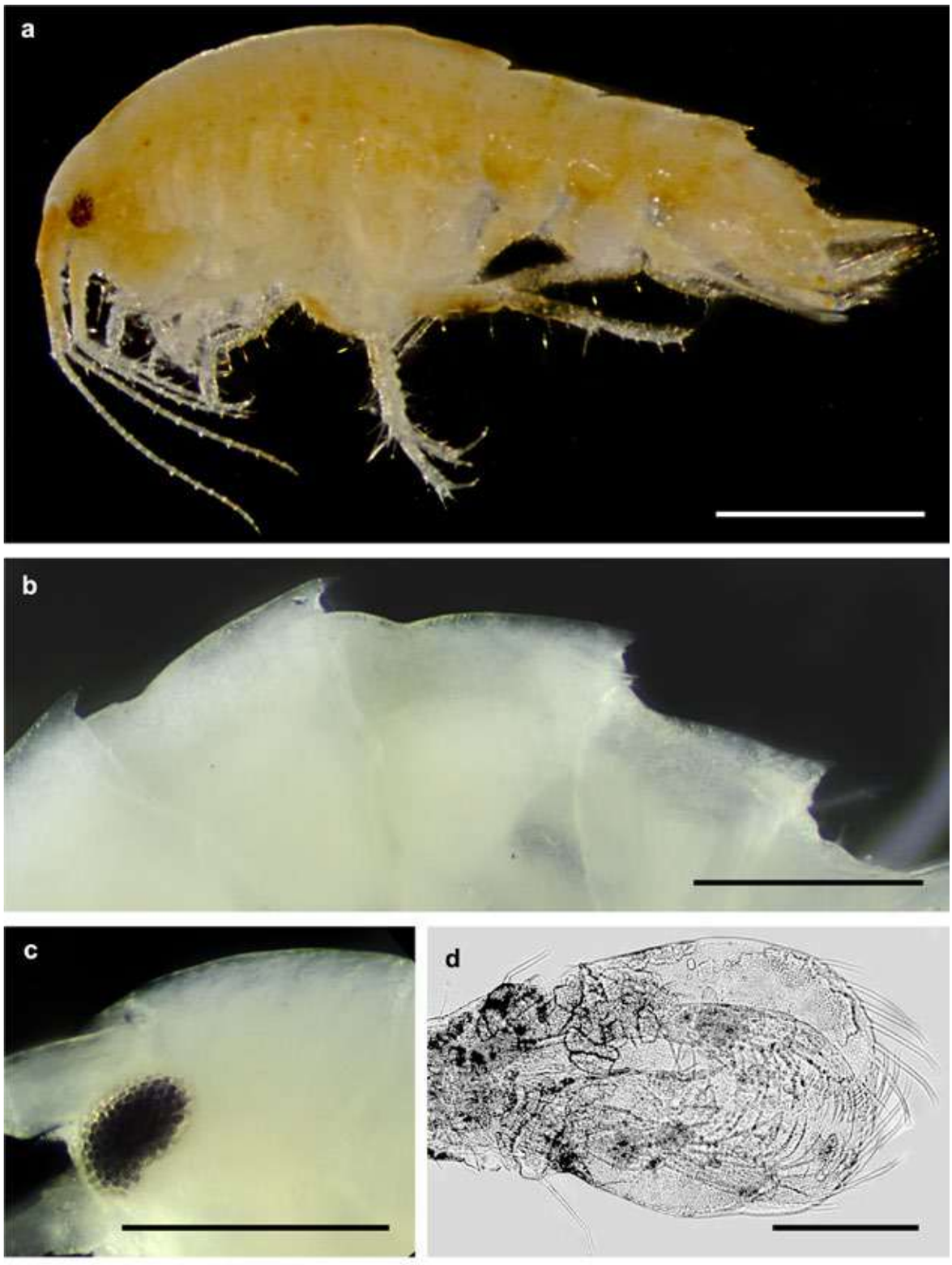

Plate 71. *Paradexamine* sp. 1 cf. *latifolia*, Salmiya town beach. Female: a – habitus; b – pleosome-urosome; c – head; d – maxilliped. Scale lines: a – 1 mm; b and c – 0.5 mm; d – 0.2 mm.

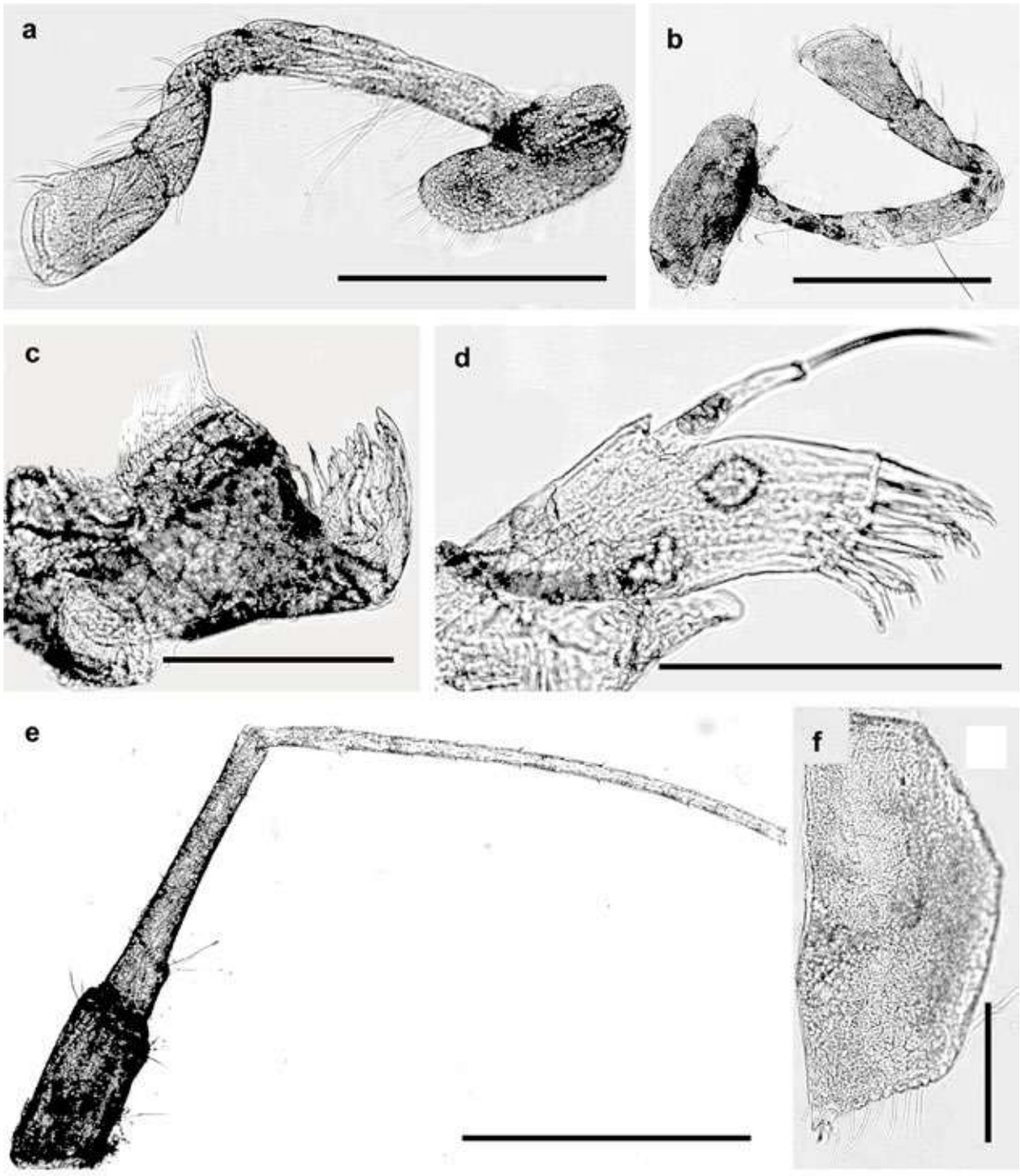

Plate 72. *Paradexamine* sp. 1 cf. *latifolia*, Salmiya town beach. Female: a – gnathopod 1; b – gnathopod 2; c – mandible; d – maxilla 1; e – antenna 1, peduncle; f – coxa 3. Scale lines: a, b, and c – 0.5 mm; c, d, and f – 0.2 mm.

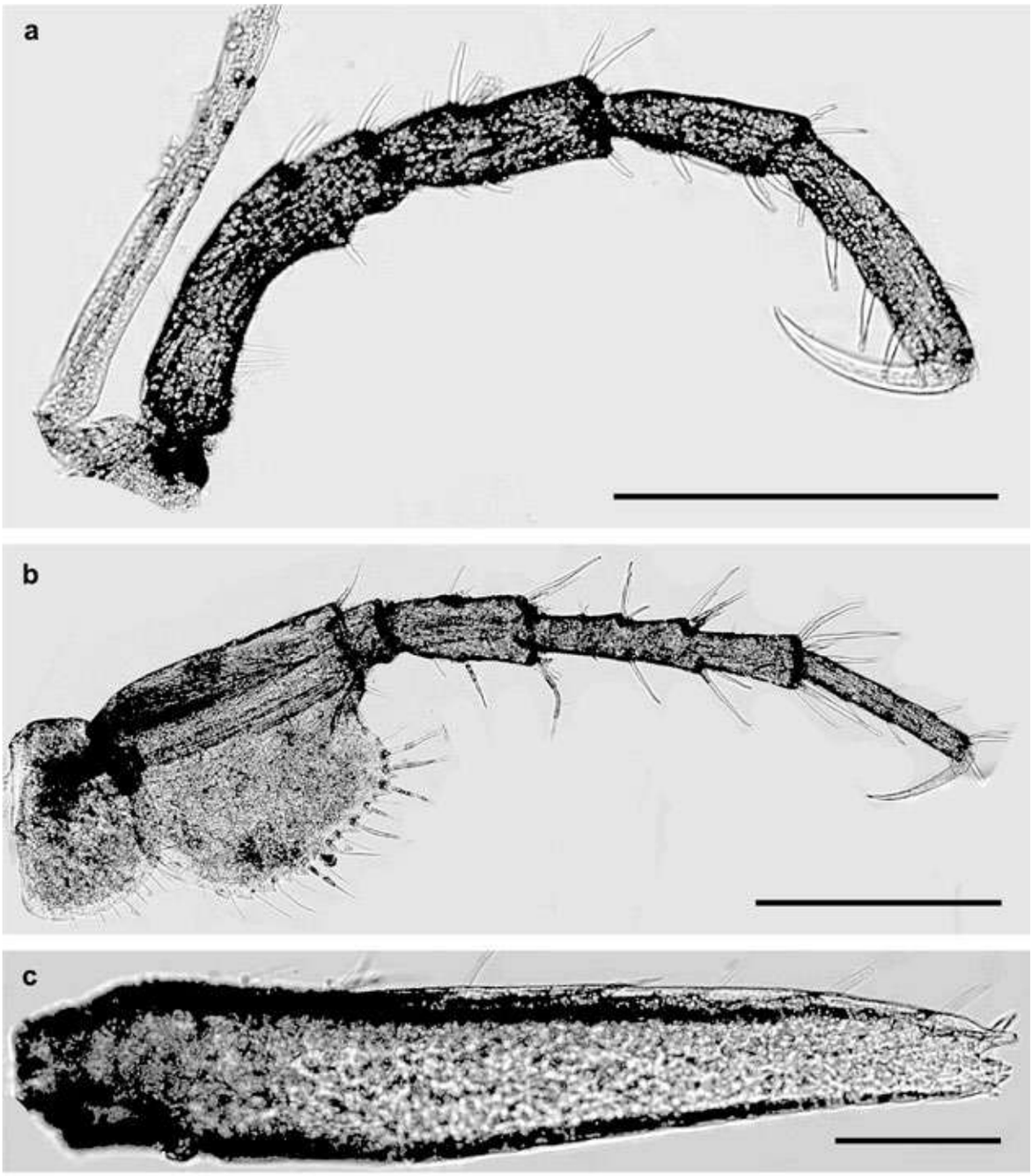

Plate 73. *Paradexamine* sp. 1 cf. *latifolia*, Salmiya town beach. Female: a – pereopod 3; b – pereopod 7; c – telson, right lobe. Scale lines: a and b – 0.5 mm; c – 0.1 mm.

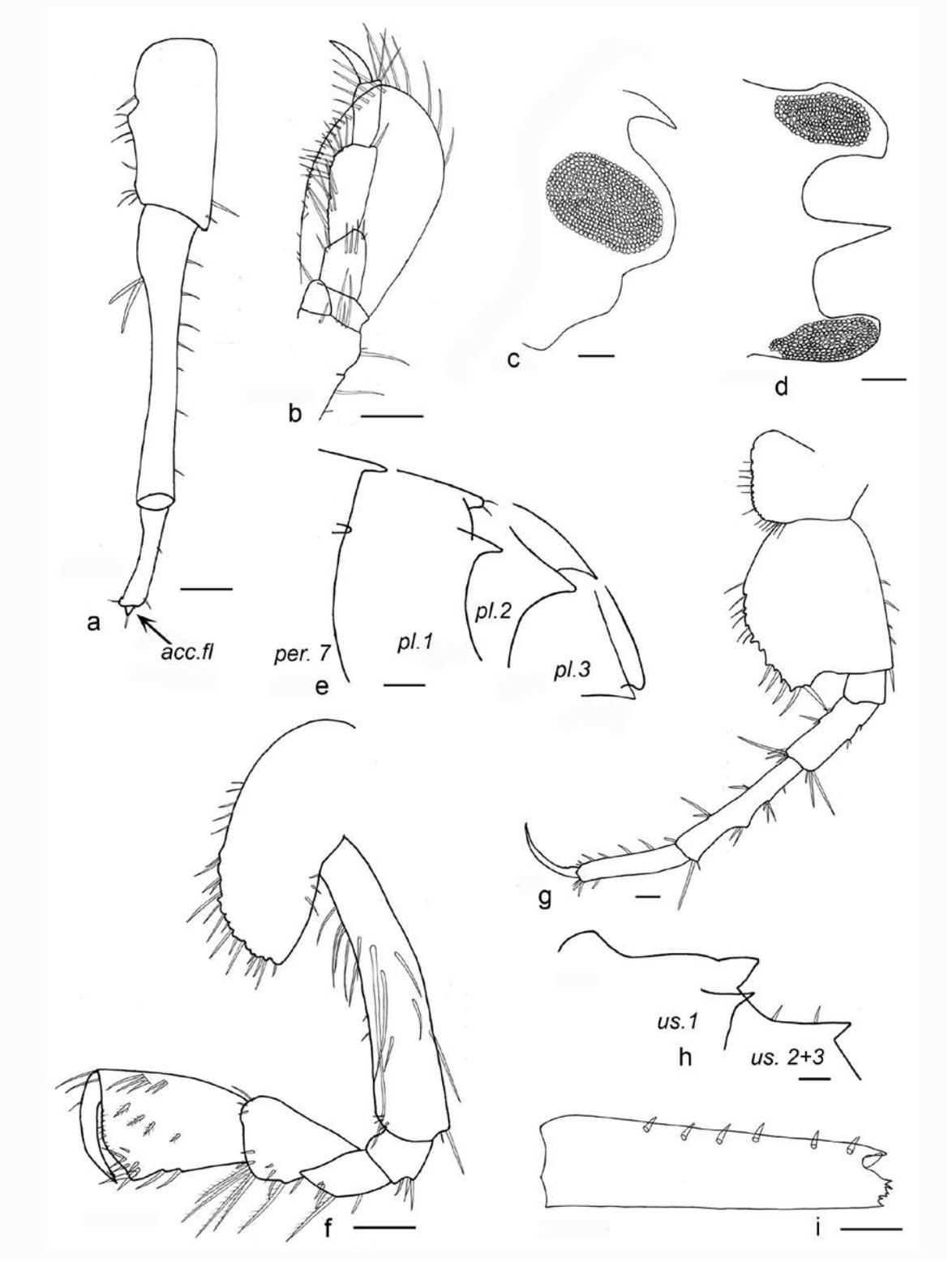

Fig. ZP-25. *Paradexamine* sp. 1 cf. *latifolia*, Al-Bida'a. Female: a – peduncle of antenna 1, accessory flagellum; b – maxilliped; c – head, lateral view; d – head, dorsal view; e – pereon (segment 7), pleon; f – gnathopod 2; g – pereopod 7; h – urosome; i – lobe of telson.
Designations: acc. fl. – accessory flagellum; per. 7 – pereon, segment 7; pl. 1, pl. 2, pl. 3 – pleon segments 1, 2, 3; us. 1 – urosome segment 1; us. 2+3 – urosome, segments 2+3. Scale lines – 0.1 mm.

Family Dexaminidae
Genus *Paradexamine*

Paradexamine* sp. 2 cf. *orientalis
Plates 74 – 76 and Fig. ZP-26.
Occurrence: Funaitees area, Qaruh Island area, Kubbar Island area, Umm Al-Maradim Island area, Al-Khiran area, Al-Nuwaiseeb area, and Ras Al-Zour area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, cobbles, rocks, dead corals, macroalgae, and sponges.

Description. Female, 2.5 mm. Lateral cephalic lobe near triangular. Eyes oval. Peduncle A1 shorter than flagellum. Peduncular article 1 as long as 1/2 the length of article 2; peduncular article 3 shorter; flagellum 15-articulate; acc.fl. vestigial, small. A2 as long as A1, peduncular article 4 much longer than article 5; ventral margin article without spines. Md incisor and molar developed, palp absent. L with inner lobe. Inner plate of Mx1 smooth. Spines of the outer plate developed, palp thin with 1 subapical seta and 3 apical setae. Outer plate of Mxp broad beyond palp in length, palp 4-articulated. Gn1 and Gn2 with carpus and propodus subequal in length, medial face of propodus with prickly spines, dactylus lacking pectinate besides the main inner tooth of palm. P5, carpus shorter than propodus. Pl2 and Pl3 with small dorsal tooth and 2 small lateral teeth. Ep1 – Ep3 with sharp posteroventral tooth. Us1 with 3 dorsal teeth. Us2, Us3 fused with dorsal 2 dorsolateral spines. T damaged.
Male is similar to female but eyes are bigger.

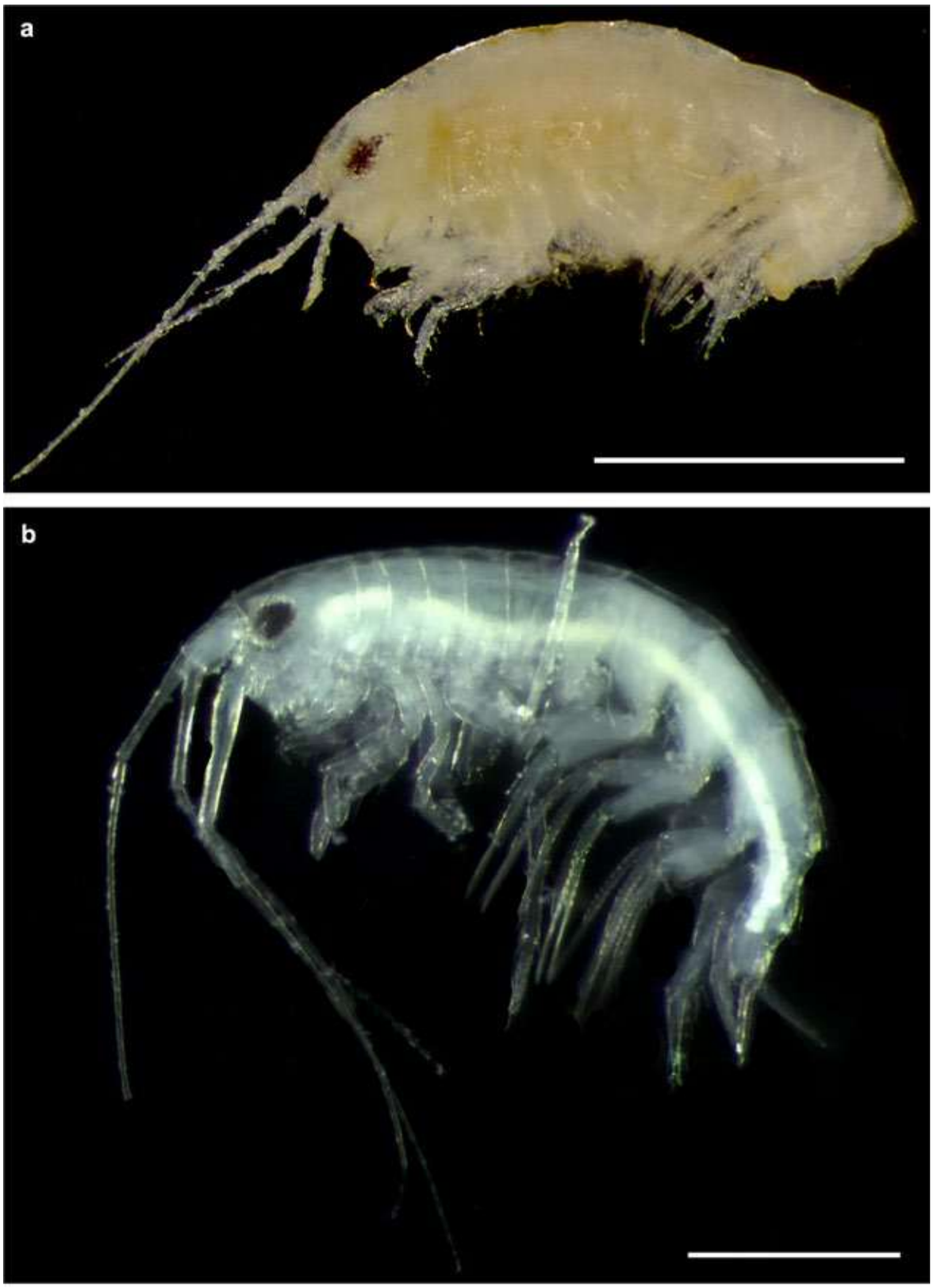

Plate 74. *Paradexamine* sp. 2 cf. *orientalis*, Qaruh Island: a – female habitus; b – male habitus. Scale lines: a – 1 mm; b – 0.5 mm.

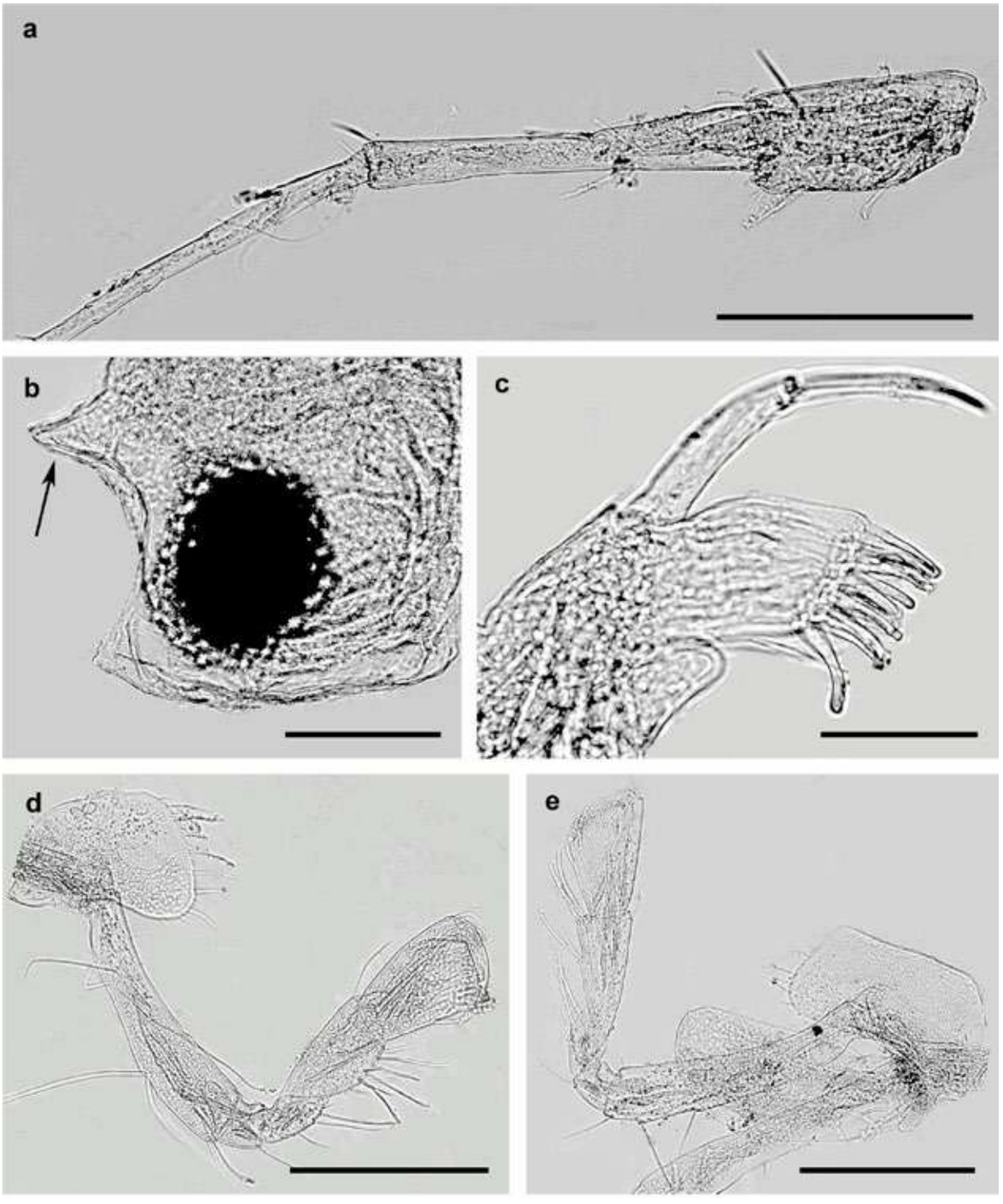

Plate 75. *Paradexamine* sp. 2 cf. *orientalis*, Qaruh Island. Female: a – antenna 1; c – maxilla 1; d – gnathopod 1; e – gnathopod 2. Male: b – head, rostrum (arrow). Scale lines: a, d, and e – 0.2 mm; b – 0.1 mm; c – 0.05 mm.

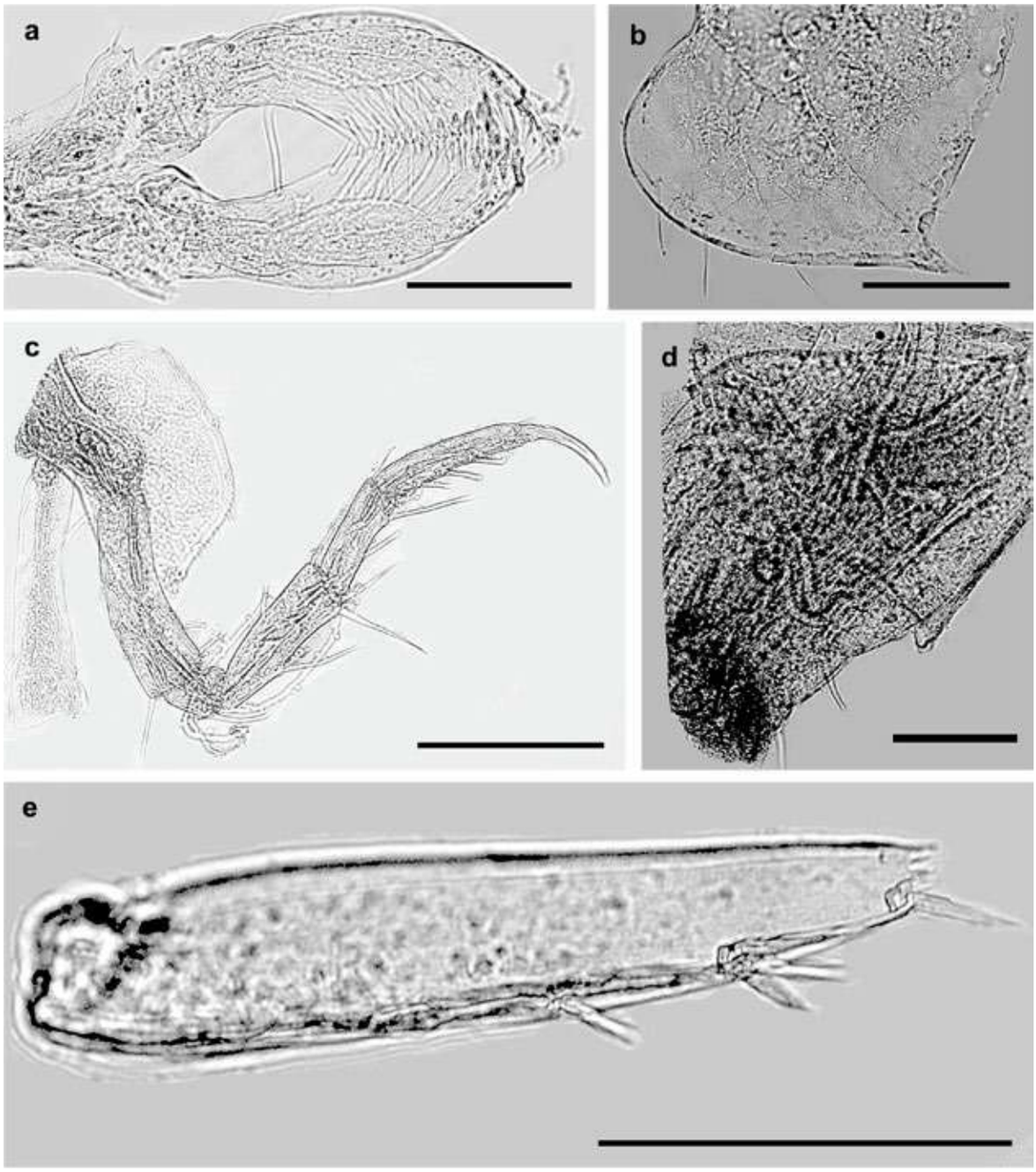

Plate 76. *Paradexamine* sp. 2 cf. *orientalis*, Qaruh Island. Female: a – maxilliped; b – epimer 3; c – pereopod 3; d – urosome; e – telson, left lobe. Scale lines: c – 0.2 mm; a, b, d, and e – 0.1 mm.

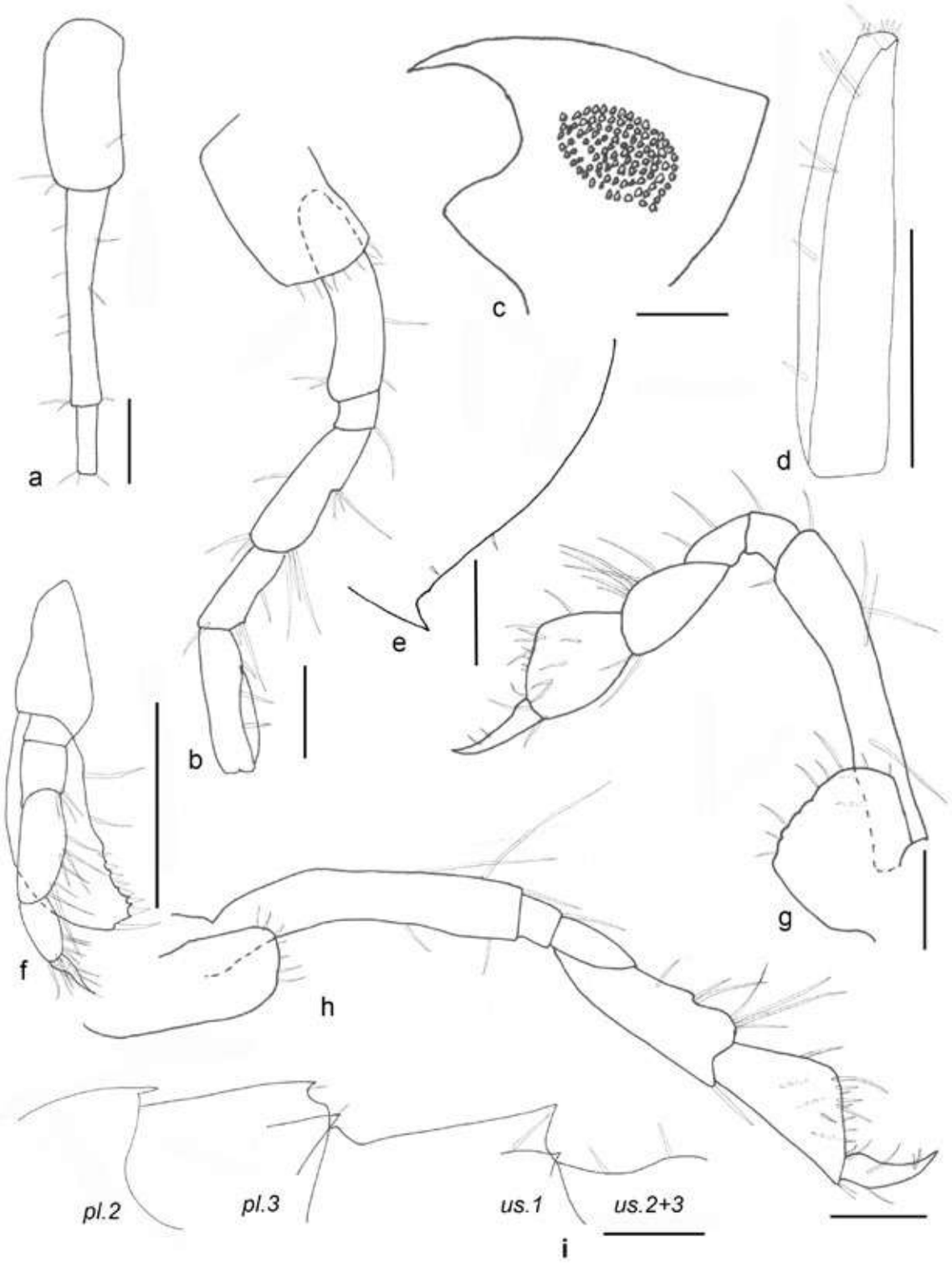

Fig. ZP-26. *Paradexamine* sp. 2 cf. *orientalis*, Qaruh Island. Female: a – peduncle of antenna 1; b – pereopod 3; c – head, lateral view; d – lobe of telson; e – epimer 2; f – maxilliped; g – gnathopod 1; h – gnathopod 2; i – pleon, urosome. Scale lines – 0.1 mm.
Designations: pl. 2 and pl. 3 – pleon segments 2 and 3; us. 1 – urosome segment 1; us. 2+3 – urosome, segments 2+3.

Family Eriopisidae
Genus *Eriopisa*

Eriopisa* sp. cf. *elongata
Plates 77 and 78, and Fig. ZP-27.
Occurrence: Kuwait Bay area.
Subtidal Zone.
Habitats: mud and sand.

Description (after G.S. Karaman, 1982; modified). Male, length 6.5 mm. Eyes absent. Lateral cephalic lobes short, broadly rounded, anteroventral cephalic notch present. A1 **as long as body**, article 2 slightly longer than article 1, **article 3 1/4 of article 2**, flagellum with up to 23 articles, acc.fl. - 2-articulate. A2 peduncle 3, 2 × as long as broad **without small distal ventral tooth**, articles 4-5 subequal; flagellum shorter than peduncular article 5, **4-articulate**. Md palp article 3 bigger than article 2, both with long setae. Mx1 inner plate with a row of lateral setae, palp dissimilar. Anterodistal corner of Cox1 acutely produced, Cox2 obtusely angular. Gn1 basis stout, carpus bigger than propodus, propodus triangular, palm oblique, convex, with a row of spines in its posterior part. Gn2 much larger than Gn1; carpus short, triangular, propodus subovoid, 2 × as long as broad, **palm concave**, with 3 stout spines and a row of setae. P3 and P4 basis narrow, dactylus 1/2 of propodus. P5 missing. P6 basis somewhat dilated, tapering; P7 missing. Ep1 – Ep3 with posterodistal corner acute; Ep1 smooth, Ep2 with long plumose setae along the distal margin, Ep3 with short distal spines. U1 peduncle with **2 spines** on the anterior margin, **outer ramus as long as inner**. U2 inner ramus longer than outer. U3 damaged. T longer than broad; telsonic lobes acute, with 1 distal spine and 1 long plumose seta.
Female is similar to male.
Taxonomic characters for distinguishing *Eriopisa* sp. cf. *elongata* from *Eriopisa elongata* (G.S Karaman, 1982) are expressed in **bold** text.

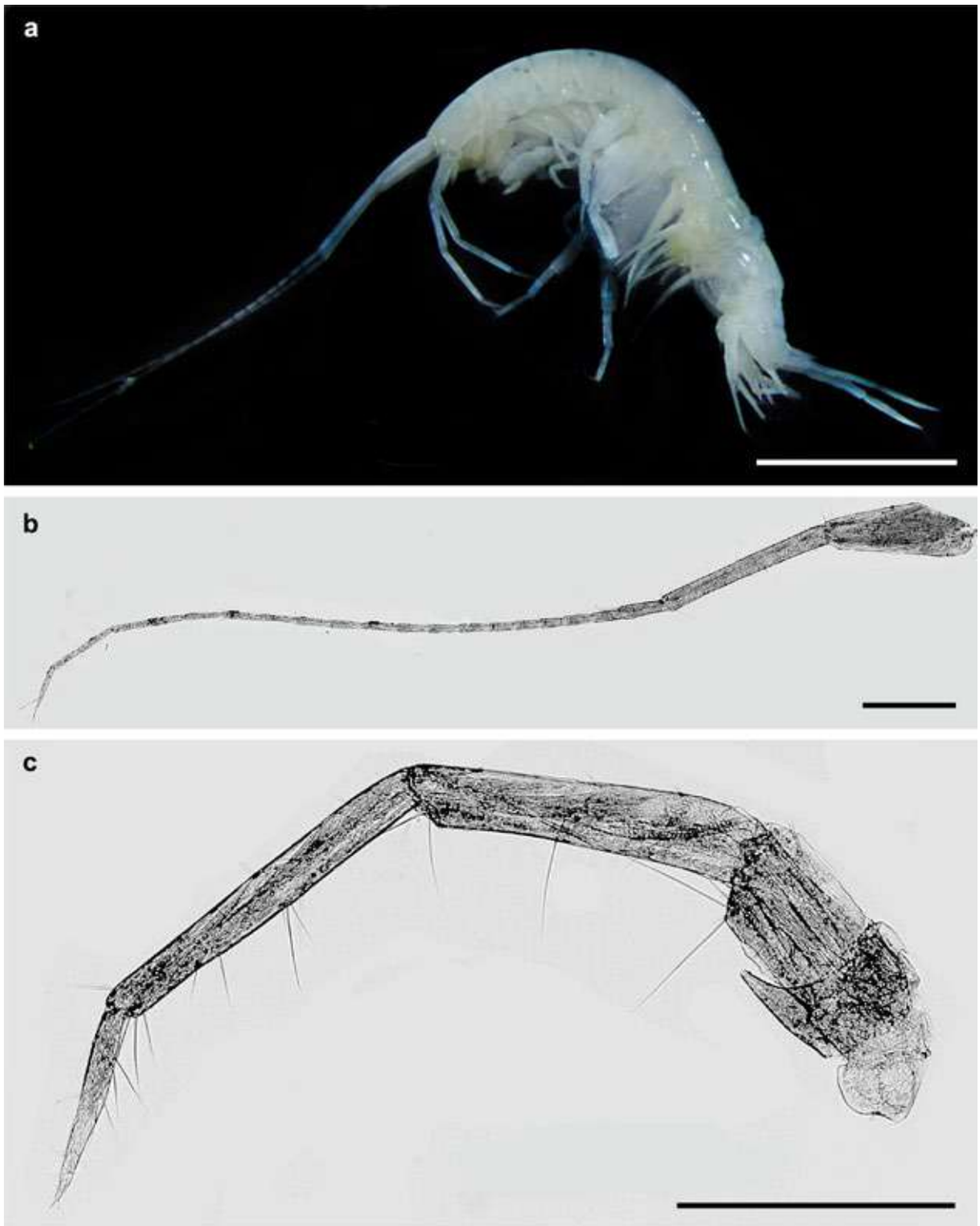

Plate 77. *Eriopisa* sp. cf. *elongata*, Kuwait Bay. Female: a – habitus; b – antenna 1; c – antenna 2. Scale lines: a – 2 mm; b and c – 0.5 mm.

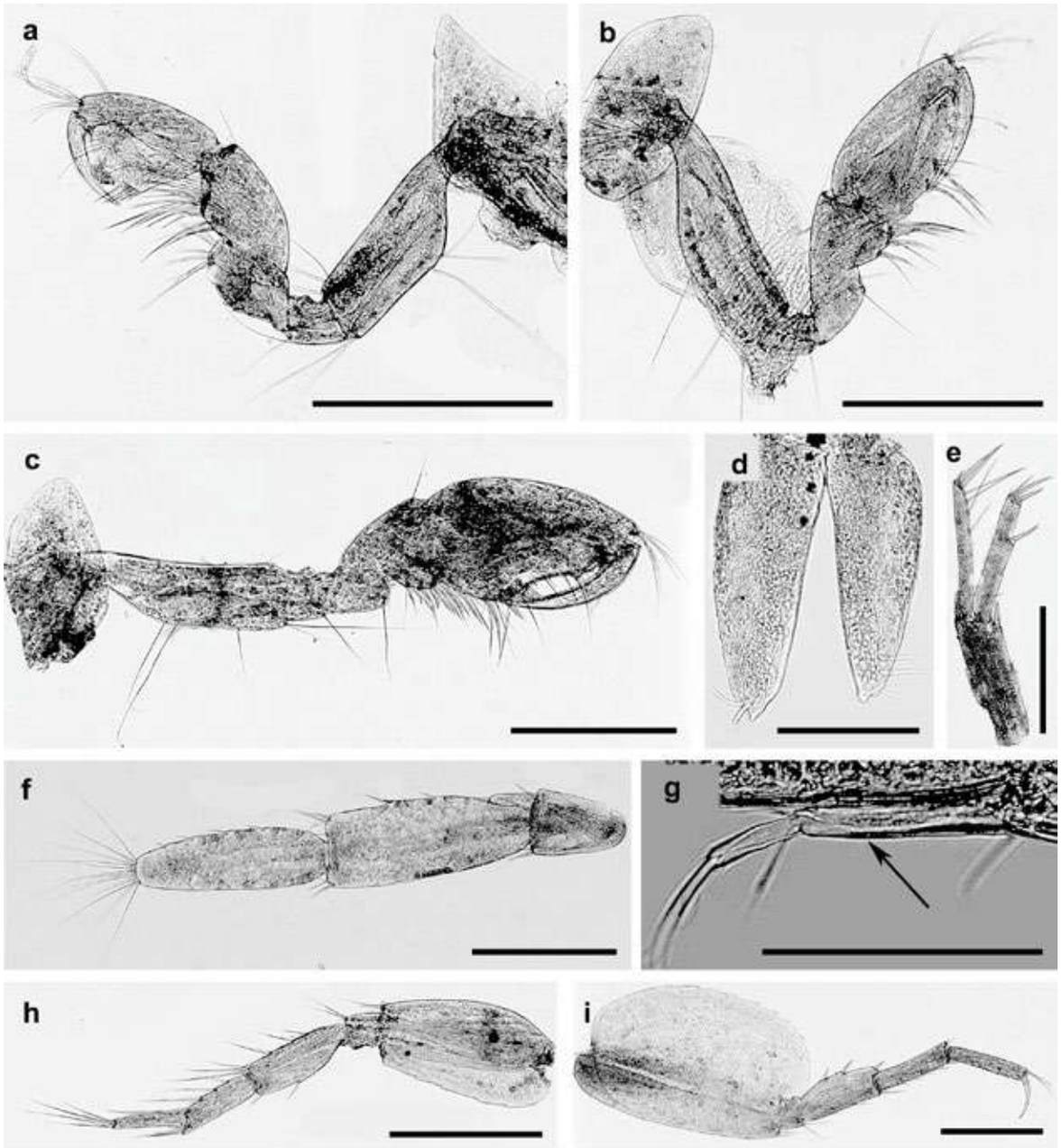

Plate 78. *Eriopisa* sp. cf. *elongata*, Kuwait Bay. Female: a – gnathopod 1; b – gnathopod 2; e – uropod 1; f – uropod 3; g – antenna 1, accessory flagellum (arrow); h – pereopod 5; i – pereopod 7. Male: c – gnathopod 2; d – telson. Scale lines: a, b, c, e, f, h, and i – 0.5 mm; d – 0.2 mm; g – 0.1 mm.

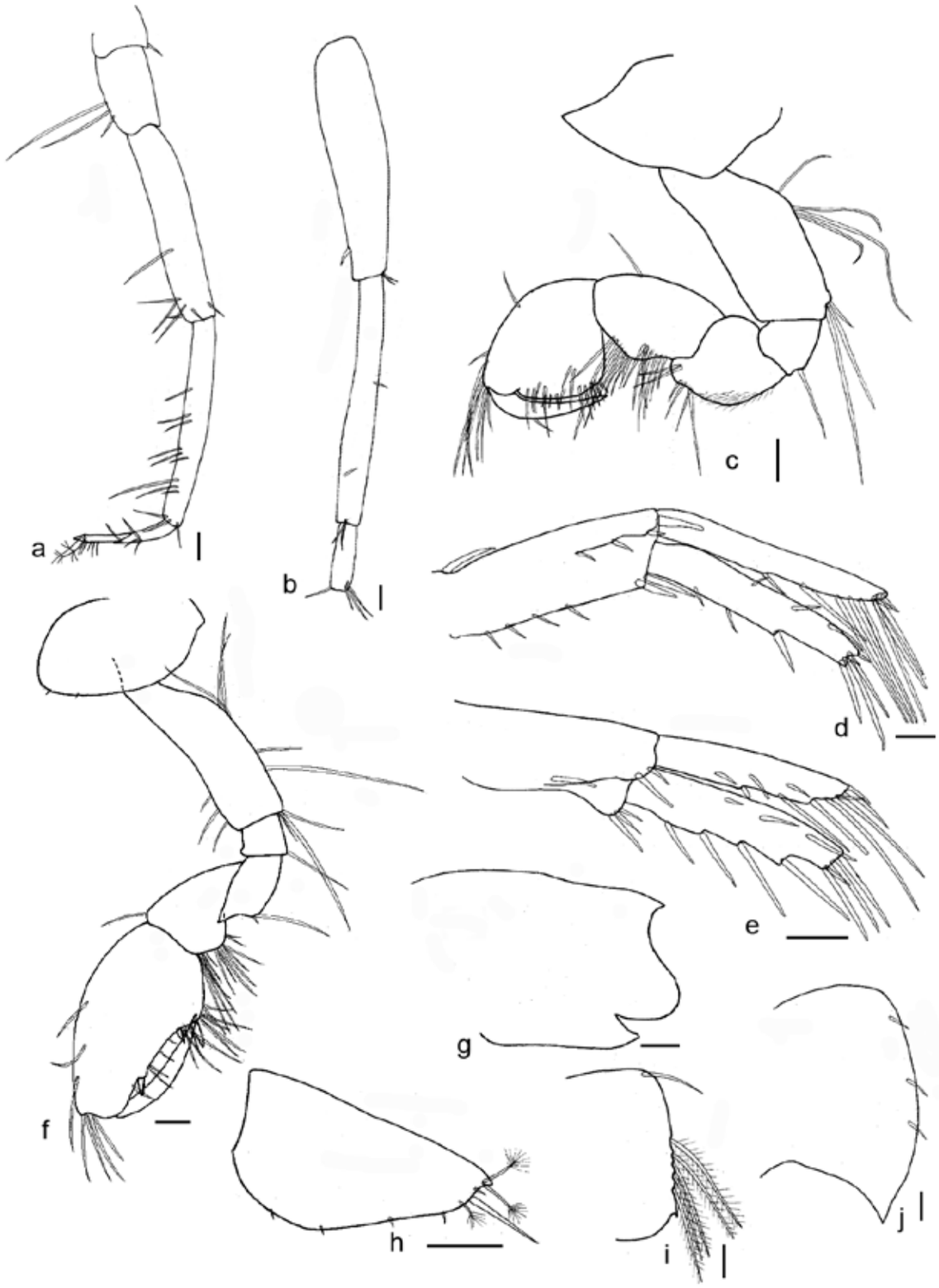

Fig. ZP-27. *Eriopisa* sp. cf. *elongata*, Kuwait Bay. Male: a – antenna 2; b – peduncle of antenna 1; c – gnathopod 1; d – uropod 1; e – uropod 2; f – gnathopod 2; g – head; h – lobe of telson; i – epimer 2; j – epimer 3. Scale lines – 0.1 mm.

Family Eriopisidae
Genus *Eriopisella*
***Eriopisella* sp.**
Plates 79 and 80, and Fig. ZP-28.
Occurrence: Kuwait Bay area.
Subtidal Zone.
Habitats: mud and sand.

Description. Male, length 4.6 mm. Eyes with clear ommatidia. Lateral cephalic lobes rounded anteroventrally, lacking anteroventral notch but with seta. A1: peduncle shorter than flagellum, flagellum with 21-articulate, acc.fl. short, 1 articulate. A2 about 50 percent as long as A1. Inner plates of Mx1 and Mx2 setose only apically, inner plate of Mx1 with 2 long setae and 1 minute seta, palp Mx1 longer than the outer plate and 2-articulate. Cox1 longer than broad, Cox2 broader than long. Cox3 and Cox4 as long as breadth. Cox1 strongly extended forward anteroventrally. Cox1 – Cox4 with a little notch anteroventrally. Article 4 of Gn1 not inflated, article 5 longer than broad, weakly setose posteriorly with a little lobe, article 6 as long as article 5, extended anteriorly, palm oblique. Gn2 similar to Gn1 but slightly longer, article 5 as long as article 6 strongly lobate, article 6 similar to Gn1. P3 and P4 with slender article 2, bearing some stout spines and setae, middle of article 6 bearing a compact group of posterior setae; article 2 of P6 and P7 slightly pyriform, posteroventral corners unproduced, remaining peropodial articles slender, dactyl not bifid bearing seta posteriorly. U1 with a large distolateral peduncular spine, outer ramus of U2 as long as inner ramus, peduncle of U2 with a row of spines medially. U3 damaged. Ep2 and Ep3 each with sharp posteroventral tooth bearing ventrally spines and setae. T thin dorsoventrally, each lobe with spines and setae apically.
Female specimens were not found.

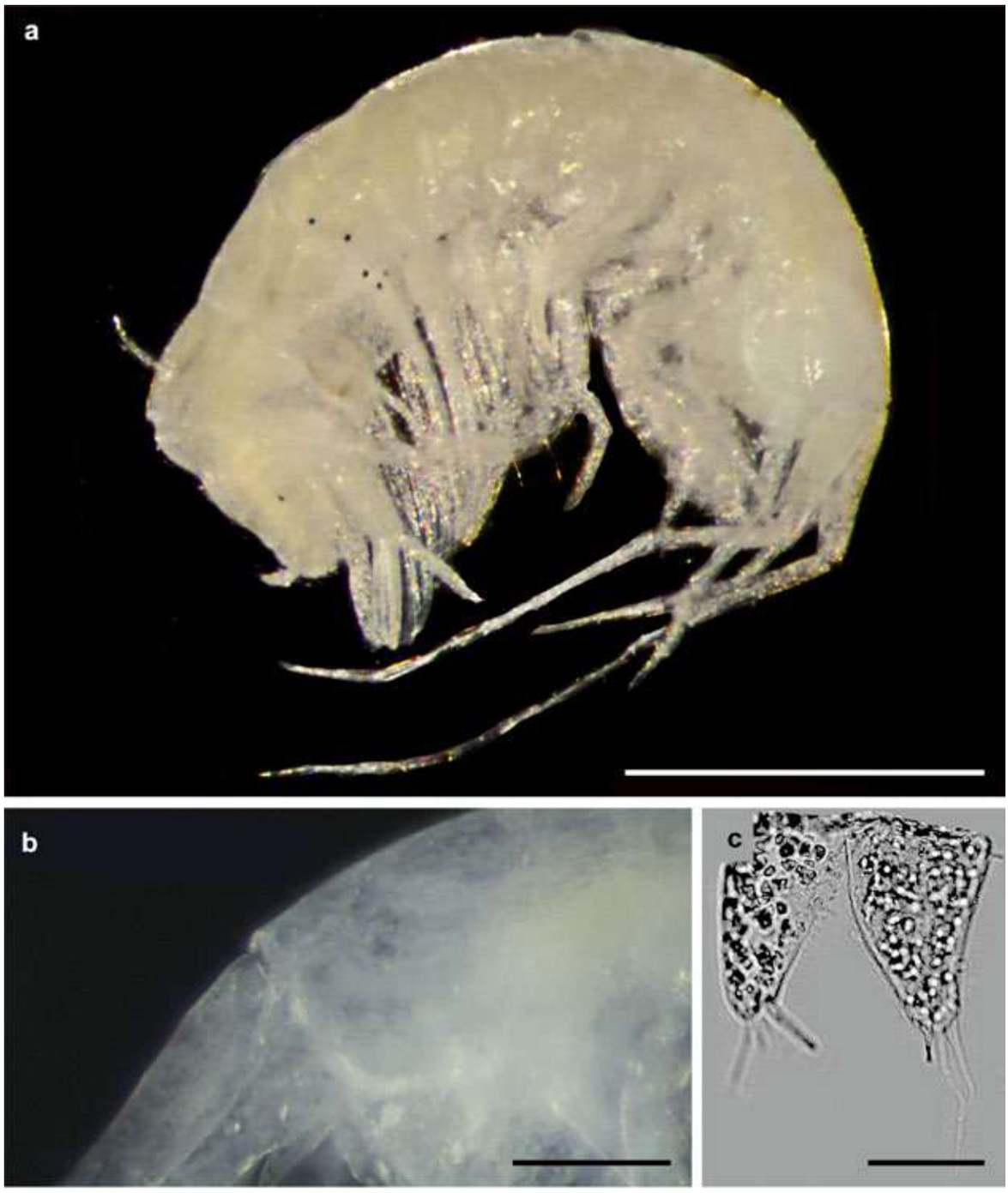

Plate 79. *Eriopisella* sp., Kuwait Bay. Male: a – habitus; b – head; c – telson. Scale lines: a – 1 mm; b – 0.2 mm; c – 0.05 mm.

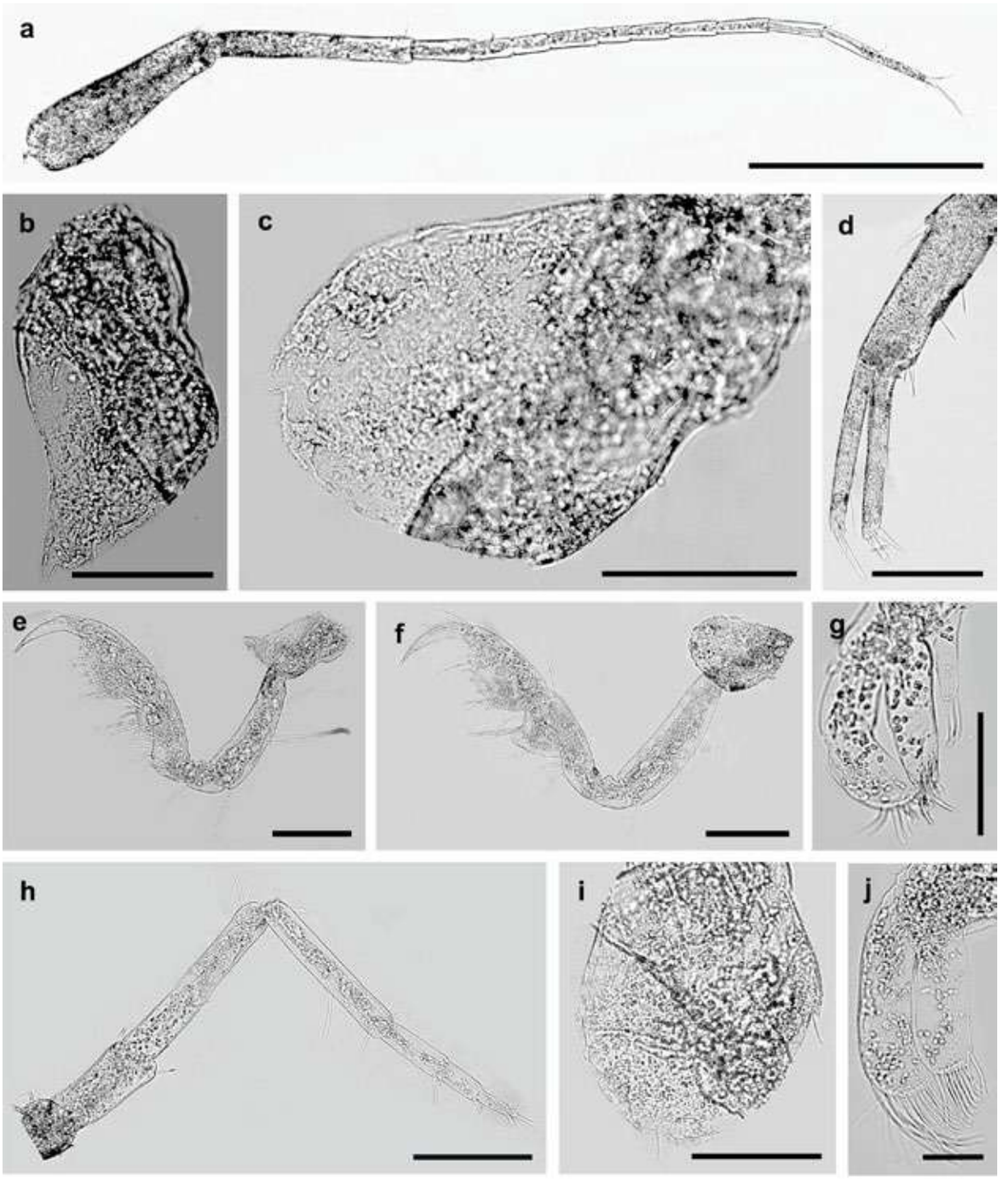

Plate 80. *Eriopisella* sp., Kuwait Bay. Male: a – antenna 1; b – coxa 1; c – coxa 2; d – uropod 1; e – gnathopod 1; f – gnathopod 2; g – maxilla 1; h – antenna 2; i – coxa 3; j – maxilla 2. Scale lines: a – 0.5 mm; d, e, f, and h – 0.2 mm; b, c, g, and i – 0.1 mm: j – 0.05 mm.

Fig. ZP-28. *Eriopisella* sp., Kuwait Bay. Male: a – head, antenna 1, antenna 2; b – maxilla 1; c – gnathopod 1; d – epimer 2; e – epimer 3; f – gnathopod 2; g – maxilla 2; h – uropod 1; i – coxa 4; j – uropod 2; k – coxa 3; l – coxa 5; m – lobe of telson. Scale lines – 0.1 mm.

Family Hyalidae
Genus *Parchyale*

Parhyale basrensis Salman, 1986
Plates 81 and 82, and Fig. ZP-29.
Occurrence: Salmiya town beach area, East Doha area, Al-Judailiat (West Doha) area, Al-Nuwaiseeb area, Salwa beach area, Kubbar Island area, Umm Al-Maradim Island area, Failaka Island area, Ras Ajuza (Kuwait Bay area), and Umm Al-Namil Island area.
Intertidal Zone.
Habitats: pebbles, cobble, rocks, dead corals, sand, sponges, and shells.

Description (after Salman, 1986; modified). Male, length 9 mm. Lateral cephalic lobe strongly projecting, submammilliform, but obliquely subtruncate apically. Eyes moderate size. Cox2 – Cox4 with protruding, obtuse posterior tooth. Ep2 and Ep3 slightly protruding anteroventrally. A1 about 1/2 the length of A2. Each article of peduncle with coarse setae distally, flagellum with 11 articles. Flagellum A2 with 24 articles. Md without palp. Mx1, inner lobe small and slender, palp small, slightly constricted near apex, and with 1 apical seta. Mxp inner lobe reaching 1/3 the length of second article of palp, fourth article of palp unguiform, with terminal spine. Gn1 basis as long as propodus, with 2 prominent curved spines on the posterior margin, merus subtriangular, carpus broader distally with a row of strong setae arranged distally and posteriorly, propodus broad, longer than carpus, with 2 stout spines in tandem at the defining corner, posterior margin with a few setae, palm slightly oblique with a row of stout setae, dactylus stout slightly falcate. Gn2 basis slender, subequal in length to propodus and with 5 curved spines on the posterior margin, ischium shorter than merus, carpus with a small triangular plate, propodus greatly enlarged, longer than wide, bearing 2 stout spines at the defining corner, palm oblique, subequal in length to the posterior margin of propodus with many setae and spines, dactylus curved, strong, inner surface with minute setae. P3 and P4 subequal, posterior margin of basis and merus-propodus with setae and spines, basis about twice the length of propodus, merus longer and broader than propodus, anterior margin with 3 spines, carpus slightly broader and shorter than propodus, propodus without spines on the anterior margin, dactylus short, curved. P5 – P7, anterior margin of articles with many prominent spines, basis P5 broader than long, basis P6 and P7 longer than broad, merus longer than carpus, propodus nearly equal in length to merus, dactylus with a curved terminal spine. U1 peduncle longer than rami with marginal and distal spines. U2, peduncle slightly shorter than rami with marginal and distal spines. U3 peduncle stout, nearly as long as outer ramus, with 1 distal spine, with 7 distal spines, inner ramus small with 1 apical spine. T with 2 marginal setae and 1 seta distally.
Female, 5.1 mm. Similar to male with the exception of Gn2. Gn2 slightly larger than Gn1, basis widened distally, longer than propodus posterodistally with a few setae, with anterodistal lobe bearing 2 setae; ischium shorter than merus with setae posterodistally; carpus with posterior lobe, anterodistally and posteriorly with setae; propodus slightly longer than carpus, with setae and spines posteriorly, palm well defined by strong spines; dactylus covered palm.

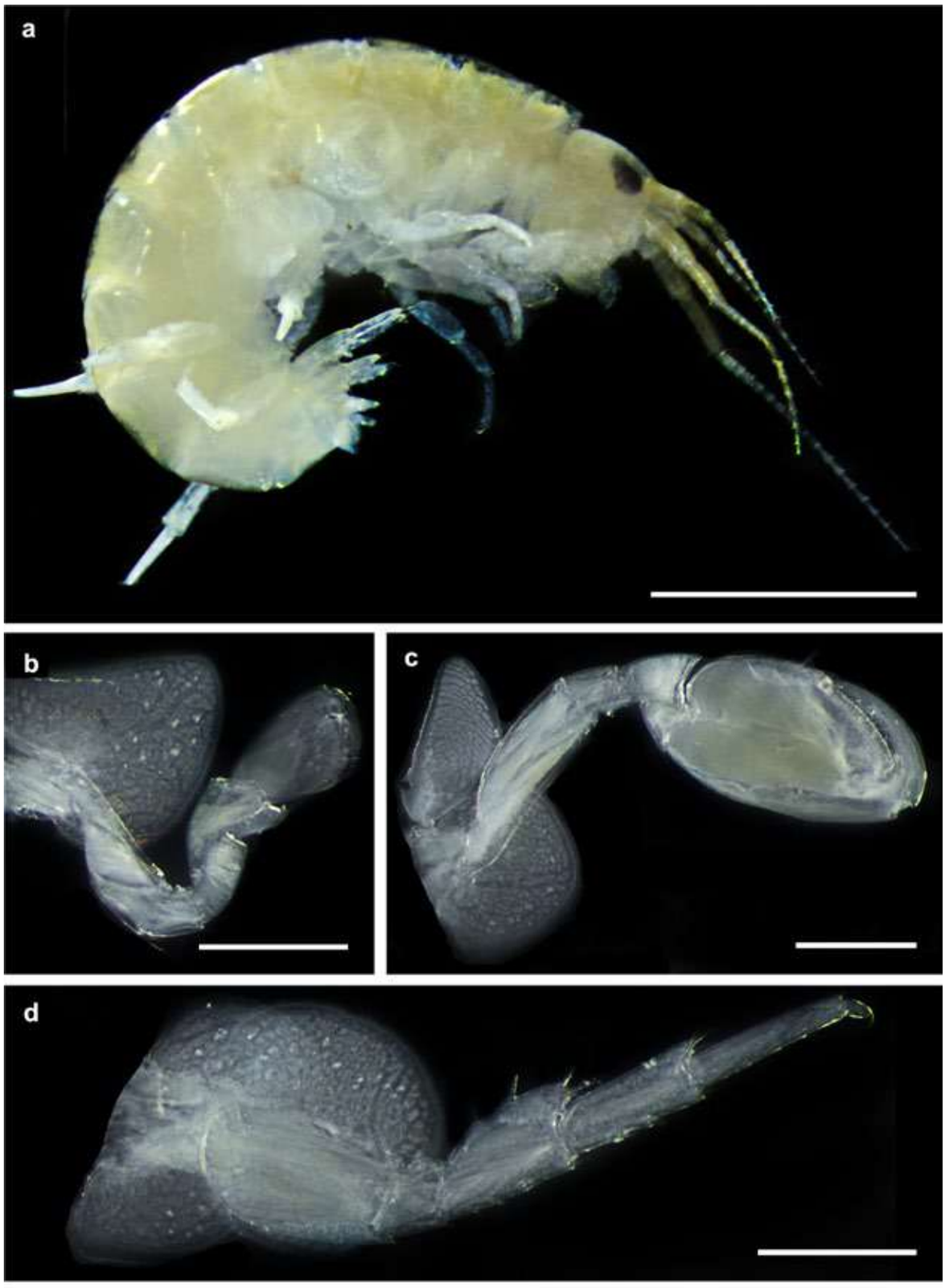

Plate 81. *Parhyale basrensis*, East Doha. Male: a – habitus; b – gnathopod 1; c – gnathopod 2; d – pereopod 5. Scale lines: a – 2 mm; b, c, and d – 0.5 mm.

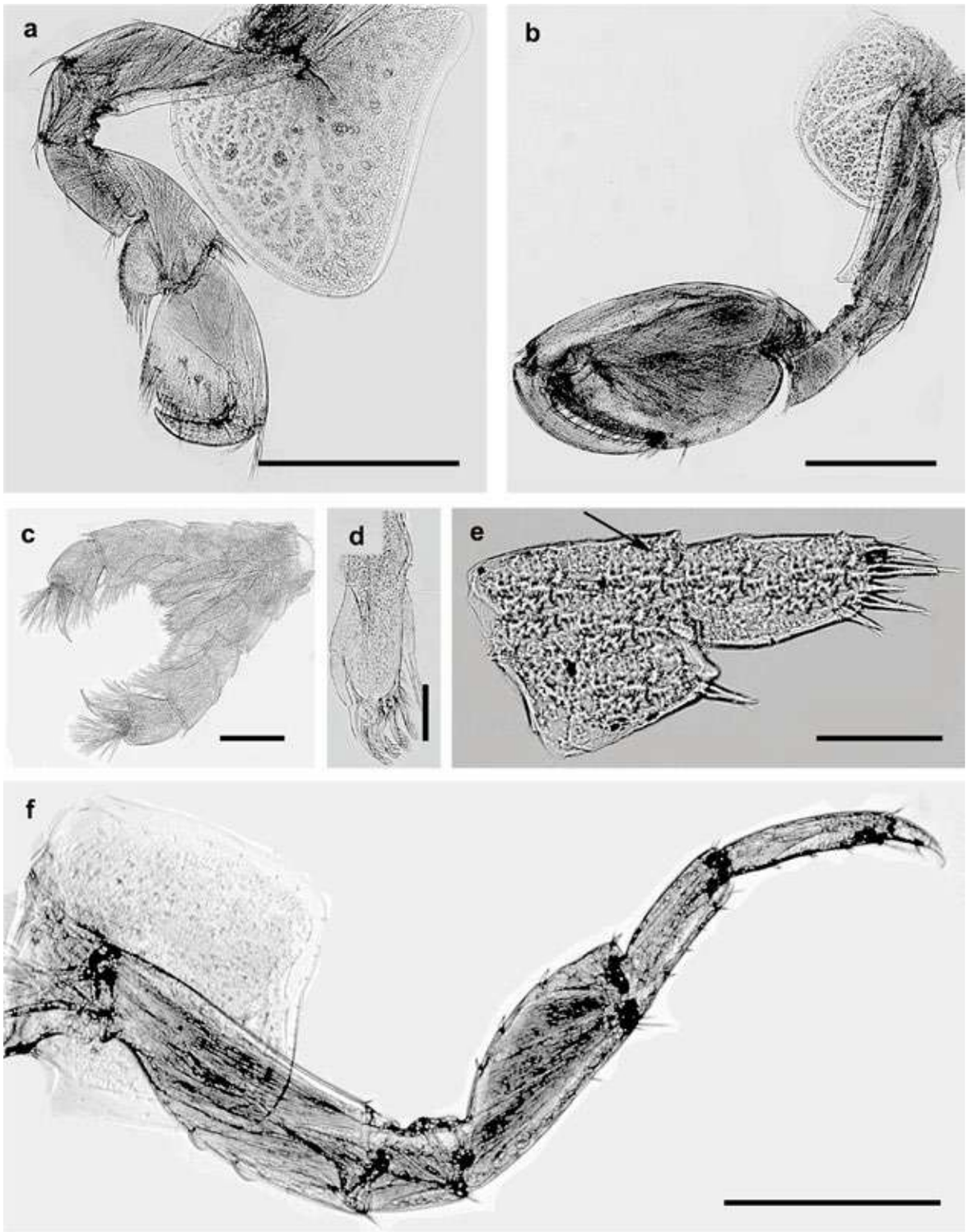

Plate 82. *Parhyale basrensis*, East Doha. Male: a – gnathopod 1; b – gnathopod 2; c – maxilliped; d – maxilla 1; e – uropod 3, inner ramus (arrow); f – pereopod 3. Scale lines: a, b, and f – 0.5 mm; c – 0.2 mm; d and e – 0.1 mm.

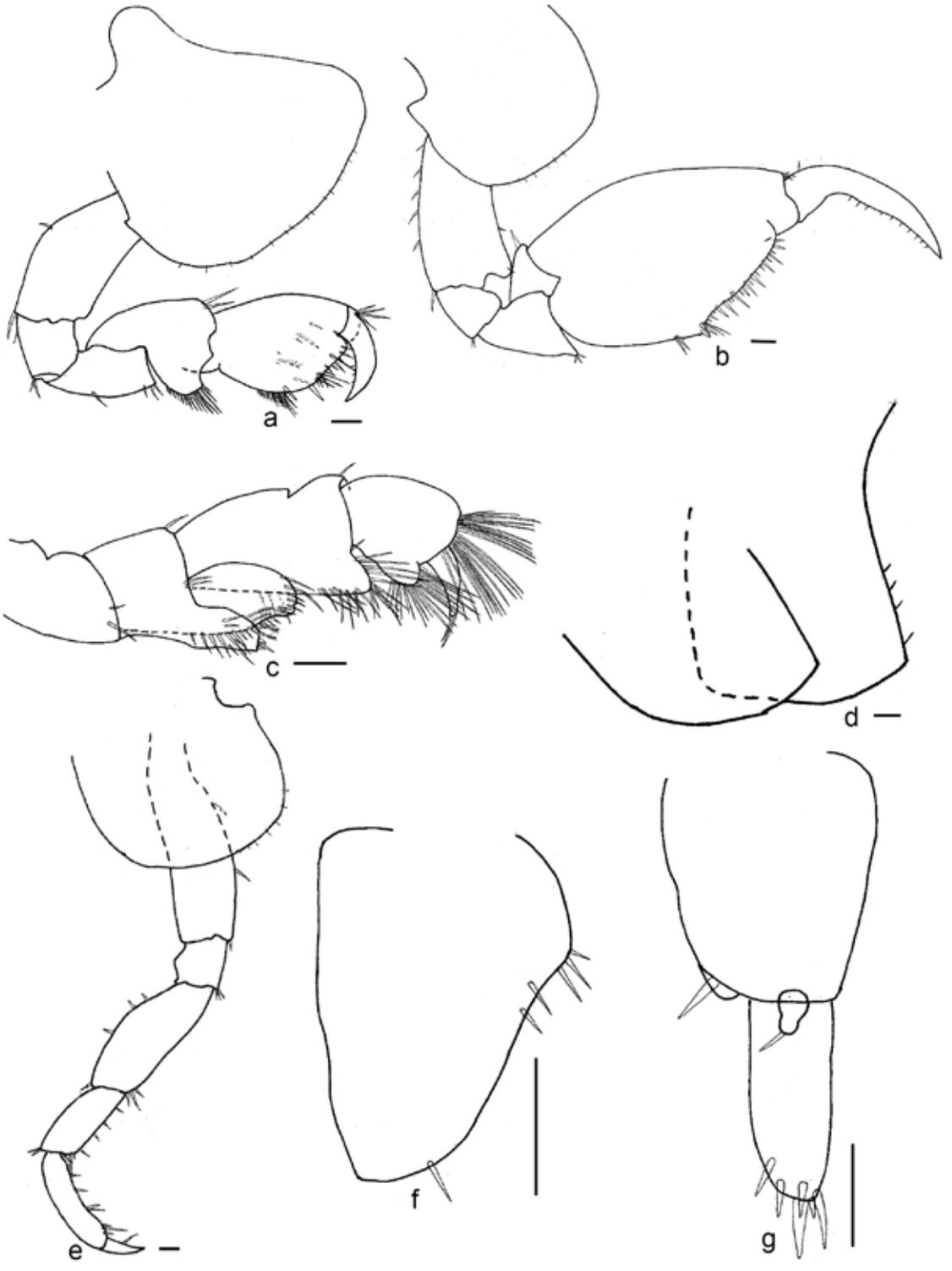

Fig. ZP-29. *Parhyale basrensis,* Al-Nuwaiseeb. Male: a – gnathopod 1; b – gnathopod 2; c – maxilliped; d – epimer 2, epimer 3; e – pereopod 3; f – telson; g – uropod 3. Scale lines – 0.1 mm.

Family Hyalidae
Genus *Protohyale*

Protohyale arabica Myers & Nithyanandan, 2016
Plates 83 – 85, and Fig. ZP-30.
Occurrence: Al-Khiran area, Al-Nuwaiseeb area, Auha Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: *Sargassum* spp. (macroalgae).

Description (after Myers & Nithyanandan, 2016; modified). Male, 5.0 mm. Head lobes truncate; eyes round. A1 scarcely half the length of A2; peduncular article 2 subequal with peduncular article 3. A2 less than half of the body length. L inner plates vestigial. Mx1 inner plate with two stout distal setae; palp extending the bases of setae on the outer plate. Mx2 without oblique setal row. Md lacking palp; lacinia mobilis 5-dentate. Mxp palp long; fourth article extending well beyond the tip of outer plate; article 7 very long and whiplike. Gn1 coxa large without posteroproximal shelf, posterior face with two very stout setae; basis expanded with moderately well developed anterodistal lobe; propodus elongated, longer than carpus, subrectangular; dactylus short, broad. Gn2 coxa large, subround with weak posteroproximal shelf; basis enlarged with strong anterodistal lobe; carpus very small, triangular; propodus greatly enlarged, subovoid, palm relatively short, only moderately oblique, defined by a strong, subacute spine; dactylus fitting palm. P3 basis parallel-sided. P5 basis subround with a small mid posterior margin notch, crenulate on the posterodistal part; dactylus well developed with a small seta on the posterodistal margin. P6 basis subrectangular with a small mid posterior margin notch, crenulate on the posterodistal part; dactylus well developed with small seta on posterodistal margin. P7 basis expanded, subround, crenulate on the posterior margin; dactylus well developed with a small seta on the posterodistal margin. Pleon. Ep1 rounded. Ep2 subrectangular. Ep3 weakly extended on the posterior distal margin into a triangular spine. U1 peduncle with a strong distolateral robust seta; rami a little longer than peduncle, subequal in length. U2 peduncle short; inner ramus much longer than peduncle and longer than the outer ramus. U3 peduncle more than twice the length of single ramus. T unarmed.
Female (sexually dimorphic characters). Gn2 basis expanded distally; carpus moderately large, subrectangular; propodus elongated, subrectangular, palm short, oblique; dactylus fitting palm.

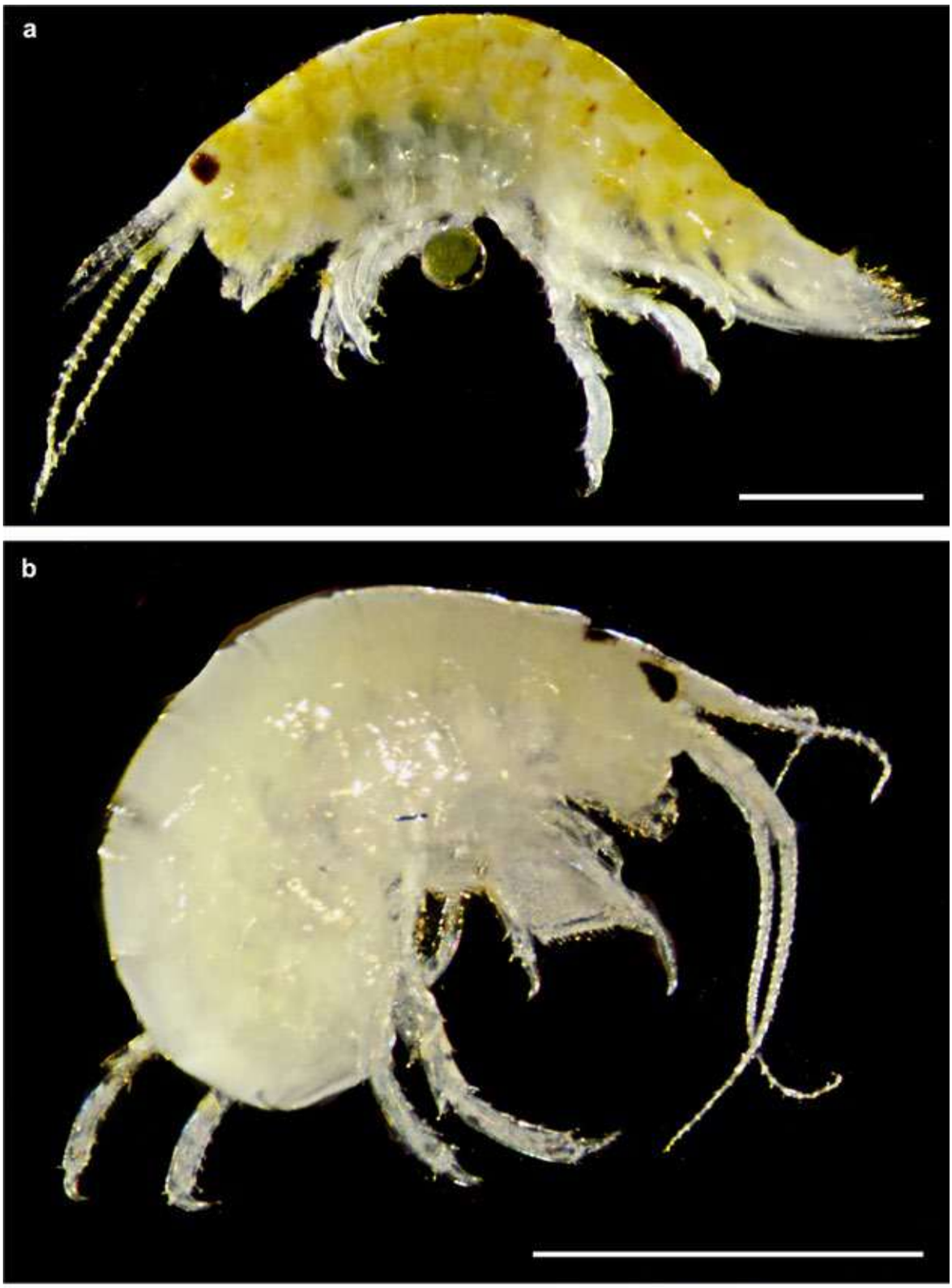

Plate 83. *Protohyale arabica*, Al-Khiran: a – female habitus with eggs; b – male habitus. Scale lines: a – 1 mm; b – 2 mm.

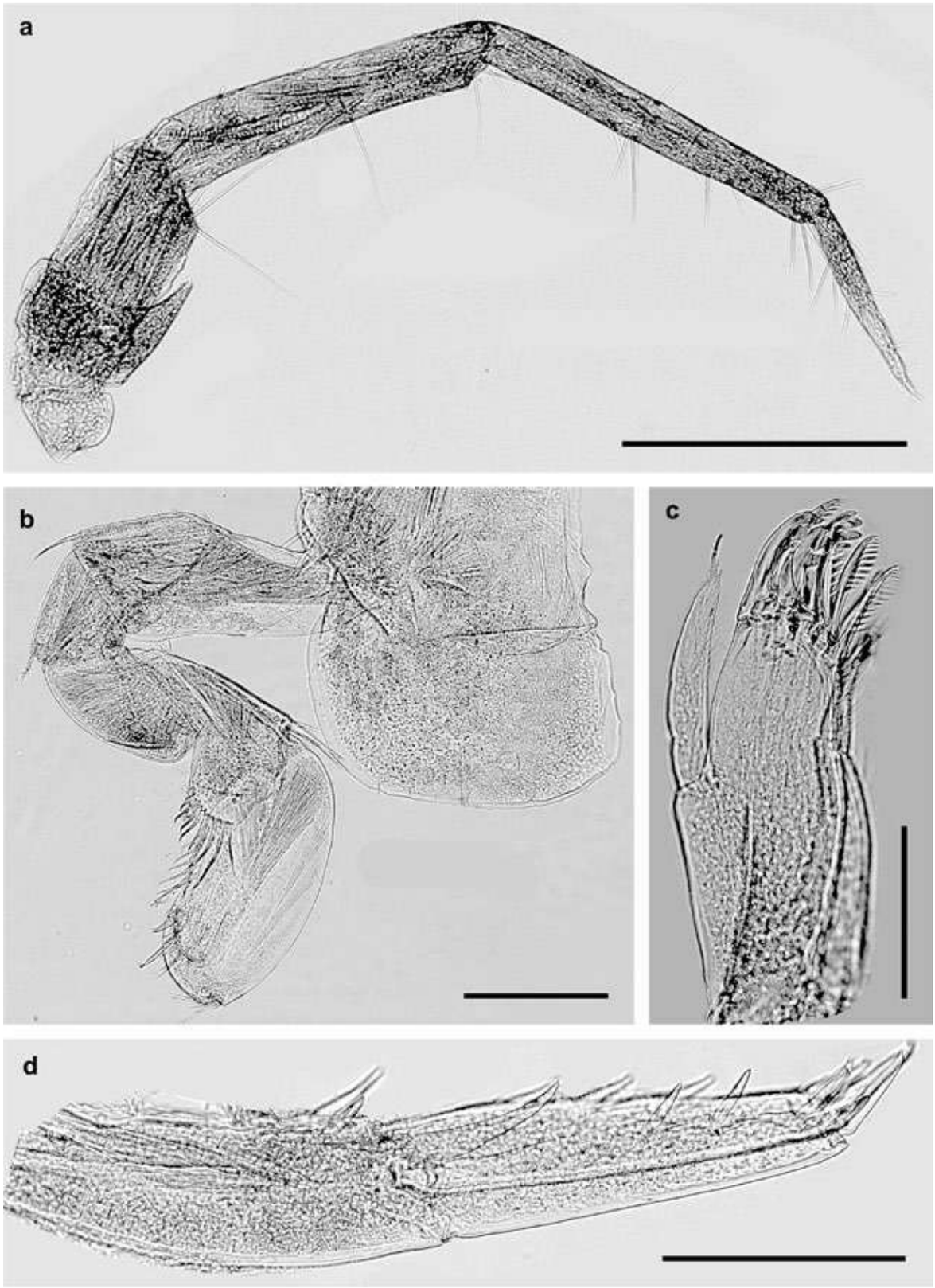

Plate 84. *Protohyale arabica*, Al-Khiran. Male: a – antenna 2; b – gnathopod 1; c – maxilla 1; d – uropod 1. Scale lines: a – 0.5 mm; b and d – 0.2 mm; c – 0.1 mm.

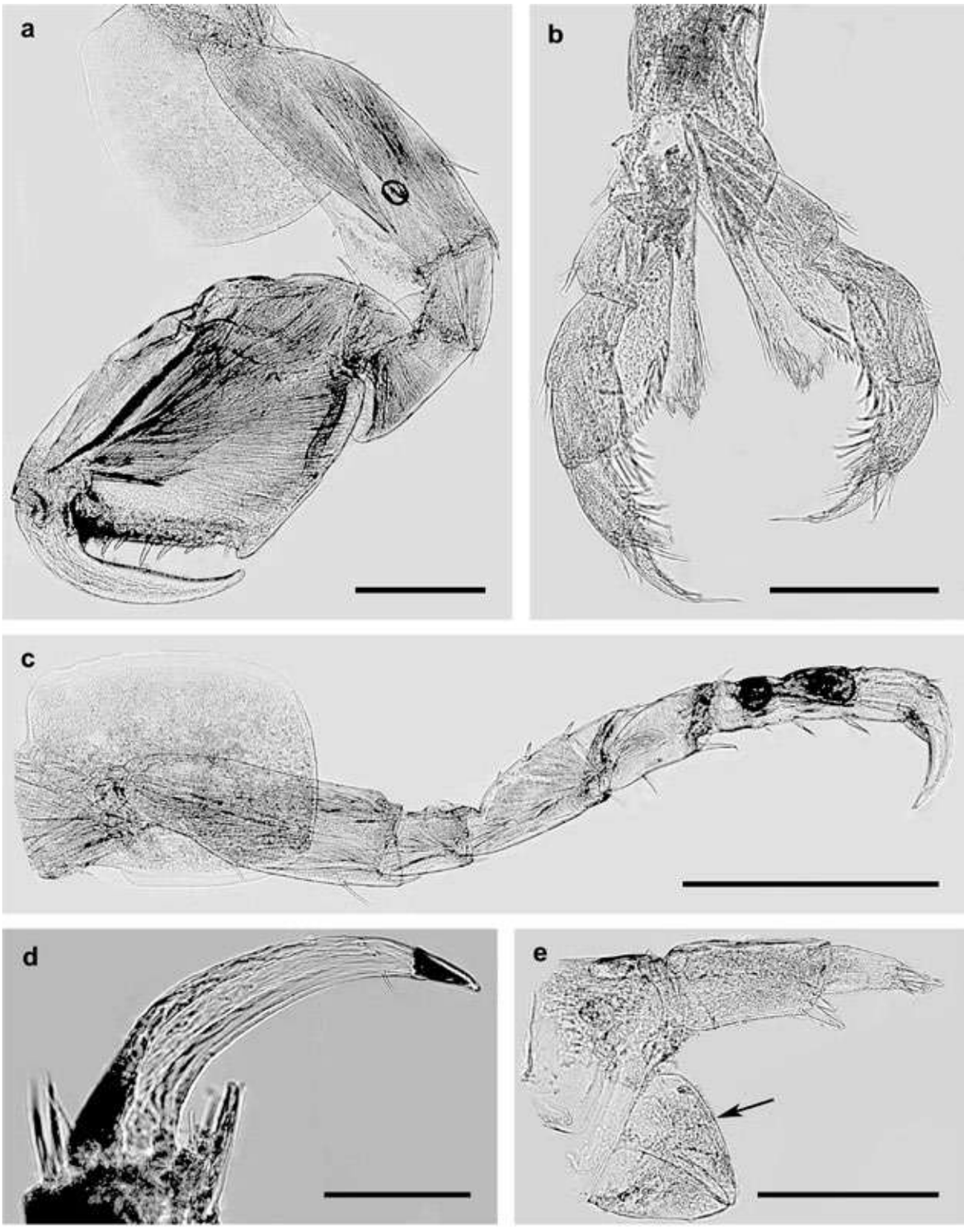

Plate 85. *Protohyale arabica*, Al-Khiran. Male: a – gnathopod 2; b – maxilliped; c – pereopod 3; d – pereopod 7, dactylus; e – uropod 3, telson (arrow). Scale lines: c – 0.5 mm; a – 0.25 mm; b and e – 0.2 mm; d – 0.1 mm.

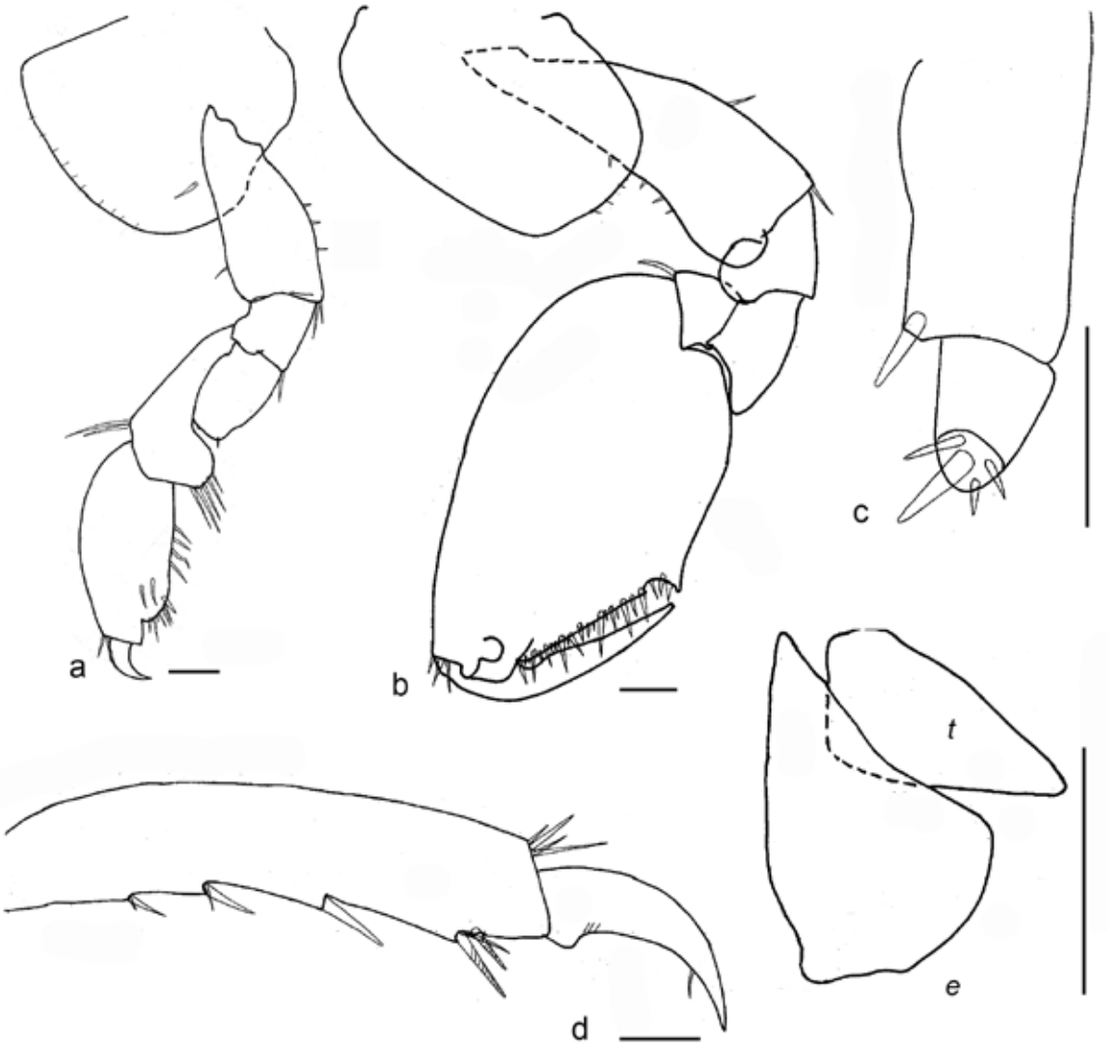

Fig. ZP-30. *Protohyale arabica,* Al-Nuwaiseeb. Male: a – gnathopod 1; b – gnathopod 2; c – uropod 3; d – pereopod 7, propodus, dactylus; e – telson. Scale lines – 0.1 mm. Designations: t – telson.

Family Ischyroceridae
Genus *Ericthonius*

Ericthonius sp. cf. *forbesii*

Plates 86 and 87, and Fig. ZP-31.

Occurrence: Salmiya town beach area, East Doha area, Auha Island area, Kuwait Bay area (subtidal), Al-Bida'a area, Rescue Center Marina area, Al-Salam beach (Kuwait Bay area), Kubbar Island area, Al-Maghasel (Khor Al-Sabiyah) area, Al-Shumaimah (Khor Al-Sabiyah) area, Failaka Island area, Al-Nuwaiseeb area, Ras Al-Zour area, and Miskan Island area.

Intertidal and Subtidal Zones.

Habitats: sand, shells, cobble, macroalgae, fouling, rocks, mud, sponges, *Sargassum* spp. (macroalgae), and ropes (as artificial habitat).

Description (after Hughes and Lowry, 2006; modified). Male, 4.9 mm. Eyes large (about 1/4 of head length). Mx1 setae along the medial margin. Gn1 basis posterior margin without knob-like process; carpus distinctly longer than propodus; propodus wide (about 1.5 times as long as wide). Gn2 carpochelate; Cox2 widely separated from Cox1 and Cox3, rounded, distinctly broader than deep, ventral margin with stridulating nodules or ridges; carpus with distinct free posterior expansion, margin extended onto two carpal teeth; propodus shorter than carpus, rectangular; dactylus with a cluster of distal setae. P3 and P4 basis expanded, flask shaped. P5 – P7 basis expanded, dactylus with accessory spines on the anterior margins. P5 merus without posterior distal lobe. U1 outer ramus with more than 2 apical robust setae. U2 peduncle with several dorsal robust setae. U3 peduncle short (length 2 × or less breadth), expanded proximally.

Female, 4 mm. Similar to male. Gn2 subchelate and smaller than Gn2 male; basis with a few small setae posteriorly; ischium with small setae posterodistally; merus with setae posterodistally; carpus with a big strong lobe posteriorly, bearing setae and spines; propodus near triangular, palm well defined by spines, dactylus covered palm with small setae on the outside.

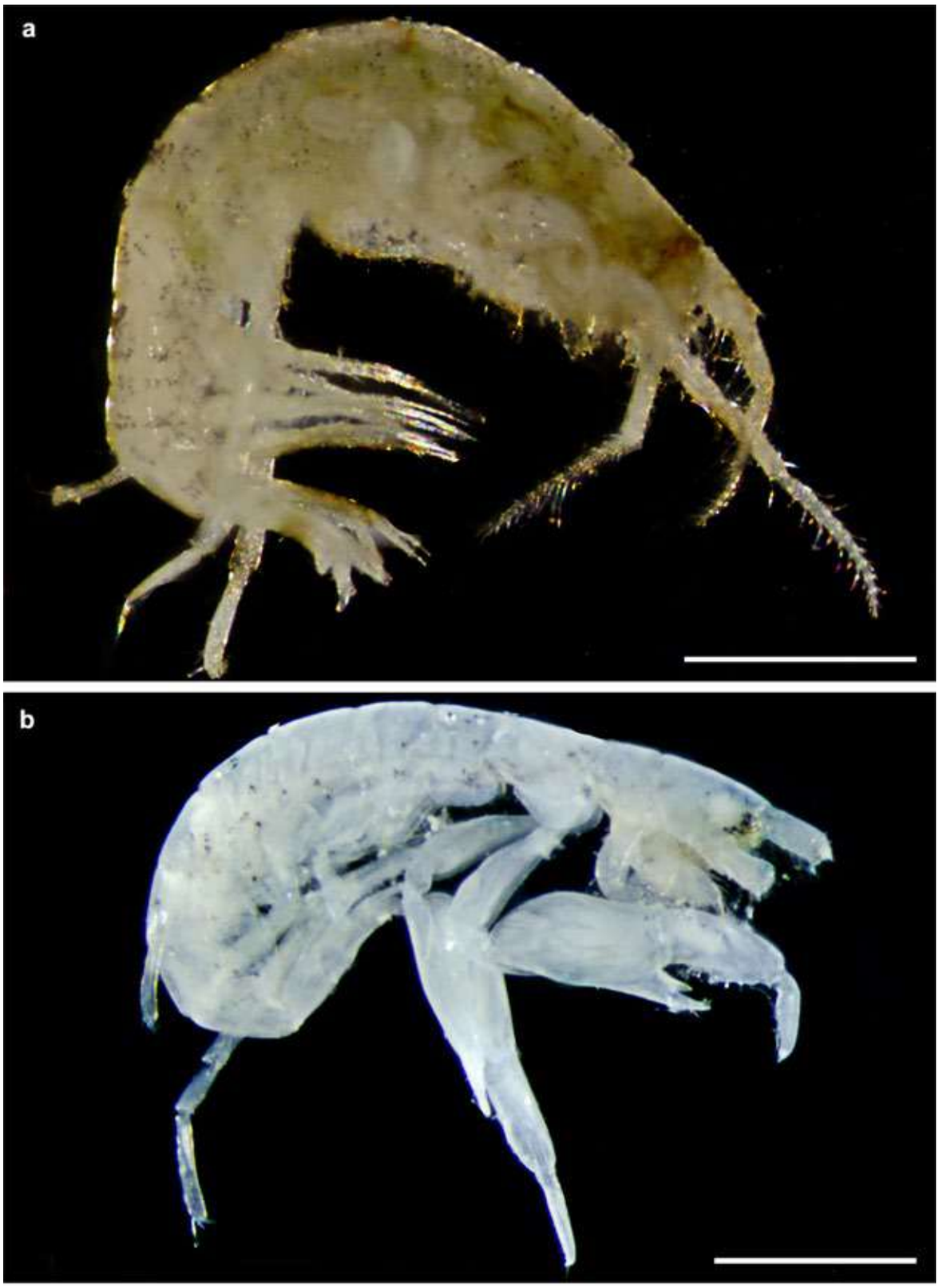

Plate 86. *Ericthonius* sp. cf. *forbesii*, East Doha: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

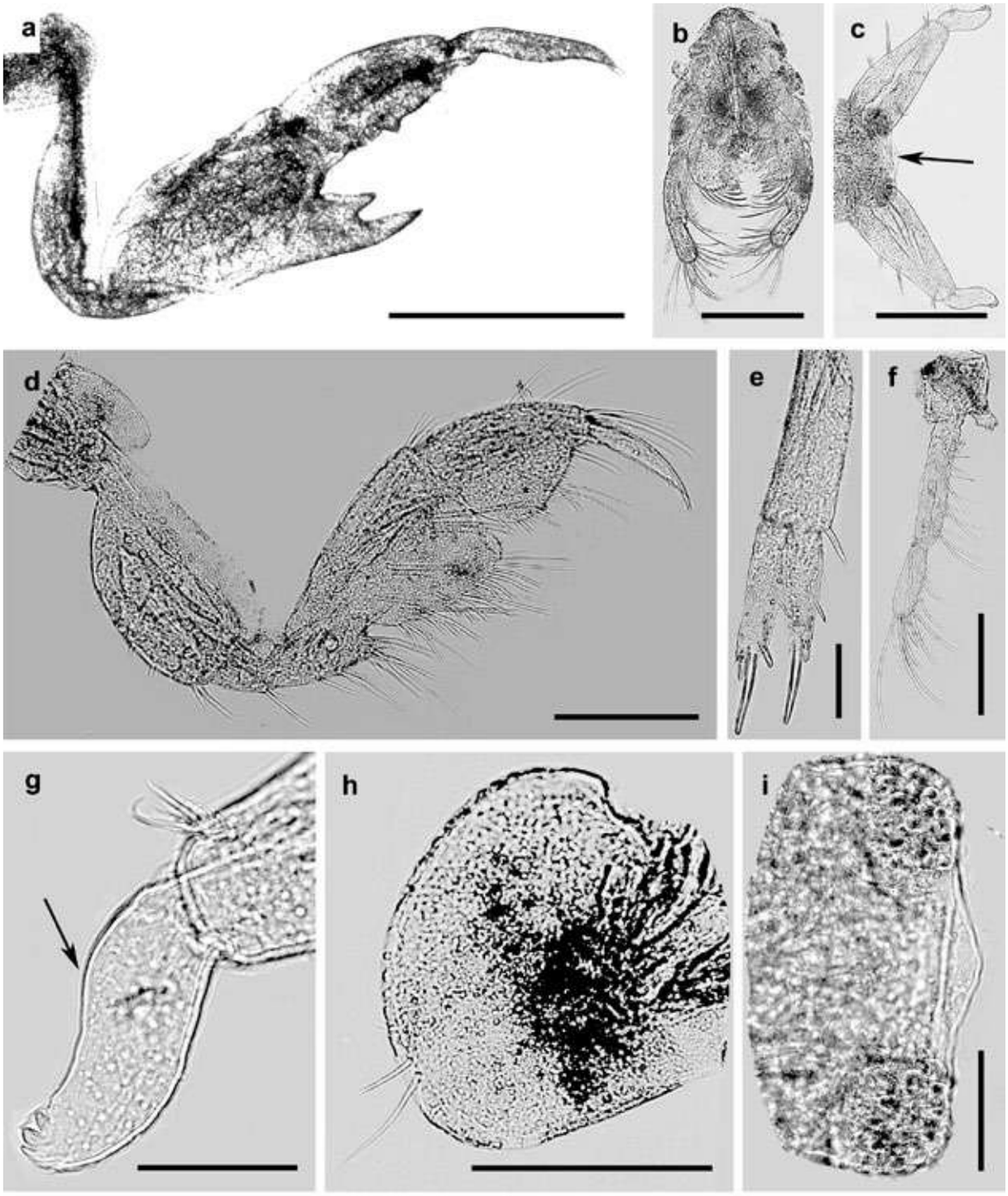

Plate 87. *Ericthonius* sp. cf. *forbesii*, East Doha. Male: a – gnathopod 2; b – maxilliped; c – uropod 3, telson (arrow); d – gnathopod 1; e – uropod 2; f – mandible; g – uropod 3, ramus (arrow); h – coxa 4; i – telson. Scale lines: a – 0.5 mm; b, c, d, f, and h – 0.2 mm; e – 0.1 mm; g and i – 0.05 mm.

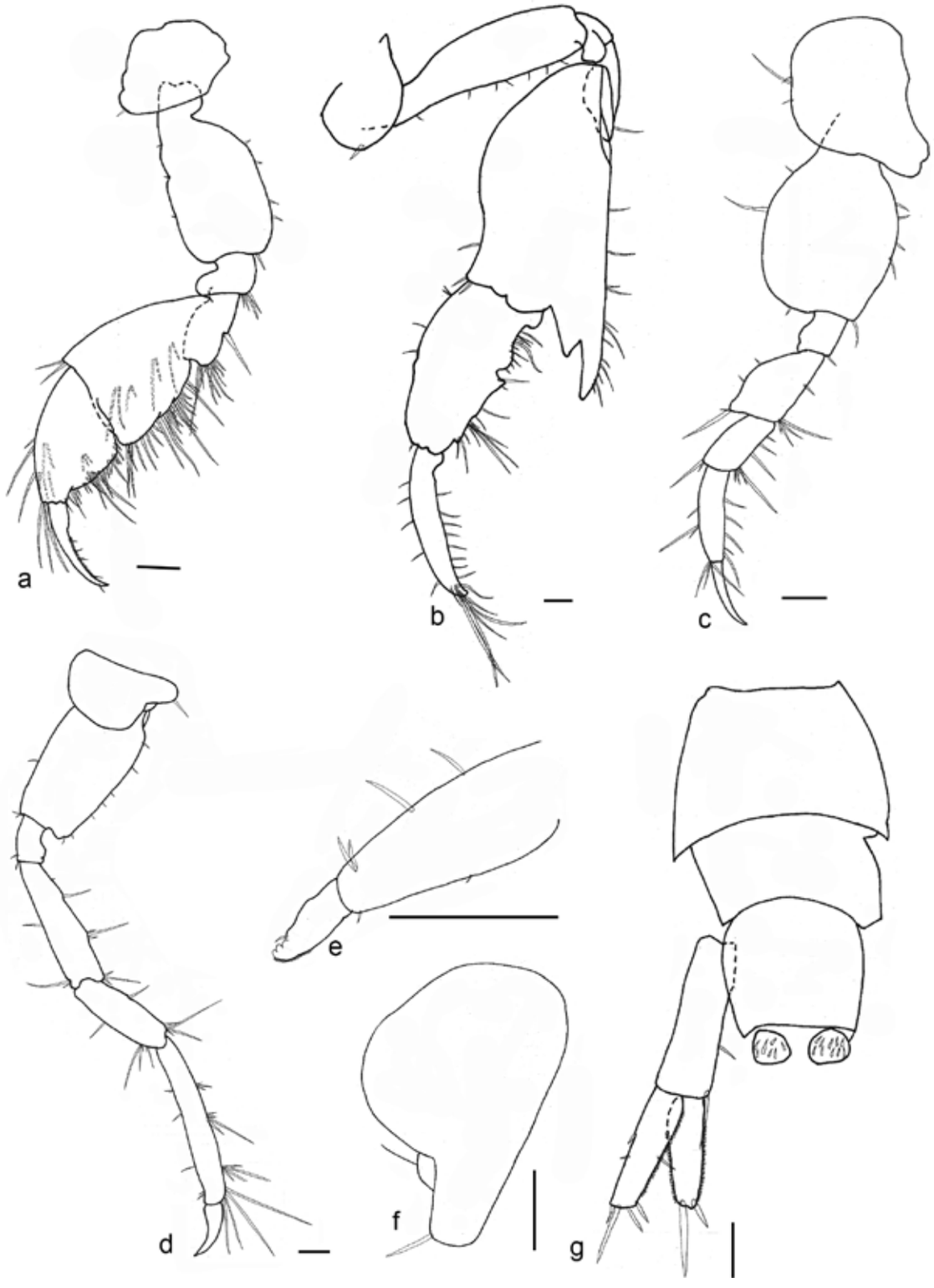

Fig. ZP-31. *Ericthonius* sp. cf. *forbesii*, East Doha. Male: a – gnathopod 1; b – gnathopod 2; c – pereopod 4; d – pereopod 7; e – uropod 3; f – coxa 7; g – urosome, uropod 3, telson. Scale lines – 0.1 mm.

Family Ischyroceridae
Genus *Ischyrocerus*

***Ischyrocerus* sp.**
Plates 88 and 89.
Occurrence: Turtle Island area, Salmiya town beach area, Al-Khiran area, Auha Island area, Al-Messilah beach area, Failaka Island area, and Ras Ajuza (Kuwait Bay area).
Intertidal and Subtidal Zones.
Habitats: sponges, sand, aggregations of polychaete tubes, and *Sargassum* spp. (macroalgae).

Description (after A. Myers 1995 for *I. parma*; modified). Male, 2.5 mm. Eyes **small**, round. A1 and A2 damaged. Md palp with three articles, article 3 **not clavate** with setae ventrally and distally. Gn1. Cox1 sub-square, propodus longer than carpus, subovoid, palm continuous with posterior margin, delimited by two spines; dactylus elongated, overlapping palm with serration on the inner edge. Gn2. Cox2 subquadrate, basis flask-shaped; ischium with small shield-like anterior expansion **without spines**; merus and carpus **not reduced**, with setae, carpus with lobe posteriorly; propodus elongated, anterior margin evenly convex, posterior margin **straight** with numerous long palmate setae, palm delimited by **2 pairs of spines**, palm distally with process bearing serrations; dactylus **short,** strongly curved. P6 and P7 basis expanded with weakly crenulated posterior margin. Ep1 – Ep3 rounded. U1 and U2 peduncle shorter than inner ramus with spine dorsally and distally; outer ramus shorter than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U3 peduncle longer than rami with spines medially and distally, outer ramus **shorter than inner** with tiny teeth, inner ramus without teeth **without setae.** T with a pair of spines.
Female, 2.5 mm. Eyes medium. A1 article 1 short, article 2-3 equal by length; flagellum 7-articles, accessory flagellum 2-articles. Gn1 similar to Gn1 male. Gn2 similar to Gn1 but slightly bigger. U3 outer ramus with 3 fine recurved teeth; inner ramus with a tiny spine terminally.

Plate 88. *Ischyrocerus* sp., Salmiya town beach: a – female habitus; b – male habitus. Scale lines: a and b – 0.5 mm.

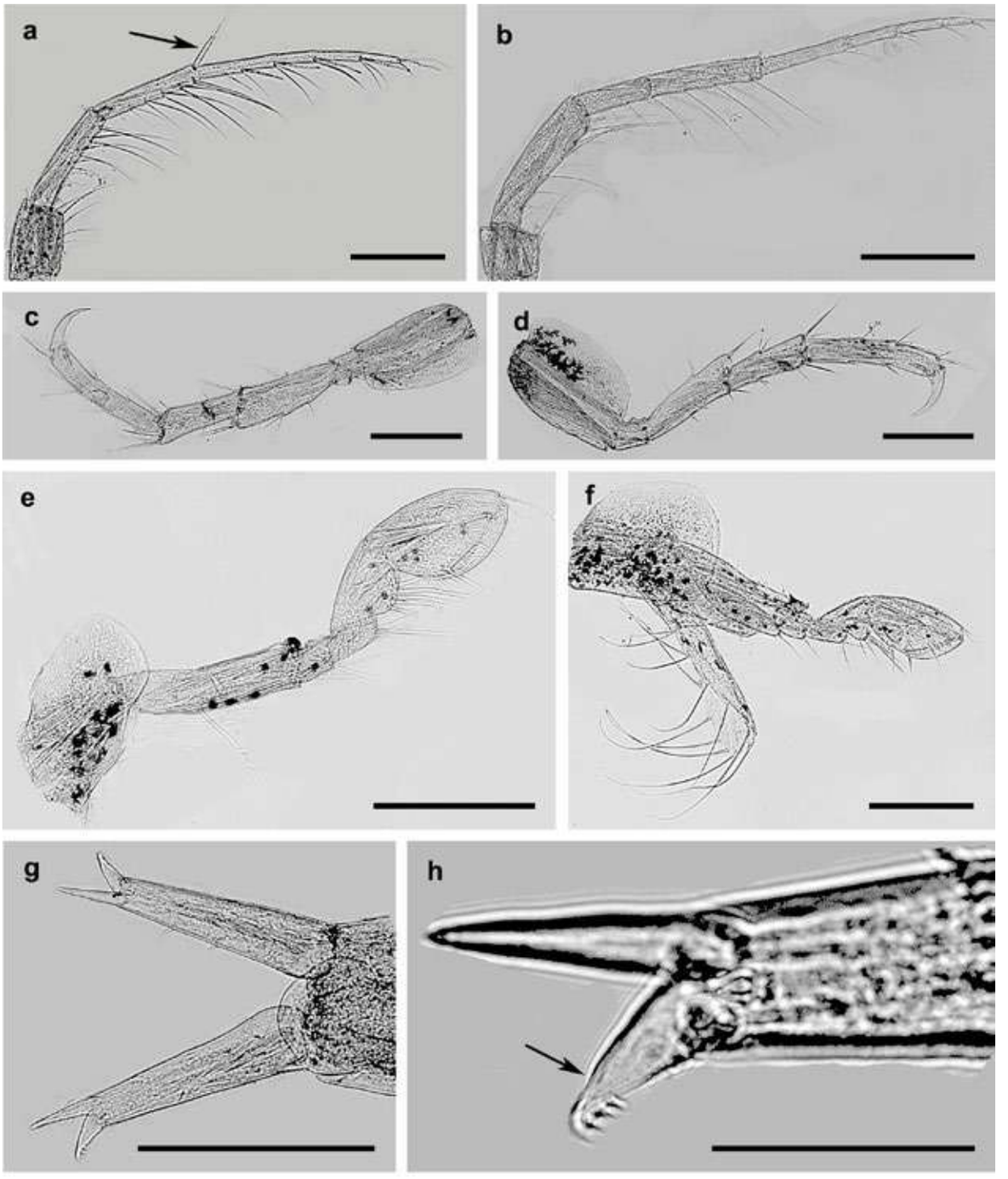

Plate 89. *Ischyrocerus* sp., Salmiya town beach. Female: a – antenna 1, accessory flagellum (arrow); b – antenna 2; c – pereopod 5; d – pereopod 7; e – gnathopod 1; f – gnathopod 2; g – uropod 3, telson; h – uropod 3, outer ramus (arrow), inner ramus. Scale lines: a, b, c, d, and f – 0.2 mm; h – 0.05 mm.

Family Ischyroceridae
Genus *Orientoecetes*

Orientoecetes arabicus (Barnard & Thomas, 1984)
Plates 90 – 93 and Fig. ZP-32.
Occurrence: Funaitees area, Salmiya town beach area, Al-Bida'a area, Al-Aushairij (East Doha) area, and Al-Judailiat (West Doha) area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, ropes (as artificial habitat), and macroalgae.

Description (after Barnard and Thomas 1984; modified). Male, 3.5 mm. Eyes weak. Lateral and medial surfaces of peduncle of A1 almost equally setose; acc.fl. vestigial, composed of evanescent boss bearing 4 diverse setae. Lateral surfaces of peduncular articles on A2 setose but lacking spines, article 3 with 2 stout spines distolaterally and 1 spine mediolaterally. Md incisors toothed. Inner plate of Mx1 evanescent, outer plate with 7 spines. Inner plate of Mx2 with 3 medial setae. Inner plate of Mxp with 3 main stubby apical spines, outer plate with sharp medial chisel-spines, palp article 4 small, stubby. Coxae all disjunct; Cox1 with a group of anterior and anteroventral setae. Gn1 propodus with apically representing palm, posterior margin with 2 stout spines. Gn2 lobe of carpus with 1 stout spine, palm weak and defined by 1 stout spine. P3 and P4 alike, article merus enveloping reduced carpus, propodus attached to the oblique apical margin of carpus, dactylus simple. P5 and P6 subsimilar, small, carpus with facial stridulating surface. P7 elongated, lacking rough surfaces, dactyls of P5 – P7 with outer cusp. Ep1 with 2 long plumose setae on the ventral margin and 1 tiny seta posteroventrally, Ep2 with 4 long plumose setae on the ventral margin and 2 setae posteroventrally, Ep3 without long plumose setae and only with 2 minute setae on ventral margin. Pleopods all subsimilar, each peduncle with a medial lobe. Us2 and Us3 fused dorsally. Inner ramus of U1 and U2 much smaller than outer ramus. Peduncle and ramus of U3 with setae. Plaques on T with small corneal hooks.

Female, 2.1 mm. Gn2, basis with setae anteriorly and midposteriorly; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus with lobe posteriorly bearing two strong spines and with setae posteriorly and anterodistally; propodus longer than carpus with setae anteriorly and posteriorly, palm well defined by a strong spine, near proximal part of dactylus palm has a strong tooth; dactylus with spine on the inner side posteriorly.

Plate 90. *Orientoecetes arabicus*, West Doha: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

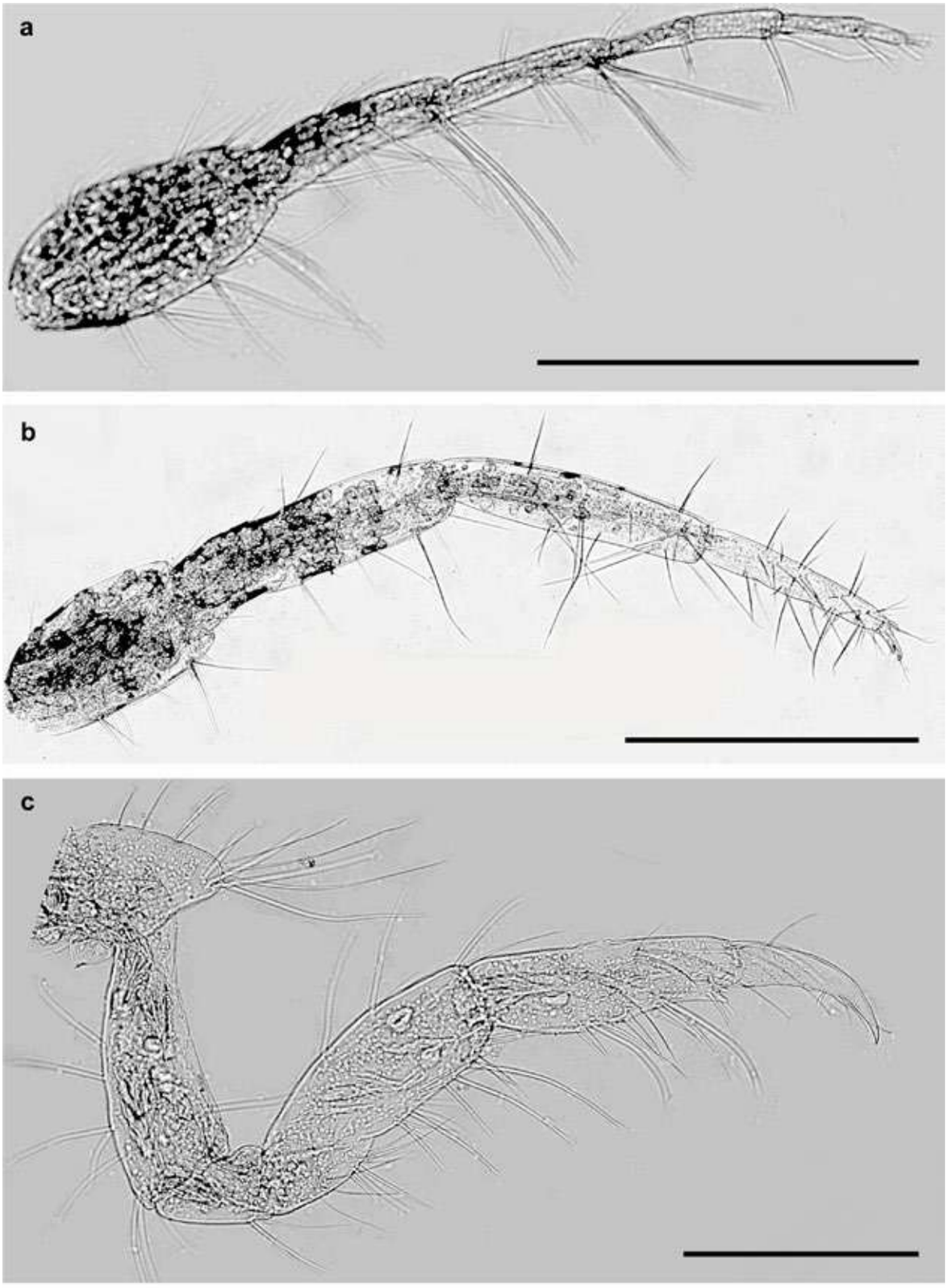

Plate 91. *Orientoecetes arabicus*, West Doha. Female: a – antenna 1; b – antenna 2; c – gnathopod 1. Scale lines: a and b – 0.5 mm; c – 0.2 mm.

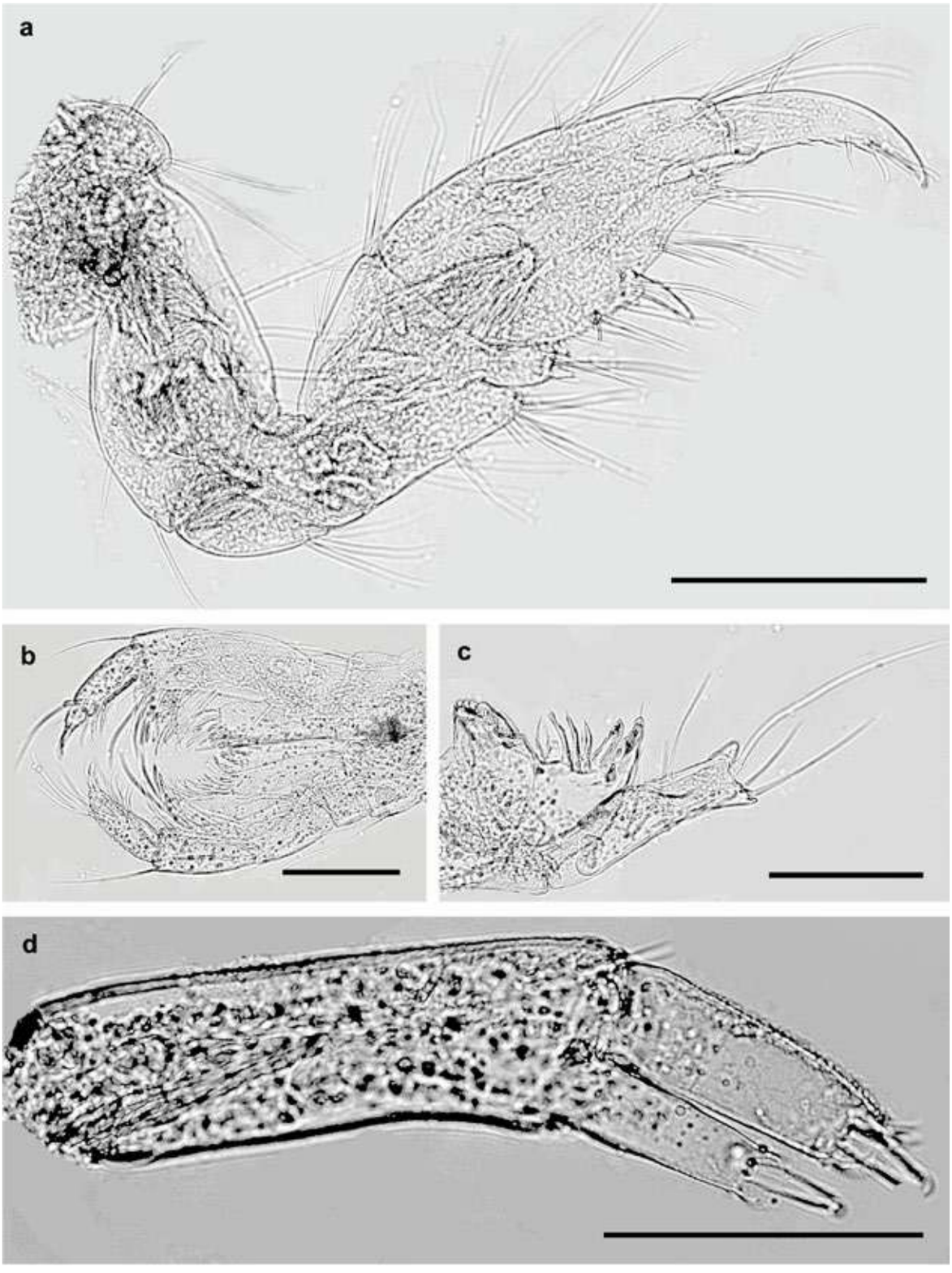

Plate 92. *Orientoecetes arabicus*, West Doha. Female: a – gnathopod 2; b – maxilliped; c – mandible; d – uropod 1. Scale lines: a – 0.2 mm; b, c, and d – 0.1 mm.

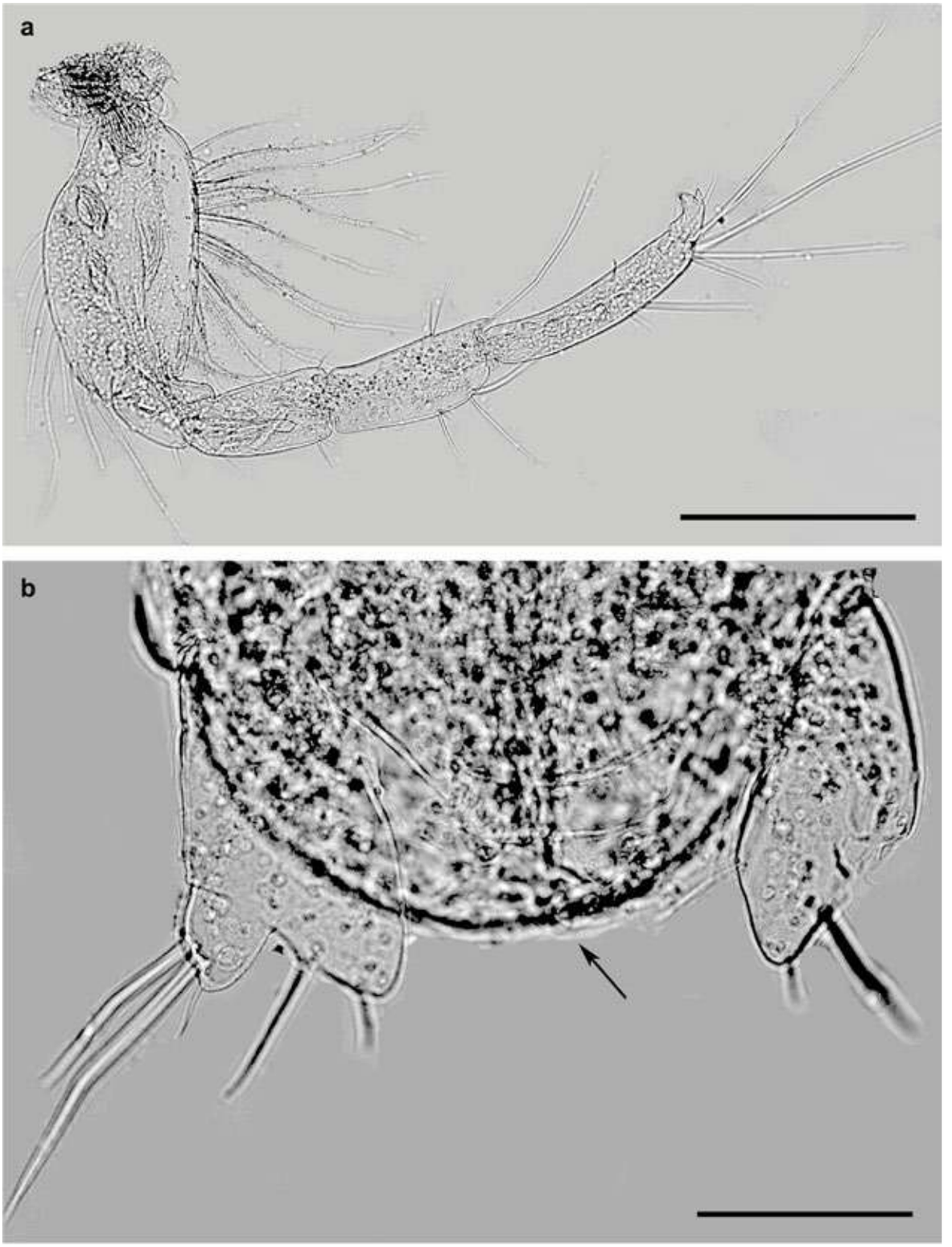

Plate 93. *Orientoecetes arabicus*, West Doha. Female: a – pereopod 7; b – uropod 3, telson (arrow). Scale lines: a – 0.2 mm; b – 0.05 mm.

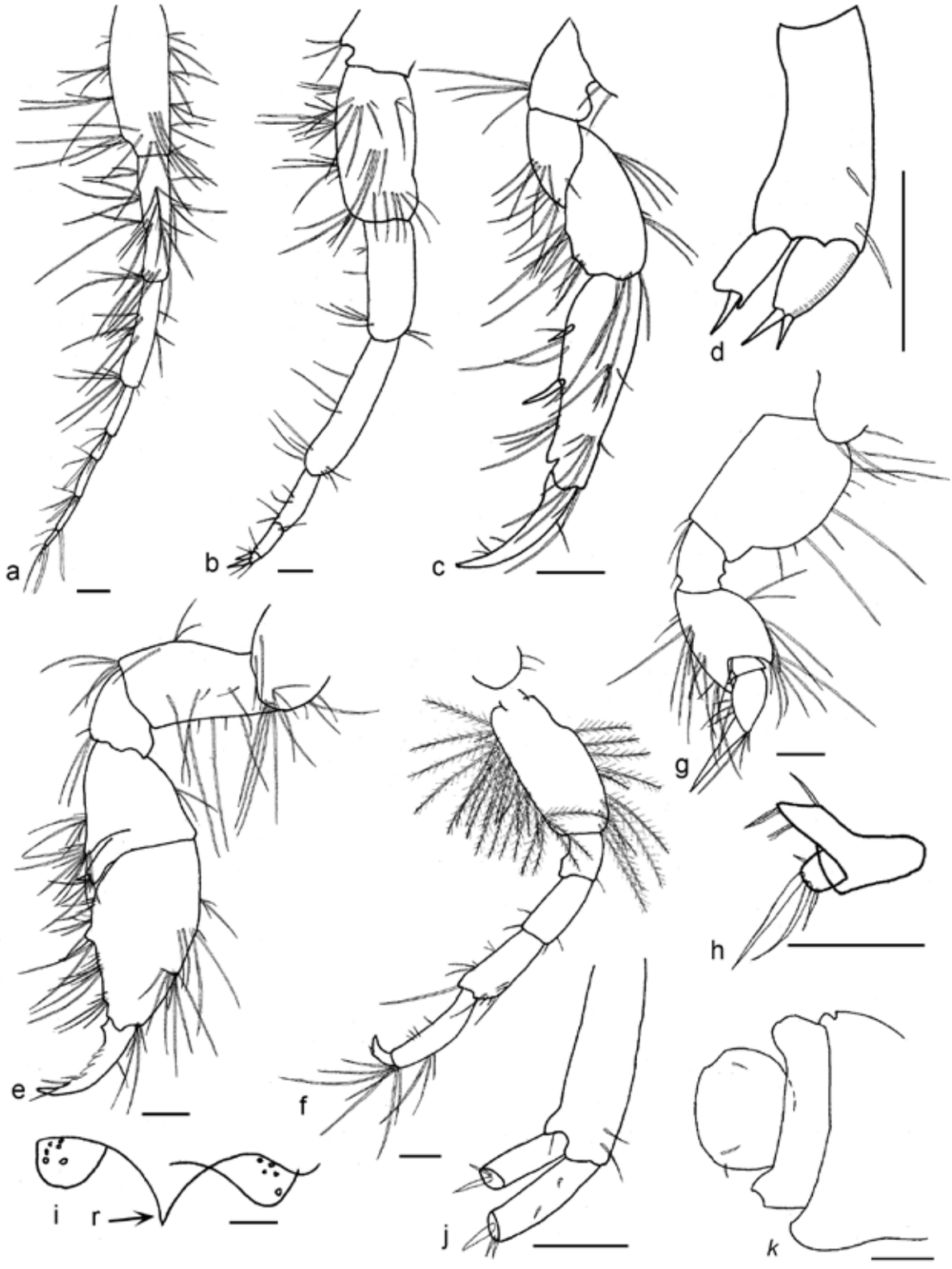

Fig. ZP-32. *Orientoecetes arabicus,* East Doha. Male: a – antenna 1; b – antenna 2; c – gnathopod 1; d – uropod 2; e – gnathopod 2; f – pereopod 7; g – pereopod 4; h – uropod 3; i – head; j – uropod 1; k – urosome, telson. Scale lines – 0.1 mm. Designations: r – rostrum.

Family Leucothoidae
Genus *Leucothoe*

Leucothoe gracilis (Haswell, 1879)
Plates 94 – 96 and Fig. ZP-33.
Occurrence: Al-Nuwaiseeb area, Al-Bida'a area, Salmiya area, Al-Khiran area, Qaruh Island area, Umm Al-Maradim Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, sponges, dead corals, rocks, and macroalgae.

Description. Female, 4 mm. Lateral cephalic lobes with weakly concave vertical margin, eyes medium; midcephalic keel long and sharp. A1 article 1 with small apicoventral cusp and two ventral marginal spines. A2 article 3 with small ventrodistal notch. Md palp article 3 about 0.5 times as long as article 2, bearing two apical setae, article 2 with three marginal setae. Cox1 – Cox4 anterior serration weak. Gn1 basis constricted proximally, anterior margin with 3 setae; ischium bare; carpus and propodus distally tapered; propodus straight palm serrate with 4 distal setae; dactylus smooth, reaching 0.5 × propodus length. Gn2 basis linear with two lobes, anterodistally bearing 2 setae, anterior margin with 3 setae; ischium with two anterodistal lobes; carpus about 0.5 × propodus length, curved, distally truncate, anterior margin smooth; propodus posterior margin without teeth, with two mediofacial setal rows, palm convex with 3 major and some small projections; dactylus curved, proximal margin smooth, reaching 0.6 × propodus length. P5 – P7 basis near linear. Ep1 – Ep3 bare, Ep3 subquadrate. U1 peduncle slightly longer than inner ramus, inner ramus slightly longer than outer. U2 shorter than U1, peduncle as long as the length of inner ramus, inner ramus longer than outer. U3 peduncle longer than inner ramus and with spines dorsally, inner ramus longer than outer, outer ramus with spines dorsally. T 2 × longer than wide, apex tridentate.
Male is similar to female.

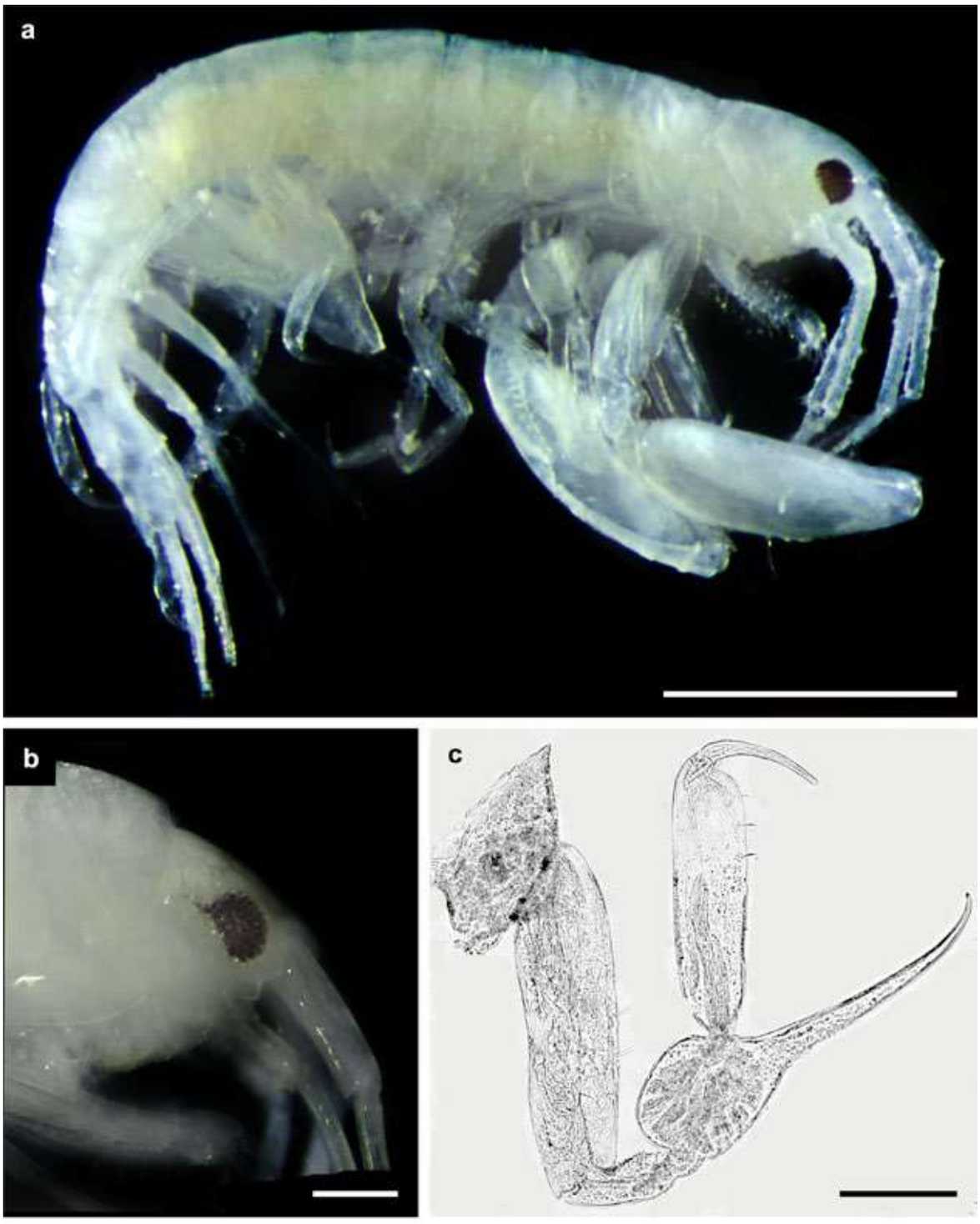

Plate 94. *Leucothoe gracilis*, Al-Nuwaiseeb. Male: a – habitus; b – head; c – gnathopod 1. Scale lines: a – 1 mm; b and c – 0.2 mm.

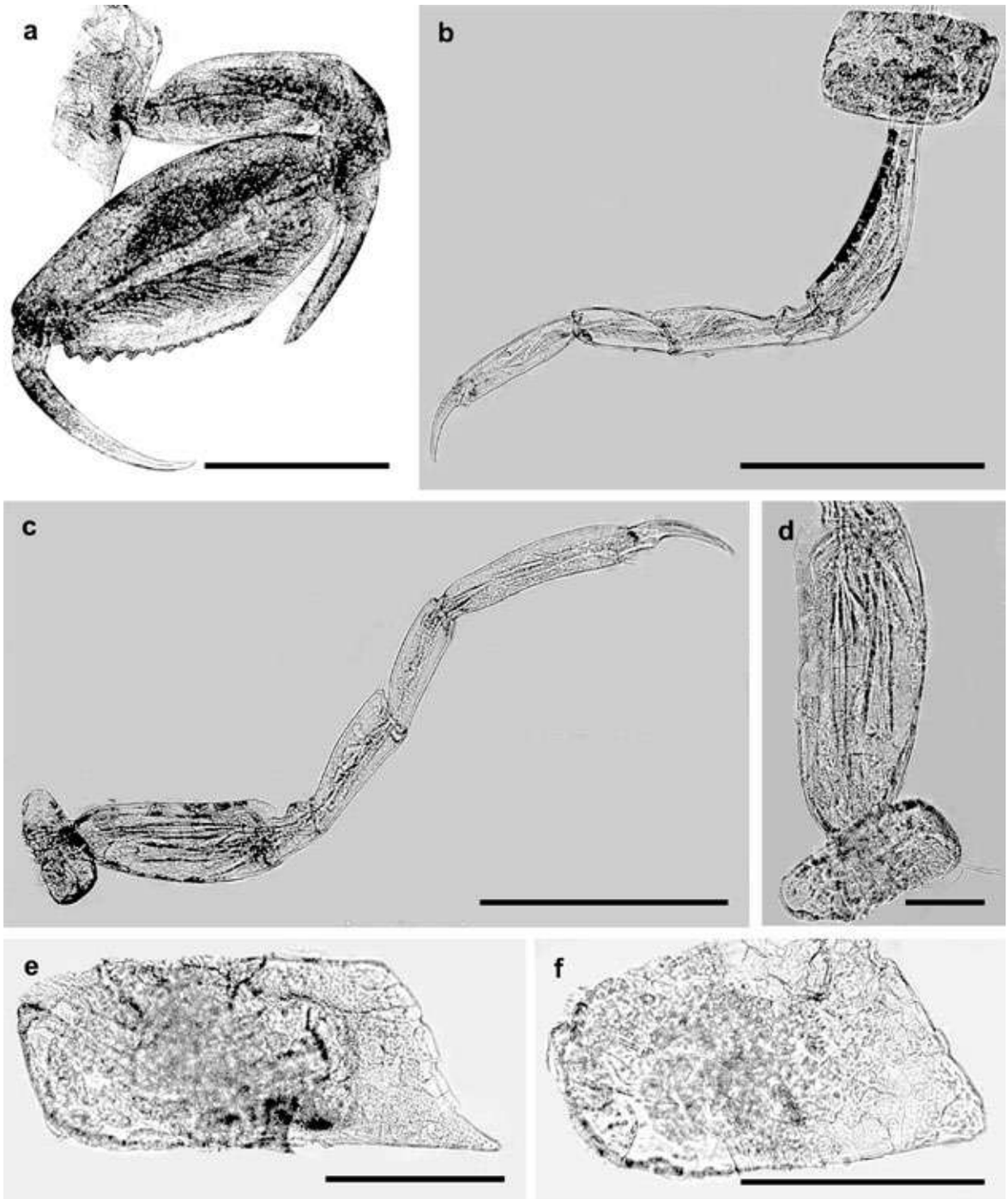

Plate 95. *Leucothoe gracilis*, Al-Nuwaiseeb. Male: a – gnathopod 2; b – pereopod 3; c – pereopod 7; d – pereopod 7, basipodite; e – coxa 2; f – coxa 4. Scale lines: a, b, and c – 0.5 mm; e, and f – 0.2 mm; d – 0.1 mm.

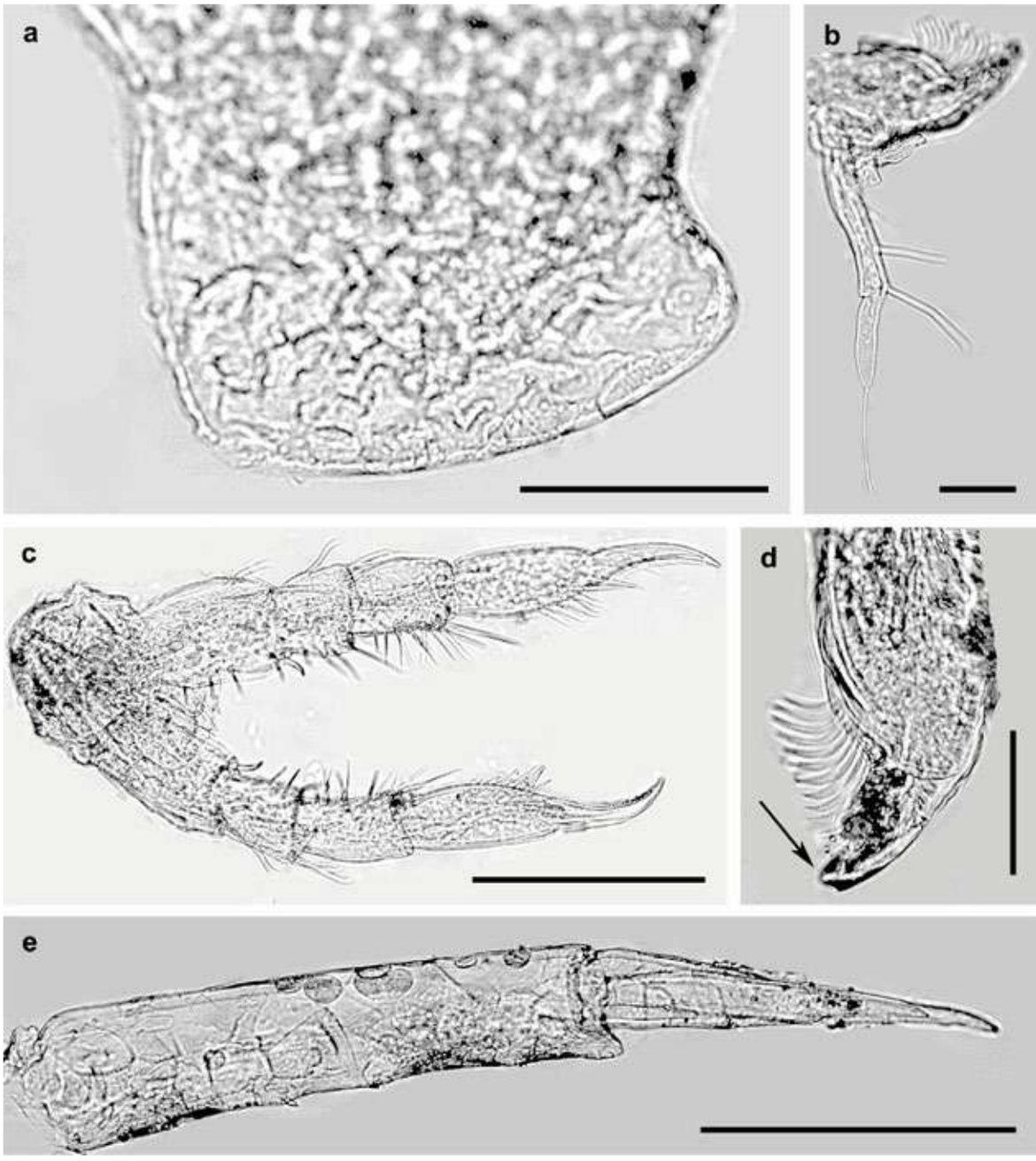

Plate 96. *Leucothoe gracilis*, Al-Nuwaiseeb. Male: a – epimer 3; b – mandible; c – maxilliped; d – mandible, incisor (arrow); e – uropod 3. Scale lines: c and e – 0.2 mm; a – 0.1 mm; b and d – 0.05 mm.

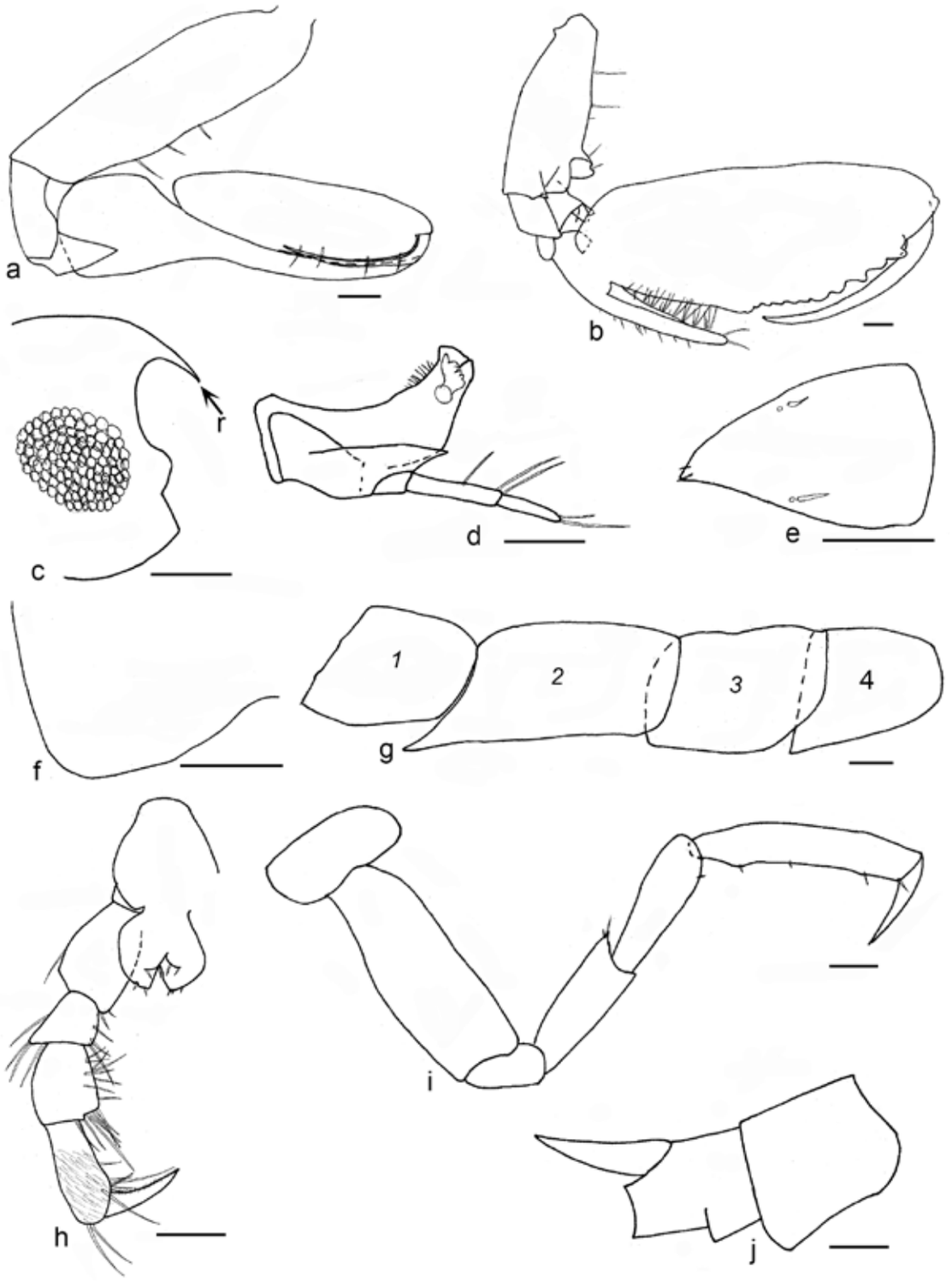

Fig. ZP-33. *Leucothoe gracilis,* Al-Nuwaiseeb. Female: a – gnathopod 1; b – gnathopod 2; c – head; d – mandible; e – telson; f – epimer 3; g – coxae 1 – 4; h – maxilliped; i – pereopod 7; j – urosome, telson (lateral view). Scale lines – 0.1 mm. Designations: r – rostrum.

Family Leucothoidae
Genus *Leucothoe*

Leucothoe* sp. cf. *richiardii
Plates 97 – 99 and Fig. ZP-34.
Occurrence: Auha Island area; Al-Nuwaiseeb area, Failaka Island area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, sponges, and aggregations of polychaete tubes.

Description. Female, 7.1 mm. Lateral cephalic lobe rounded, eyes big; midcephalic keel near triangular. A1 article 1 with small apicoventral cusp. A2 article 3 with small cusp. Md palp article 3 about 0.35 times as long as article 2, bearing two apical setae, article 2 with 14 marginal and distal setae. Cox1 – Cox4 anterior serration tiny. Gn1 basis constricted proximally, anterior margin with 5 setae; ischium with lobe anterodistally; carpus and propodus distally tapered; propodus straight palm serrate with 7 distal setae; dactylus smooth, reaching 0.4 × propodus length. Gn2 basis linear with two lobes and setae anterodistally, anterior margin with 3 setae; ischium with two anterodistal lobes; carpus about 0.4 × propodus length, curved, anterior margin with teeth anterodistally; propodus posterior margin without teeth, with a group of setae posteromedially, palm convex with a group of projections; dactylus curved, proximal margin smooth, reaching 0.6 × propodus length. P5 – P7 basis widened near oval. Ep2 with distolateral tooth. Ep3 subquadrate. U1 peduncle slightly longer than inner ramus, inner ramus slightly longer than outer. U2 shorter than U1, peduncle slightly shorter than inner ramus and with spines dorsally, inner ramus longer than outer. U3 peduncle longer than inner ramus and with spines dorsally, inner ramus longer than outer with spines dorsally, outer ramus with spines dorsally. T long about 3 × longer than width, apex with slightly concave in the middle part.
Male specimens were not found in our investigations.

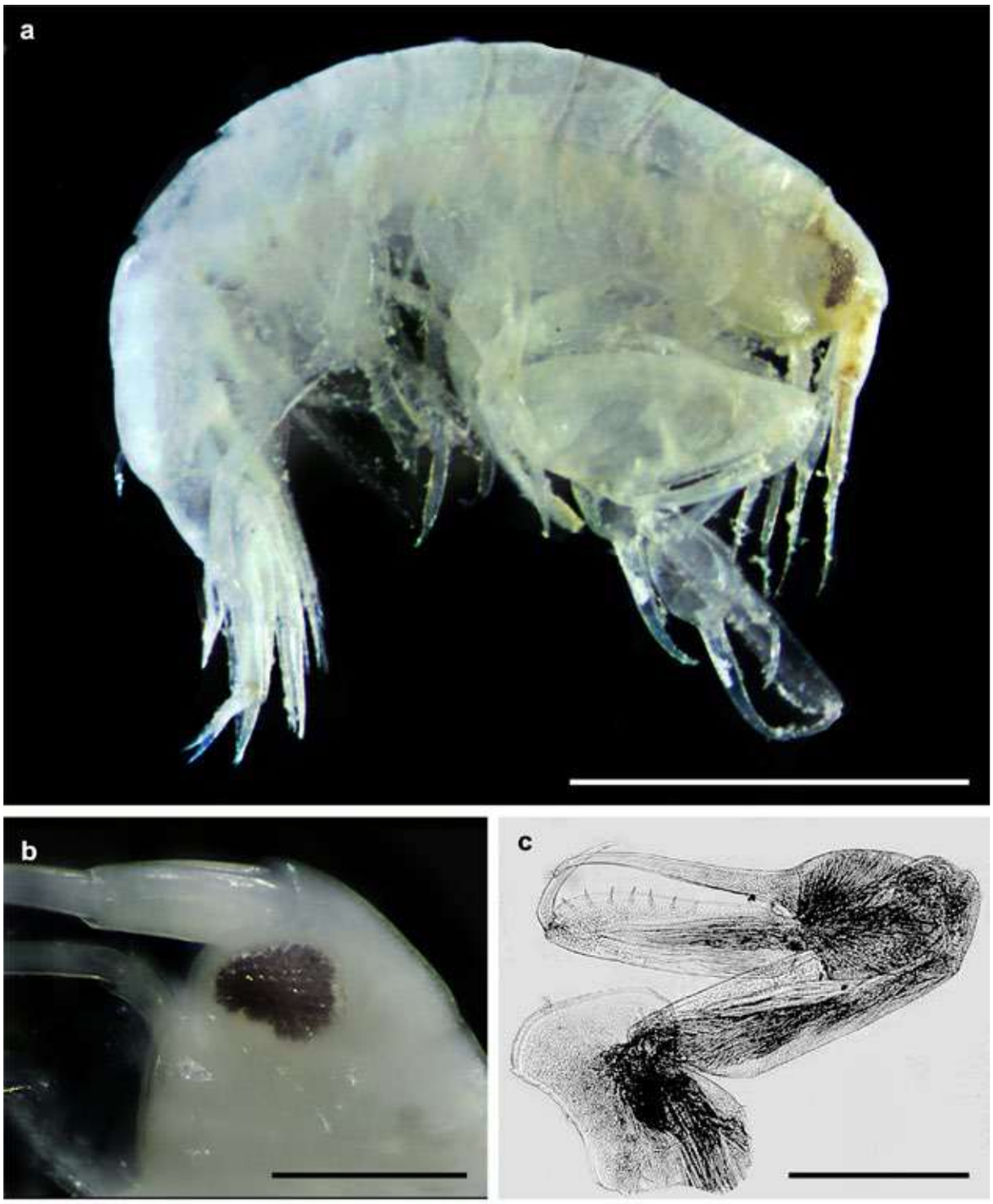

Plate 97. *Leucothoe* sp. cf. *richiardii*, Al-Nuwaiseeb. Female: a – habitus; b – head; c – gnathopod 1. Scale lines: a – 2 mm; b and c – 0.5 mm.

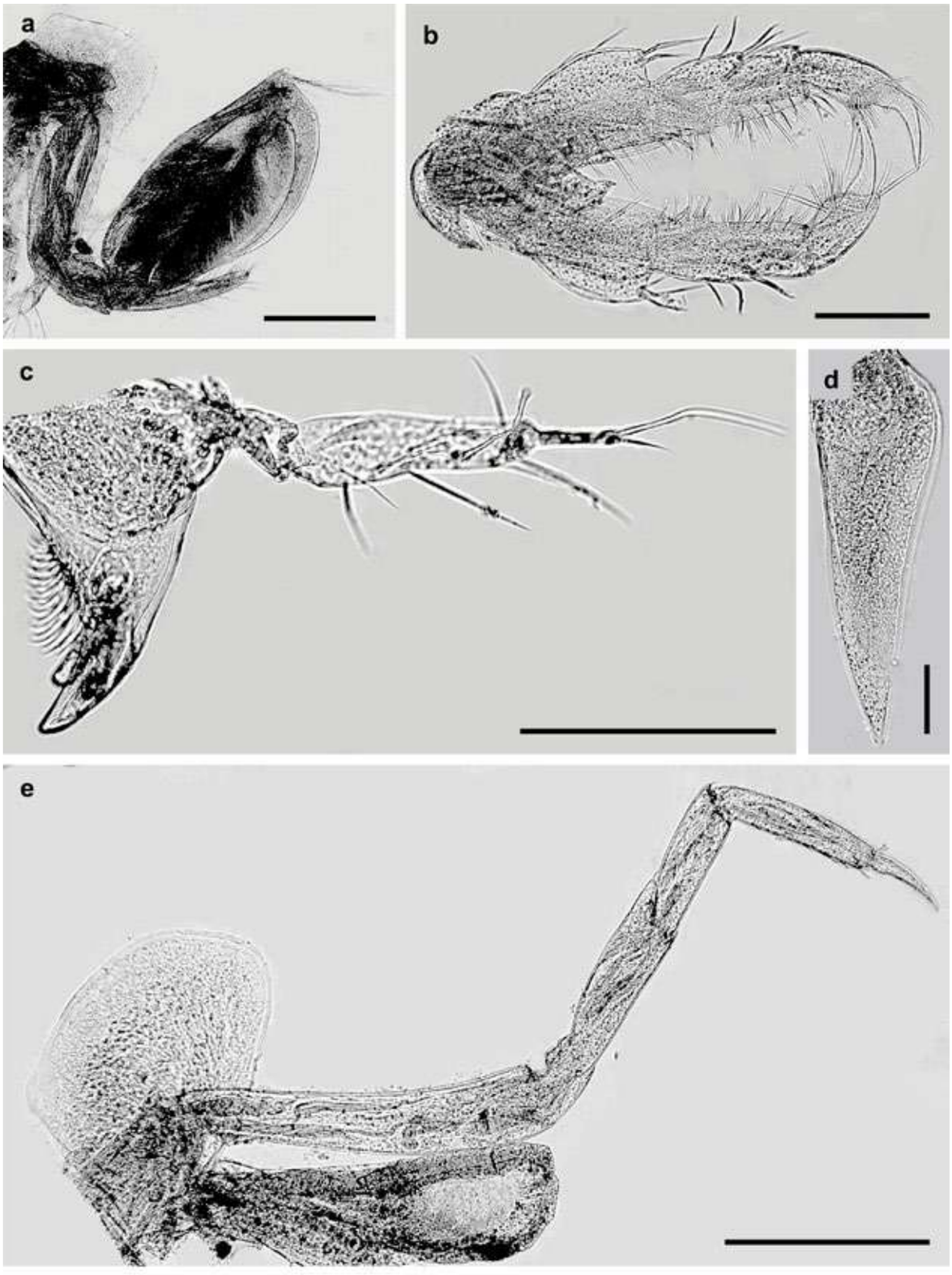

Plate 98. *Leucothoe* sp. cf. *richiardii*, Al-Nuwaiseeb. Female: a – gnathopod 2; b – maxilliped; c – mandible; d – telson; e – pereopod 3. Scale lines: a and e – 0.5 mm; b and c – 0.2 mm; d – 0.1 mm.

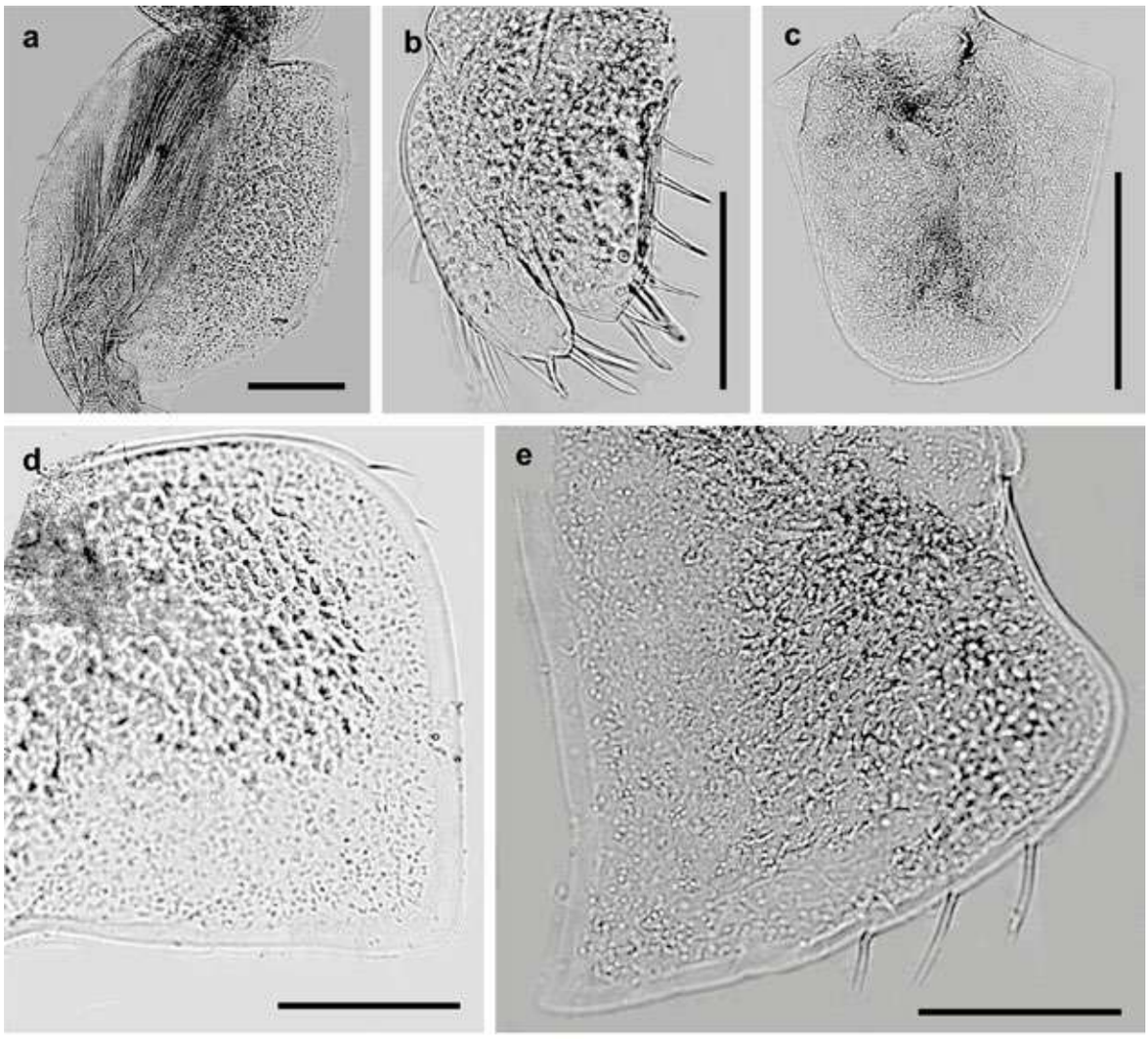

Plate 99. *Leucothoe* sp. cf. *richiardii*, Al-Nuwaiseeb. Female: a – pereopod 7, basipodite; b – maxilla 2; c – coxa 4; d – epimer 2; e – epimer 3. Scale lines: c – 0.5 mm; a, d, and e – 0.2 mm; b – 0.1 mm.

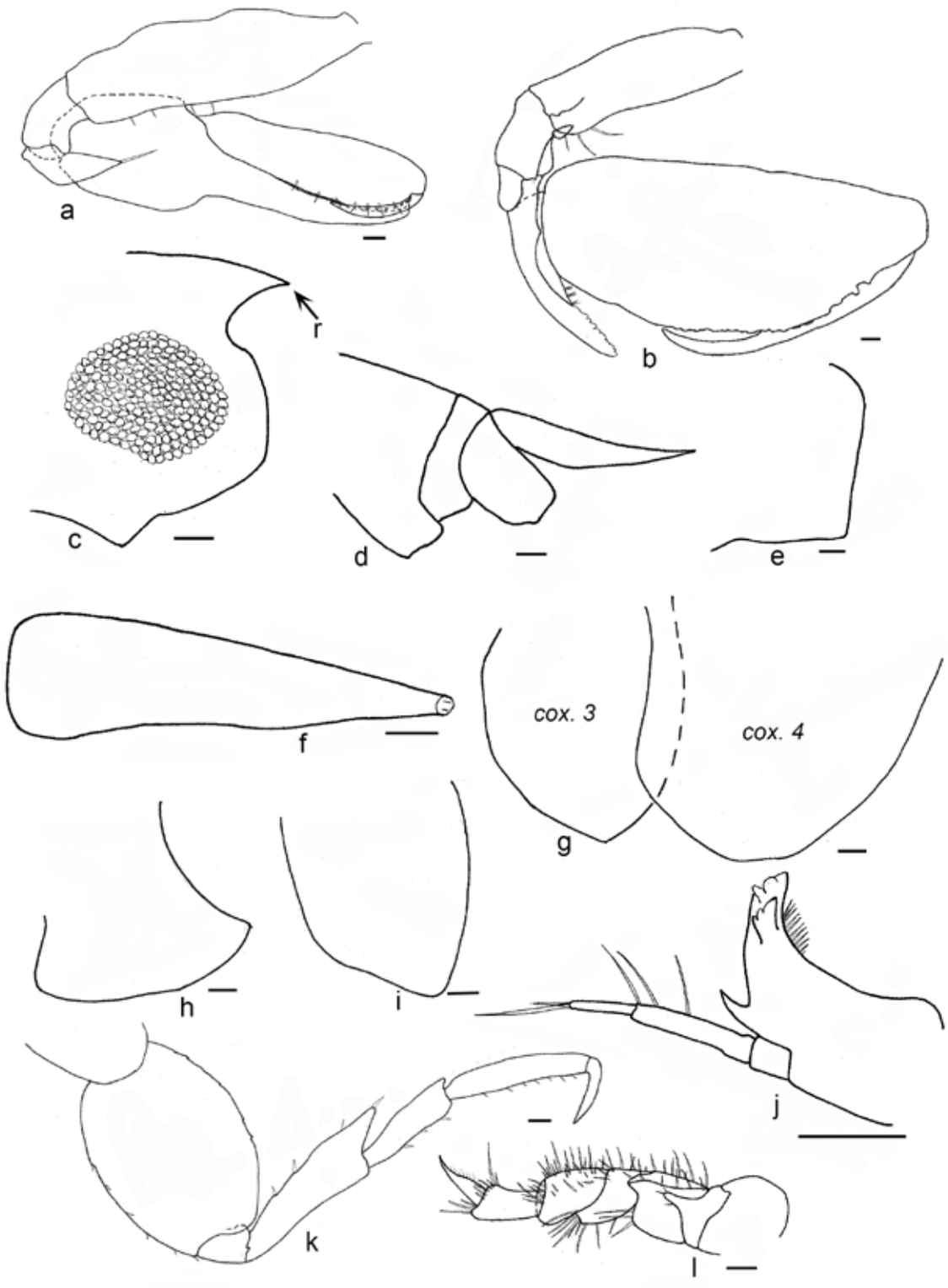

Fig. ZP-34. *Leucothoe* sp. cf. *richiardii*, Al-Nuwaiseeb. Female: a – gnathopod 1; b – gnathopod 2; c – head; d – urosome, telson (lateral view); e – epimer 3; f – telson; g – coxae 3 and 4; h – coxa 1; I – coxa 2; j – mandible; k – pereopod 7; l – maxilliped Scale line – 0.1 mm. Designations: r – rostrum; cox. 3 and cox. 4 – coxae 3 and 4.

Family Leucothoidae
Genus *Paranamixis*

Paranamixis* sp. cf. *Iedoyeri
Plates 100 and 101, and Fig. ZP-35.
Occurrence: Qaruh Island area and Umm Al-Maradim Island area.
Intertidal and Subtidal Zones.
Habitats: shells, pebbles, rocks, and dead corals.

Description. Female, 2.5 mm. Lateral cephalic lobes broadly rounded, eyes with 14 ommatidia. A1, peduncular article 1 longer than articles 2-3, article 2 as long as article 3, flagellum 8-articles. A2, peduncular article 5 longest, flagellum 5-articles. Md palp small, article 3 slightly longer than article 2 bearing 2 setae apically. Cox1 apically bifid bearing 2 small setae. Gn1 basis elongated; carpus and propodus distally tapered; propodus straight, palm minutely serrate with distal setae; dactylus tiny. Gn2 basis linear; carpus about 0.6 × propodus length with setae; propodus posterior margin without setae, palm with spines and teeth, convex with a group of projections; dactylus curved, proximal margin smooth, reaching 0.5 × propodus length. P5 – P7 basis widened near oval. Ep3 with projection distoventrally. U1 peduncle as long as the inner ramus, inner ramus longer than outer. U2 shorter than U1, peduncle slightly shorter than inner ramus, inner ramus longer than outer. U3 peduncle as long as the inner ramus, inner ramus longer than outer. T long about 1.3 × longer than wide.
Male. Mouthpart reduced. Gn1 reduced. Gn2. Basis gradually expanding, proximally feeble, ischium stout, posterior margin about half as long as basis, twice as long as the anterior margin, anterodistal end expanded. Merus smaller than ischium, scale-like, attaching to posteroproximal part of carpus. Carpus long, extending 2/3 of the length of propodus, completely overlapping the middle part of dactylus, proximal part stout. Propodus very large, widened middle. Dactylus more than 1/2 of the length of propodus.

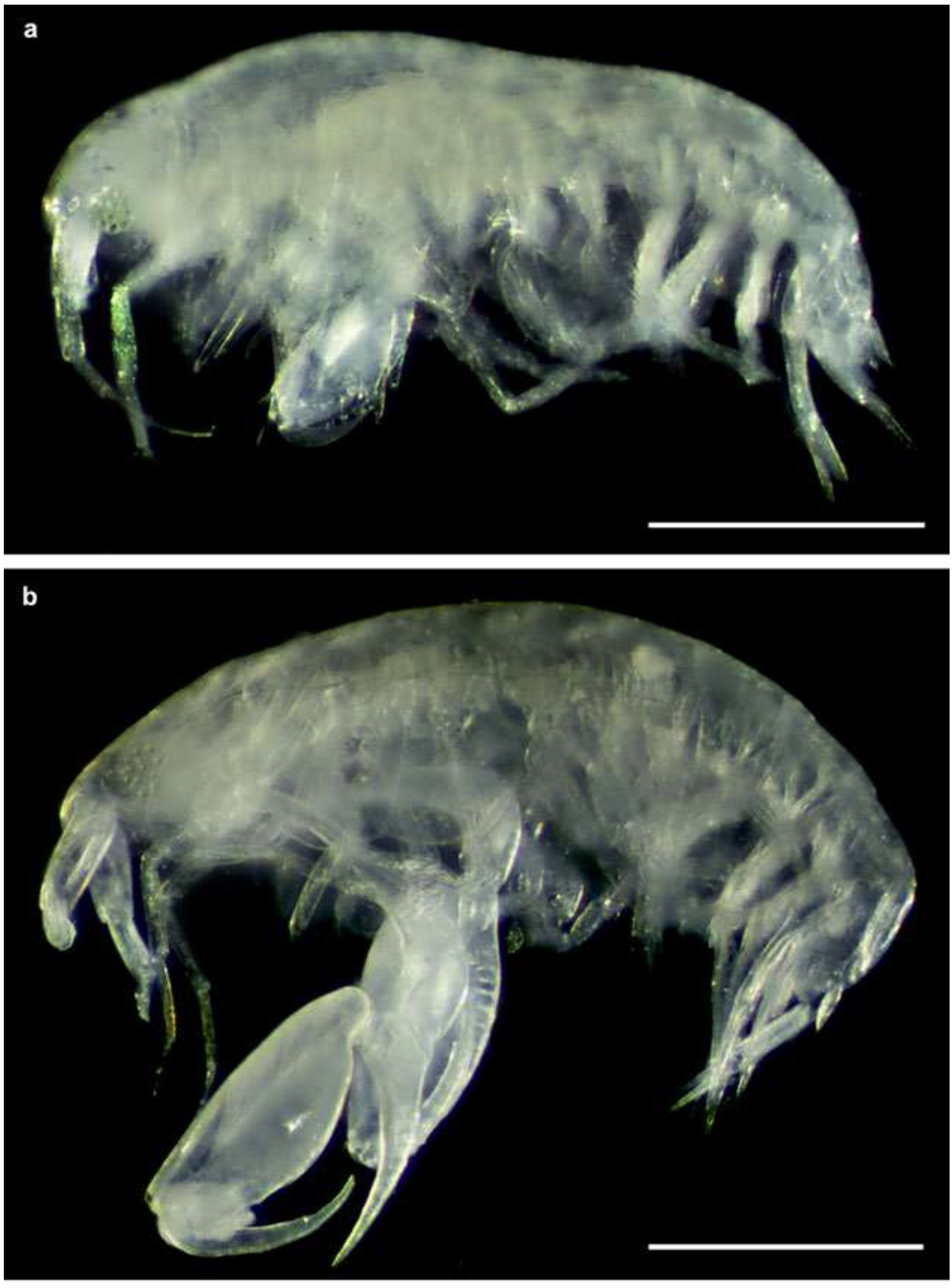

Plate 100. *Paranamixis* sp. cf. *ledoyeri*, Qaruh Island: a – female habitus; b – male habitus. Scale lines: a and b – 0.5 mm.

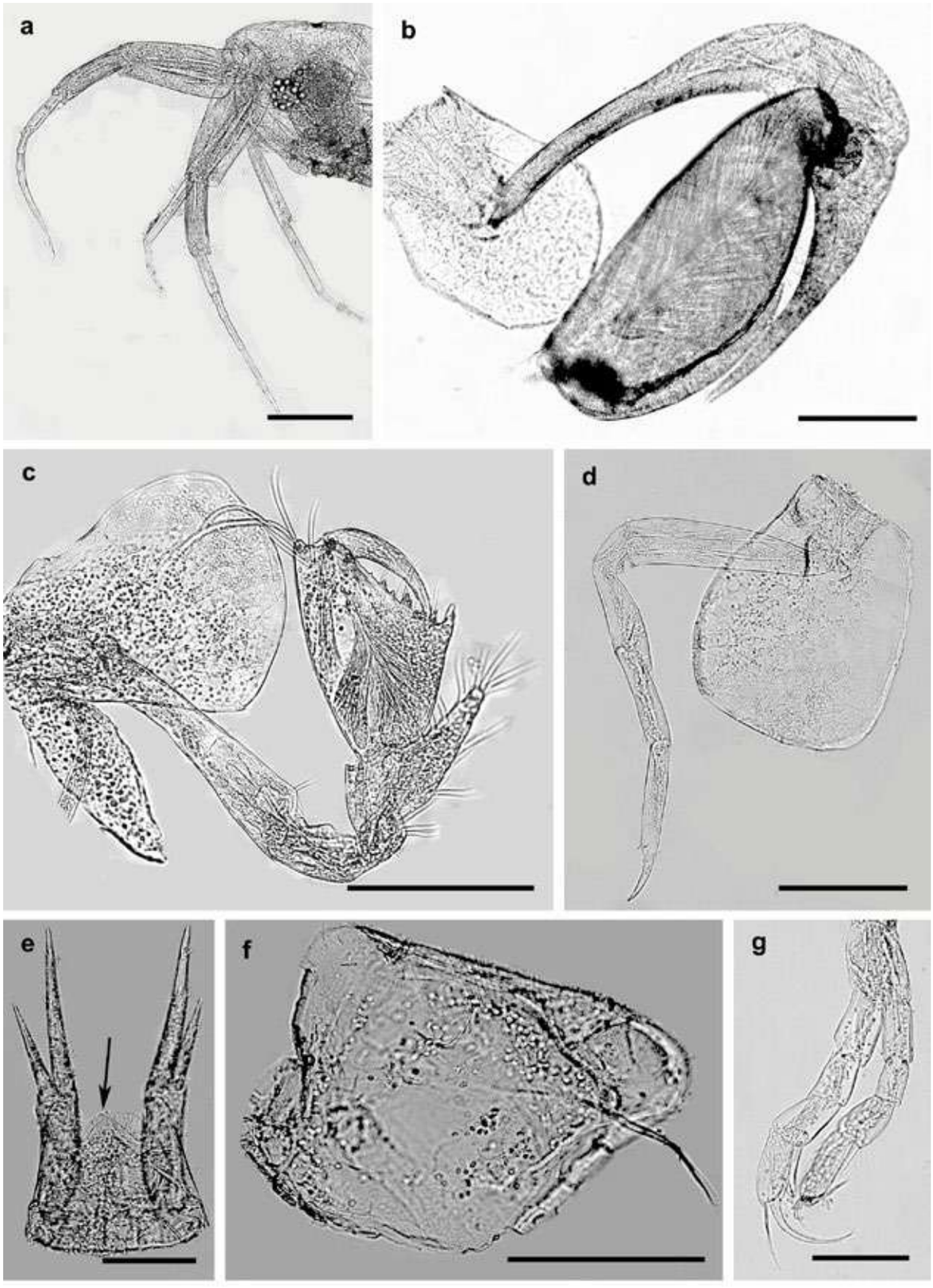

Plate 101. *Paranamixis* sp. cf. *ledoyeri*, Qaruh Island. Male: a – head with antennae; b – gnathopod 2; d – pereopod 4, coxa 4; e – uropod 3, telson (arrow); f – coxa 1; g – maxilliped. Female: c – gnathopod 2. Scale lines: a, b, c, and d – 0.2 mm; e, f, and g – 0.1 mm.

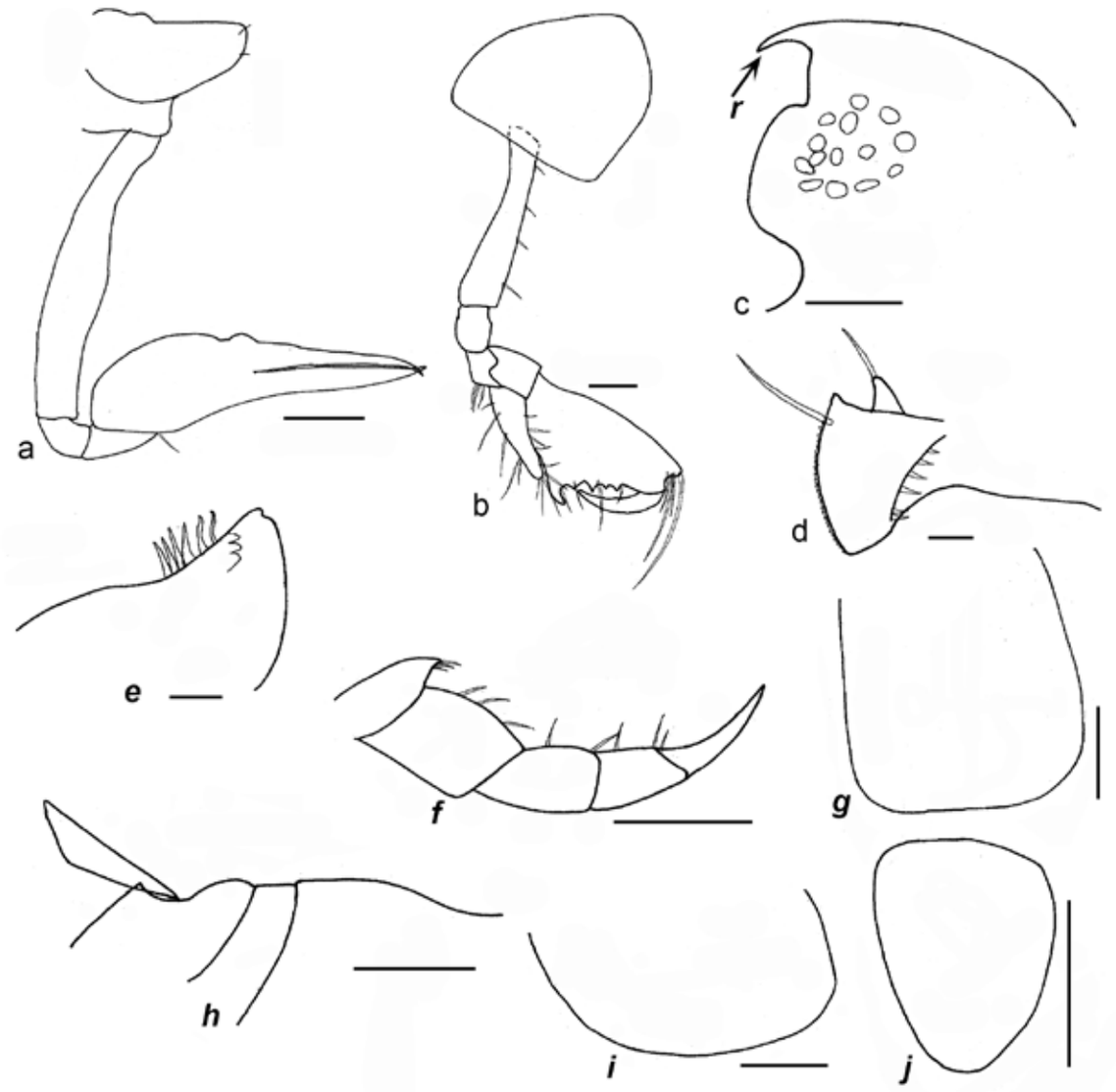

Fig. ZP-35. *Paranamixis* sp. cf. *ledoyeri*, Qaruh Island. Female: a – gnathopod 1; b – gnathopod 2; c – head; d – mandible right; e – mandible left; f – maxilliped; g – coxa 3; h – urosome, telson (lateral view); i – coxa 4; j – telson. Scale lines: d and e – 0.01 mm; a, b, c, f, g, h, i, and j – 0.1 mm. Designations: r – rostrum.

Family Liljeborgiidae
Genus *Idunella*

Idunella demersalis (Sivaprakasam, 1972)
Plates 102 – 105 and Fig. ZP-36.
Occurrence: Kuwait Bay area, Al-Bida'a area, Auha Island area. Qaruh Island area, Al-Shumaimah (Khor Al-Sabiyah) area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, cobble, dead corals, muddy sand, and rocks.

Description (after Sivaprakasam, 1972; modified). Female, 6.2 mm. Head with tiny rostrum. Lateral lobe rounded. Eyes dark and oval. Pereon segments smooth. Pleon segment 1 **without dorsal serration**. Pleon segments 2-3 with dorsal serration. Us1 and Us2 dorsally with medial tooth and smaller one on either side. Ep1 and Ep2 with a little tooth and Ep3 with acute abturned tooth followed by sinus at posterolateral corner. A1 shorter than A2, peduncular article 3 shortest; flagellum **7-articles**, acc.fl. - 2-articles. A2, peduncular segments 3-4 with slender spines, 5 segment as long as segment 4, flagellum **8-articles**. Lbr distinctly bifid. L broad, outer plate oblong, apex with fine dense setae, inner plate absent. Md with molar presented by a few spines, spine row with 6 stout spines; palp robust first segment as long as third and widened distally; second segment longer than first and third, and with setae on the inner margin; third segment slightly falcate with setae on the inner margin and apically. Mx1 inner plate with 2 apical setae, outer plate with 7 serrate spines, palp first segment with seta apically, second segment with spines and setae. Mx2, outer plate larger than inner, both setose on apical and inner margins. Gn1 larger than Gn2; basis slender and with setae anteriorly and posteriorly; ischium with setae posteriorly; merus with small lobe bearing setae posteriorly; carpus small, triangular; propodus large, elongate-oval and naked anteriorly, palm oblique convex, separated by a narrow space and 4 unequal spines. Palmar margin with spines outer and inner sites; dactylus as long as palm. Gn2, basis with setae anteriorly and posteriorly; ischium with setae posteriorly; merus with setae posteriorly; carpus about 1/2 the length of propodus with setae posteriorly and 3 setae anterodistally; propodus with setae anteriorly and posteriorly, palm less oblique, separated by 2 unequal spines. Palmar margin with spines outer and inner sites; dactylus as long as palm. P3 and P4 near identical, dactylus long, thin. P5 – P7 more or less identical and successively increasing in length; basis oblong-oval strongly toothed; merus-propodus with spines and setae; dactylus long, thin. U1 – U3 very spinous. U1 peduncle longer than rami with dorsal and distodorsal spines, outer ramus longer than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U2 like U1 but smaller; rami subequal. U3 peduncle shorter than rami with spines dorsally and mediodorsally; outer ramus shorter than inner ramus and with two segments with spines; outer ramus lanceolate with spines. T long and deeply cleft. Lobes apically notched and with two long spines.
Male specimens were not found in our investigations.
Taxonomic characters for distinguishing *Idunella demersalis* of Kuwait from *Idunella demersalis* by Sivaprakasam, 1972, are expressed in **bold** text.

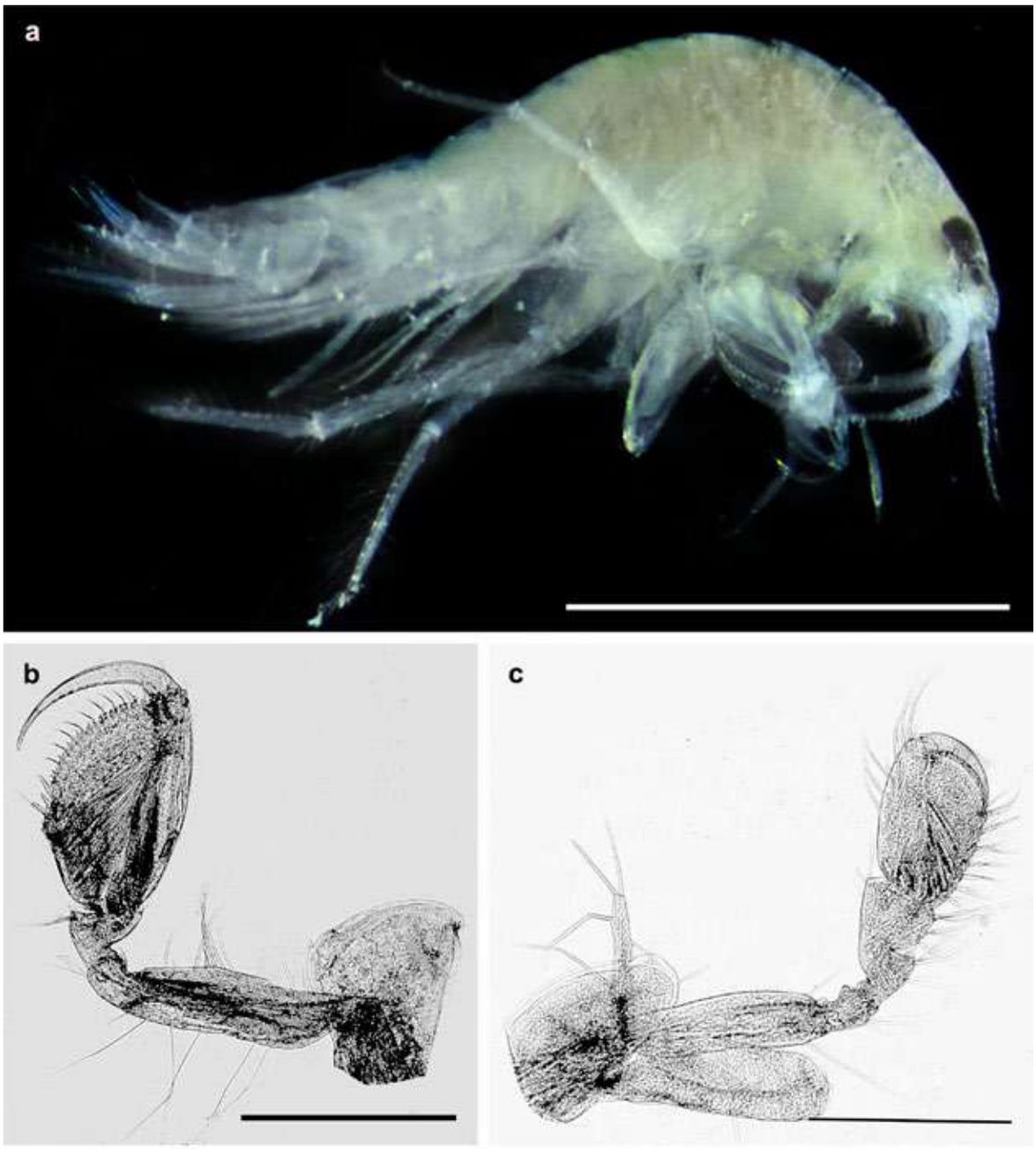

Plate 102. *Idunella demersalis*, Al-Bida'a. Female: a – habitus; b – gnathopod 1; c – gnathopod 2. Scale lines: a – 2 mm; b and c – 0.5 mm.

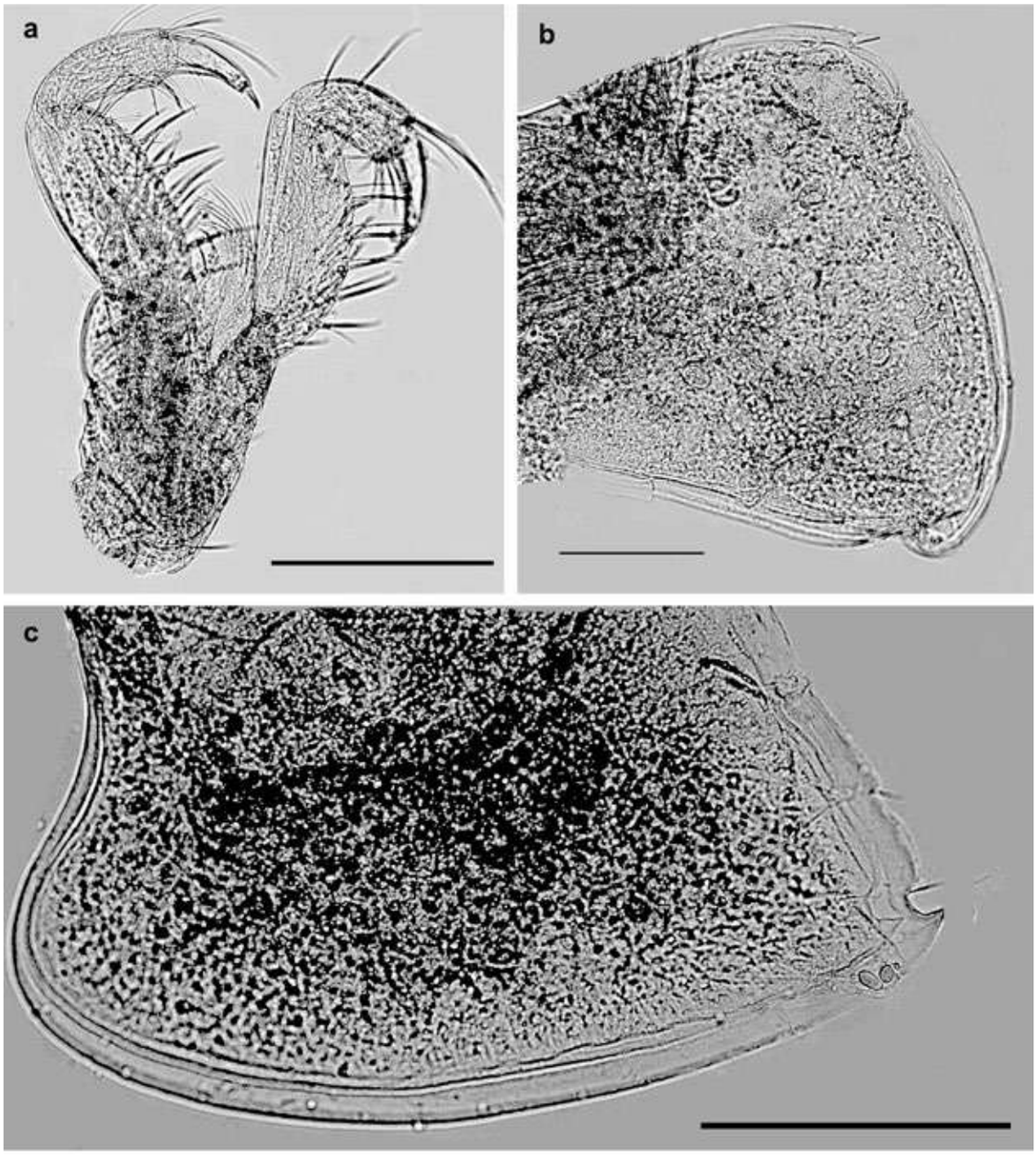

Plate 103. *Idunella demersalis*, Al-Bida'a. Female: a – maxilliped; b – coxa 1; c – epimer 3. Scale lines: a and c – 0.2 mm; b – 0.1 mm.

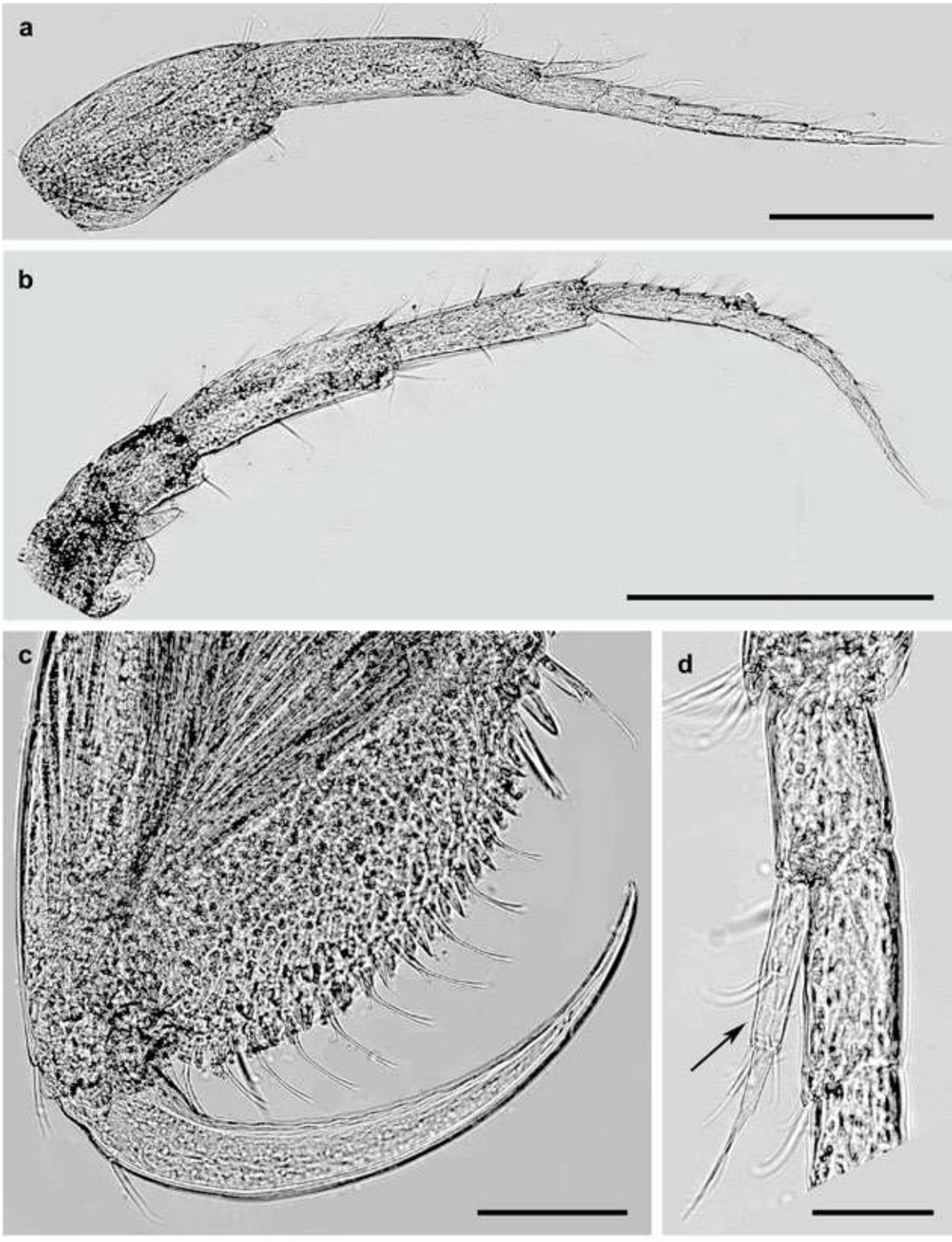

Plate 104. *Idunella demersalis*, Al-Bida'a. Female: a – antenna 1; b – antenna 2; c – gnathopod 1 palm; d – antenna 1, accessory flagellum (arrow). Scale lines: b – 0.5 mm; a – 0.2 mm; c – 0.1 mm; d – 0.05 mm.

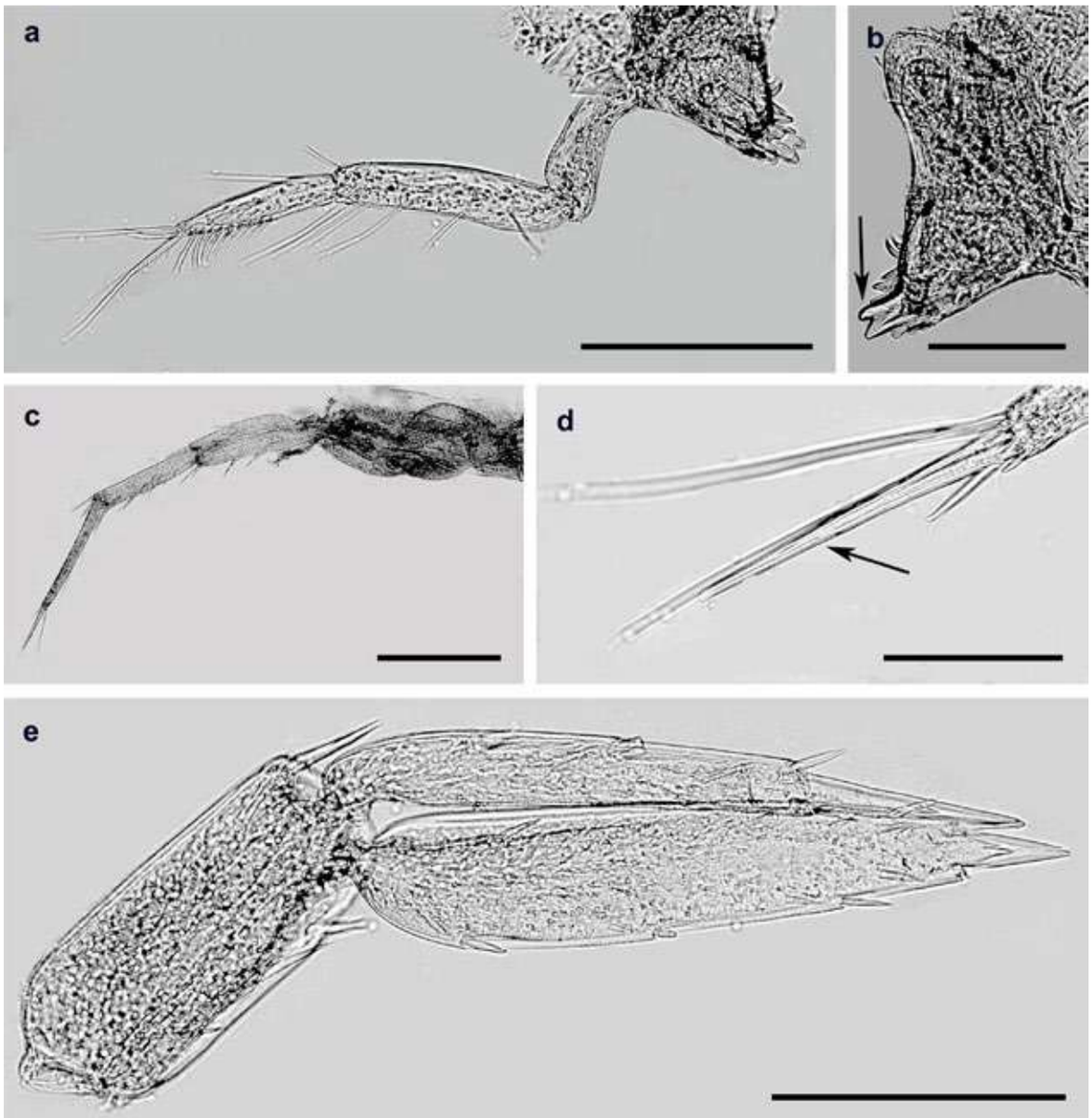

Plate 105. *Idunella demersalis*, Al-Bida'a. Female: a – mandible; b – mandible, incisor (arrow); c – pereopod 6; d – pereopod 6, dactylus (arrow); e – uropod 3. Scale lines: c – 0.5 mm; a and e – 0.2 mm; b and d – 0.1 mm.

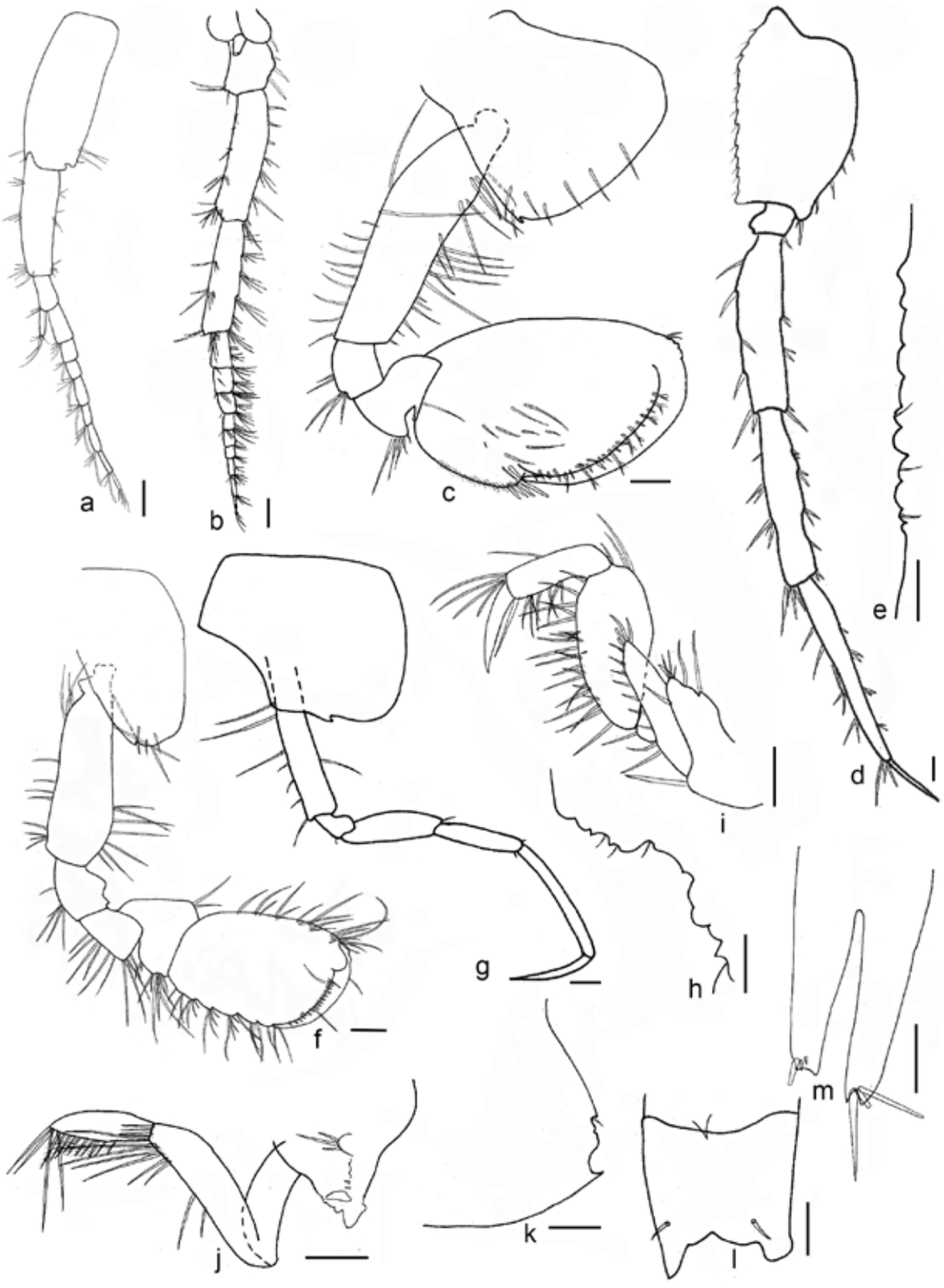

Fig. ZP-36. *Idunella demersalis,* Al-Bida'a. Female: a – antenna 1; b – antenna 2; c – gnathopod 1; d – pereopod 7; e – pleosome 2, dorsal serration; f – gnathopod 2; g – pereopod 4; h – pleosome 3, dorsal serrations; i – maxilliped; j – mandible; k – epimer 3; l – urosome 2, urosome 3; m – telson. Scale lines – 0.1 mm.

Family Lysianassidae
Genus *Socarnoides*

***Socarnoides* sp.**
Plates 106 – 109 and Fig. ZP-37.
Occurrence: Qaruh Island area, Auha Island area, Al-Bida'a area, Kubbar Island area, Umm Al-Maradim Island area, Failaka Island area, Al-Khiran area, and Ras Al-Zour area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, cobble, rocks, dead corals, macroalgae, sponges, and polychaete tubes aggregations.

Description. Female, 5.5 mm. Body smooth. Us1 prominently concave on the anterior part of back. Eyes large, black, long oval. A1 as long as A2, acc.fl. 4-articles about 1/2 the length of primary flagellum, segment 1 not much longer than others; primary flagellum 8-articles. Epistome produced and separated from Lbr. Md palp arising behind molar; article 3 inner margin with small setae proximally, 4 setae on the apex of different length. Mx1, palp is fimbriated distally but not toothed. Mxp inner plate with a row of small stout setae distally on the inner part and 3 small teeth distally; outer plate without spines but inner margin crimped; palp segment 2 longer than segment 3; dactylus about 1/2 the length of segment 3. Gn1 simple, basis anteriorly setose; ischium-carpus posteriorly with setae; propodus anteriorly and posteriorly with setae and posteriorly with spines; dactylus about 40 percent of the length of propodus. Gn2, basis long with tiny few setae anteriorly; ischium anteriorly and posteriorly with a few setae; merus with setae posterodistally and bristled posteriorly; carpus with setae anterodistally and posterodistally, surface bristled; propodus about 1/2 the length of carpus with strongly spine-setae distally below dactylus, palm short, oblique; dactylus very small. P3 and P4 similar, merus produced anterodistally. P5 – P7, merus produced posterodistally. U1 peduncle longer than rami, with spines marginally; rami with spines marginally, subequal. U2 peduncle as long as the inner ramus with spines marginally; rami with spines marginally, subequal. U3 peduncle as long as rami without spines only with small setae; rami subequal, inner ramus with 2 tiny setae marginally; outer ramus without setae. T not cleft with two setae midlaterally.
Male is very similar to female but eyes are bigger and A2 is very long, about 90 percent of the length of body.

Plate 106. *Socarnoides* sp., Al-Bida'a: a – female habitus; b – male habitus. Scale liness: a and b – 2 mm.

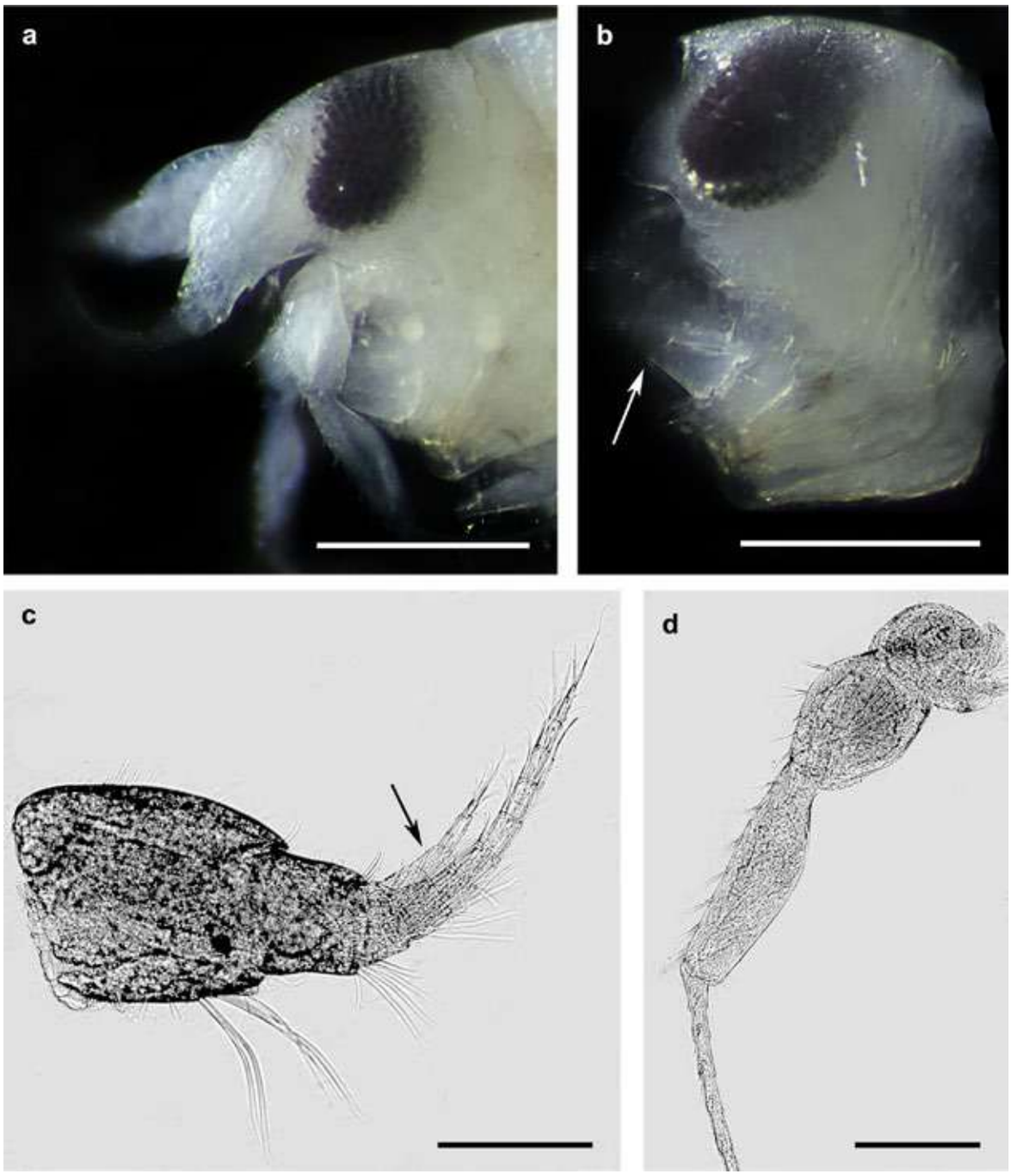

Plate 107. *Socarnoides* sp., Al-Bida'a. Male: a – head with antennae; b – head without antennae, epistome (arrow); c – antenna 1, accessory flagellum (arrow); d – antenna 2. Scale lines: a and b – 0.5 mm; c and d – 0.2 mm.

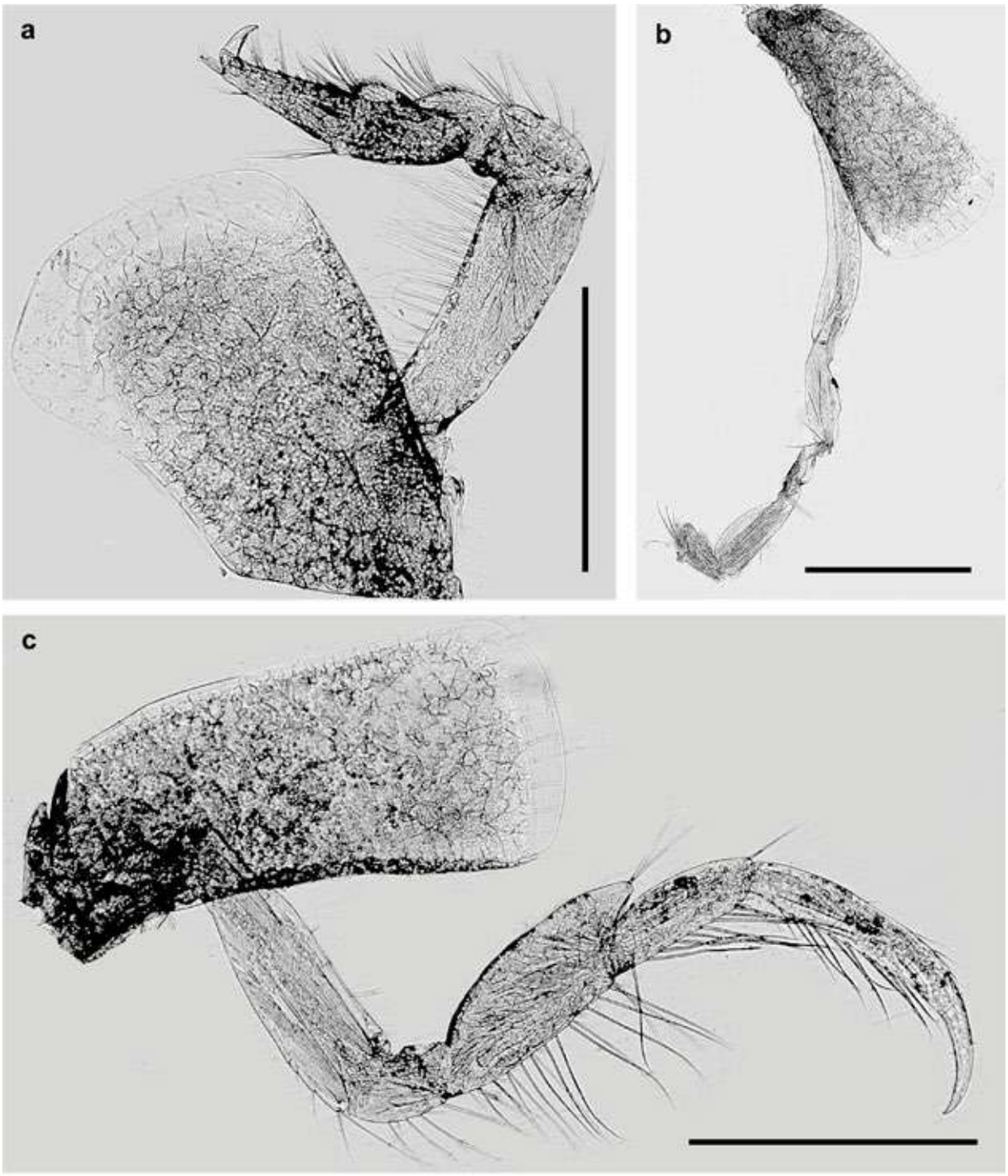

Plate 108. *Socarnoides* sp., Al-Bida'a. Male: a – gnathopod 1; b – gnathopod 2; c – pereopod 3. Scale lines: a, b, and c – 0.5 mm.

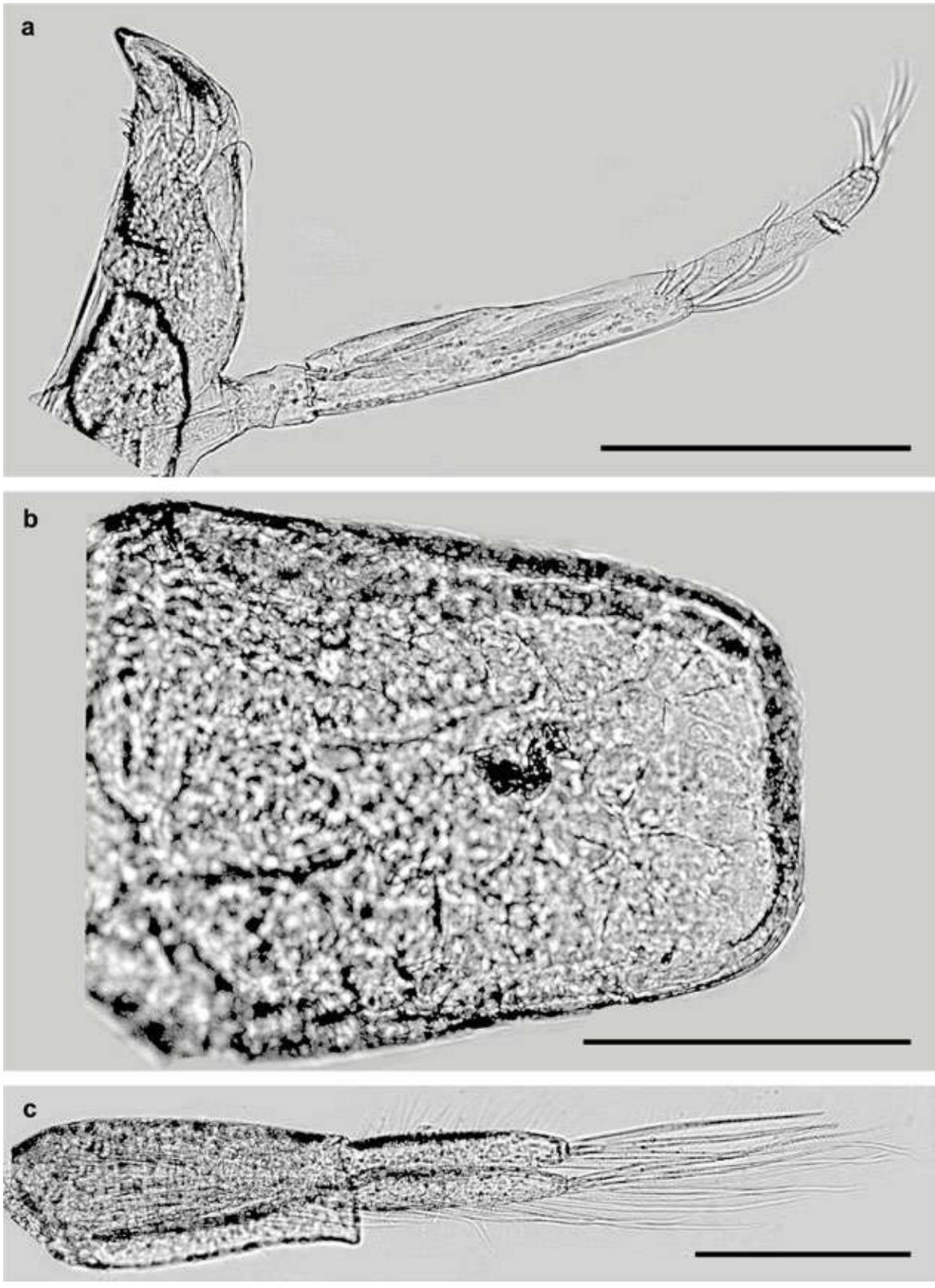

Plate 109. *Socarnoides* sp., Al-Bida'a. Male: a – mandible; b – telson; c – uropod 3. Scale lines: a and c – 0.2 mm; b – 0.1 mm.

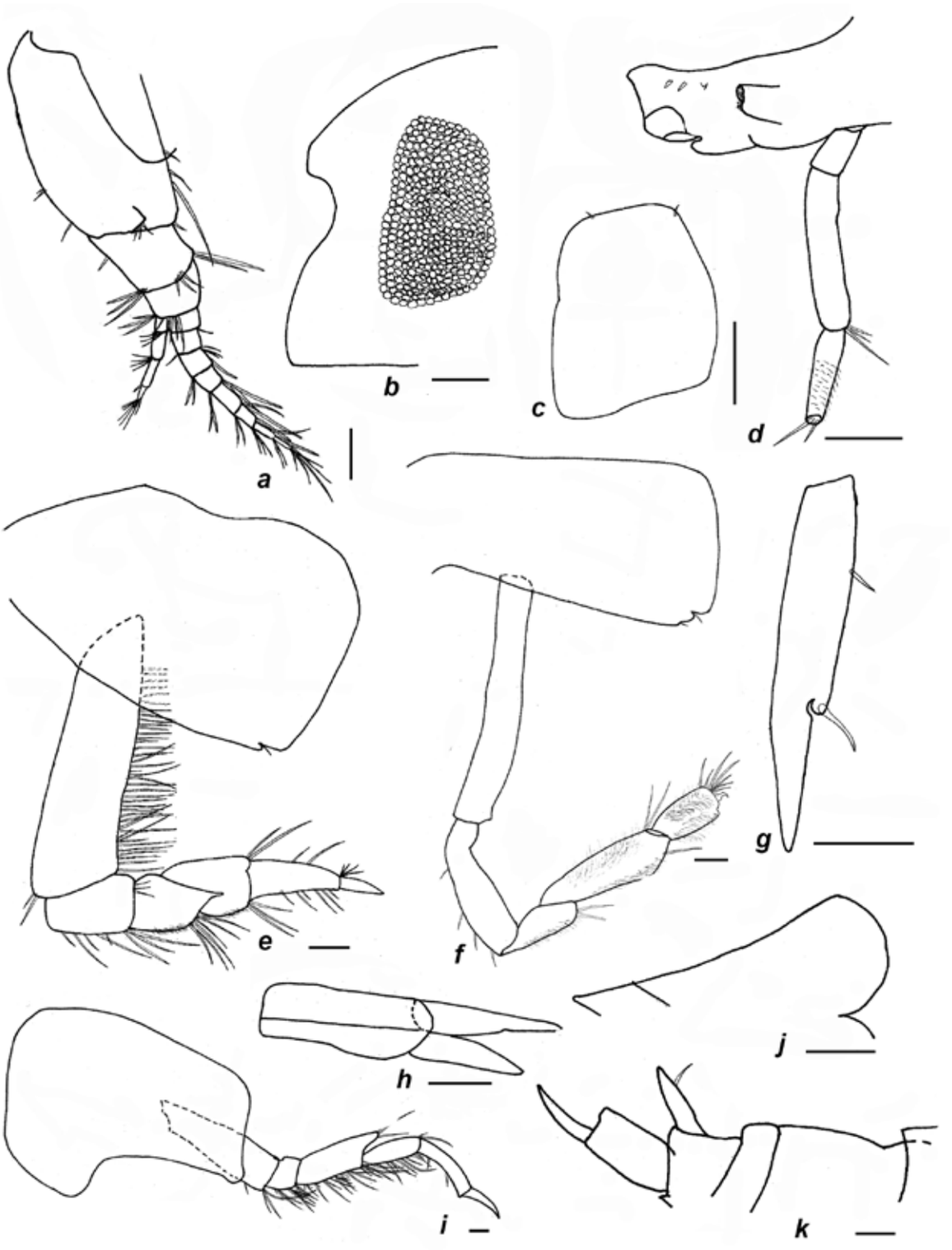

Fig. ZP-37. *Socarnoides* sp. Al-Bida'a. Female: a – antenna 1; b – head; c – telson; d – mandible; e – gnathopod 1; f – gnathopod 2; g – uropod 2; h – uropod 3; i – pereopod 4; j – epistome; k – urosome, telson and uropod 3 without inner ramus. Scale lines – 0.1 mm.

Family Maeridae
Genus *Ceradocus*

Ceradocus* (*Denticeradocus*) *alama Myers & Nithyanandan, 2016
Plates 110 – 112.
Occurrence: Funaitees area, Al-Bida'a area, Al-Nuwaiseeb area, Auha Island area. Al-Messillah beach area, Kubbar Island area, Qaruh Island area, Al-Shumaimah (Khor Al-Sabiyah) area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, and Ras Al-Zour area.
Intertidal and Subtidal Zones.
Habitats: shells, pebbles, sand, cobble, rocks, dead corals, macroalgae, and sponges.

Description (Myers & Nithyanandan, 2016). Male. Head. Eye lobe rounded with subocular notch. Eye medium size, subround. A1 about two thirds of body length; peduncular article 2 longer than 1, article 3 very short; accessory flagellum with 5 articles; primary flagellum longer than peduncle with 26 articles. A2 a little shorter than A1; peduncular articles 4 and 5 subequal; flagellum with 24 articles. Mx1 inner plate posterior margin fringed with setae. Md palp article 1 with acute spine at posterodistal corner; article 3 much shorter than 2 with long distal and marginal setae. Gn1 coxa with very acute anterodistal corner; carpus and propodus subequal in length, strongly setose. Right Gn2 greatly enlarged; coxa subquadrate; basis stout with spine at anterodistal corner; carpus short, cup-shaped; propodus massive, subovoid, palm with short overhanging shelf, followed by a shallow U-shaped excavation, followed by an oblique undefined margin; dactylus stout, curved, fitting palm. Left Gn2 much smaller than right Gn2, similar in form and size to that of female. P6 basis posterodistal margin with multiple spines. P7 basis posterodistal margin with a single acute spine. Pl1 – Pl3 strongly dorsally spinous with setae inserted between the spines. Ep1 – Ep3 posterior distal margins strongly spinous, with setae inserted between the spines, posterior margins with robust setae. Us1 – Us2 dorsally serrated with setae inserted between the spines. U1 peduncle a little longer than rami, with basofacial robust seta and with ventrodistal spine; inner ramus marginally longer than outer, slender with marginal and distal robust setae. U2 peduncle a little shorter than rami; inner ramus marginally longer than outer. U3 peduncle short; rami enlarged, broad, subequal in length. T deeply cleft, lobes strongly divergent.
Female (sexually dimorphic characters) Gn2 coxa elongated, rounded, unproduced; basis weakly expanded anteromedially; carpus well developed, about two thirds of the length of propodus; propodus elongated subovoid, palm oblique, defined by a robust seta; dactylus slender, fitting palm.

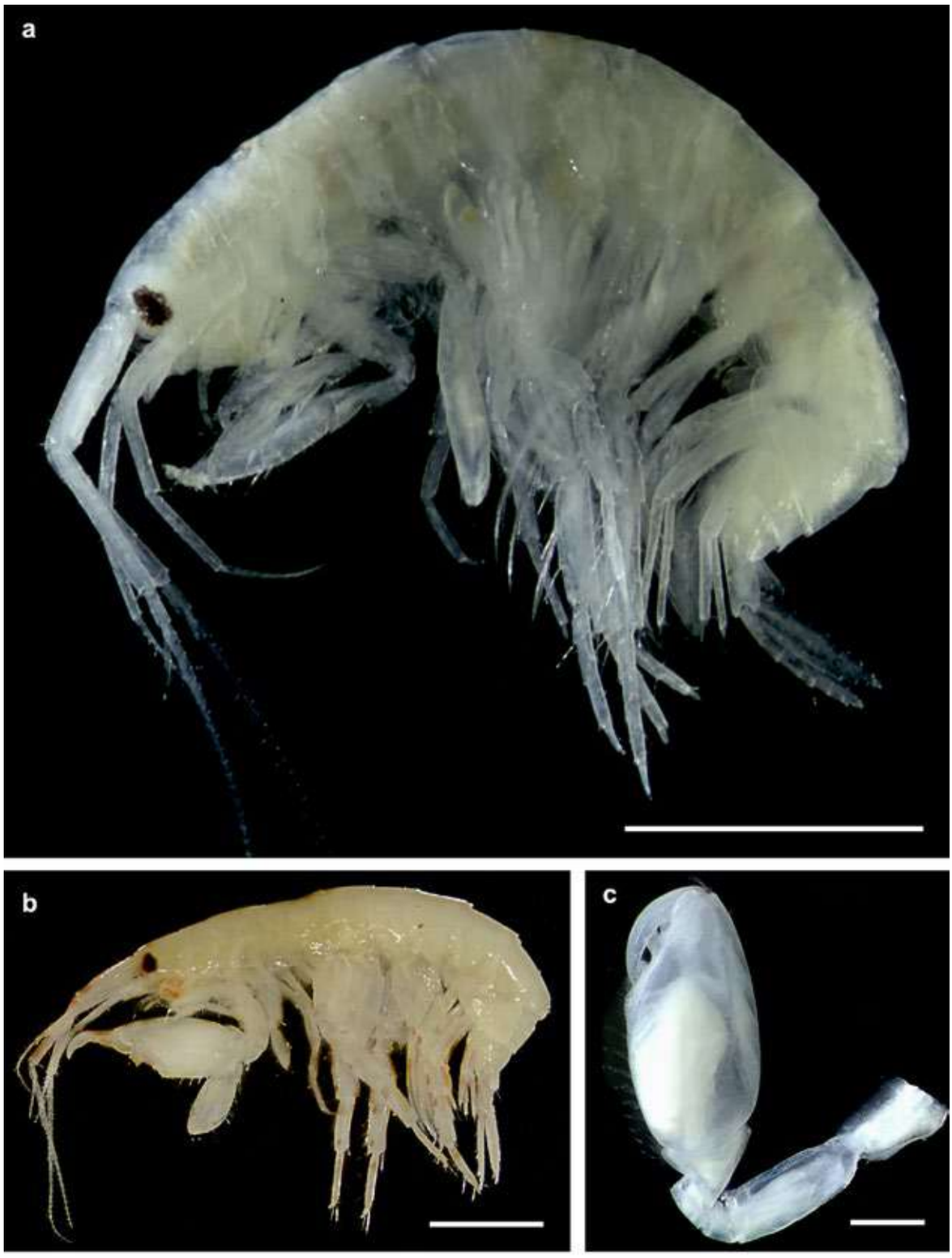

Plate 110. *Ceradocus* (*Denticeradocus*) *alama*, Al-Nuwaiseeb: a – female habitus; b – male habitus; c – left gnathopod 2 male. Scale lines: a and b – 2 mm; c – 0.5 mm.

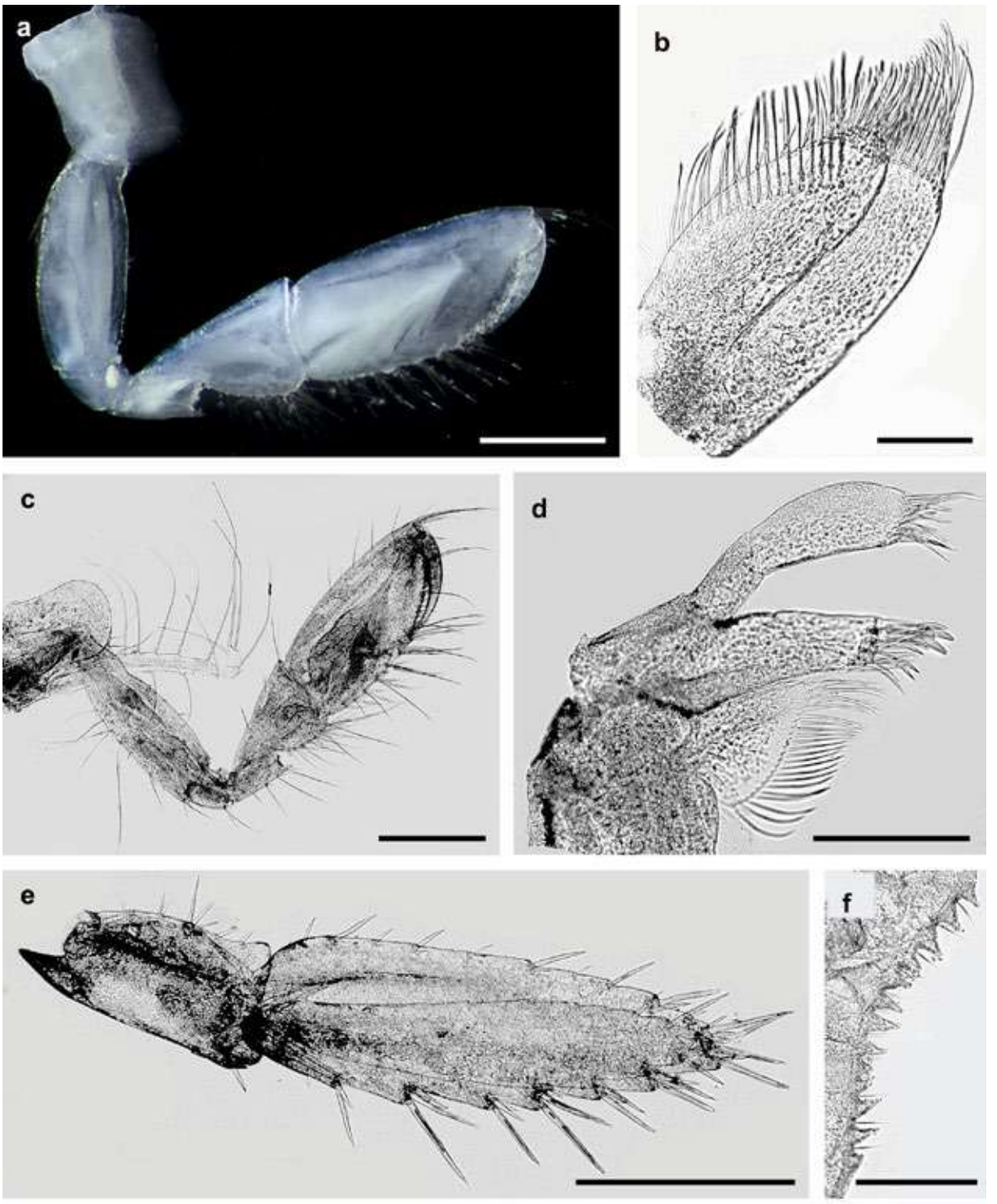

Plate 111. *Ceradocus* (*Denticeradocus*) *alama*, Al-Nuwaiseeb. Male: a – right gnathopod 2; b – maxilla 2; d – maxilla 1; e – uropod 3; f – urosome 1, dorsal part, teeth. Female: c – gnathopod 2. Scale lines: a, c, and e – 0.5 mm; d and f – 0.2 mm; b – 0.1 mm.

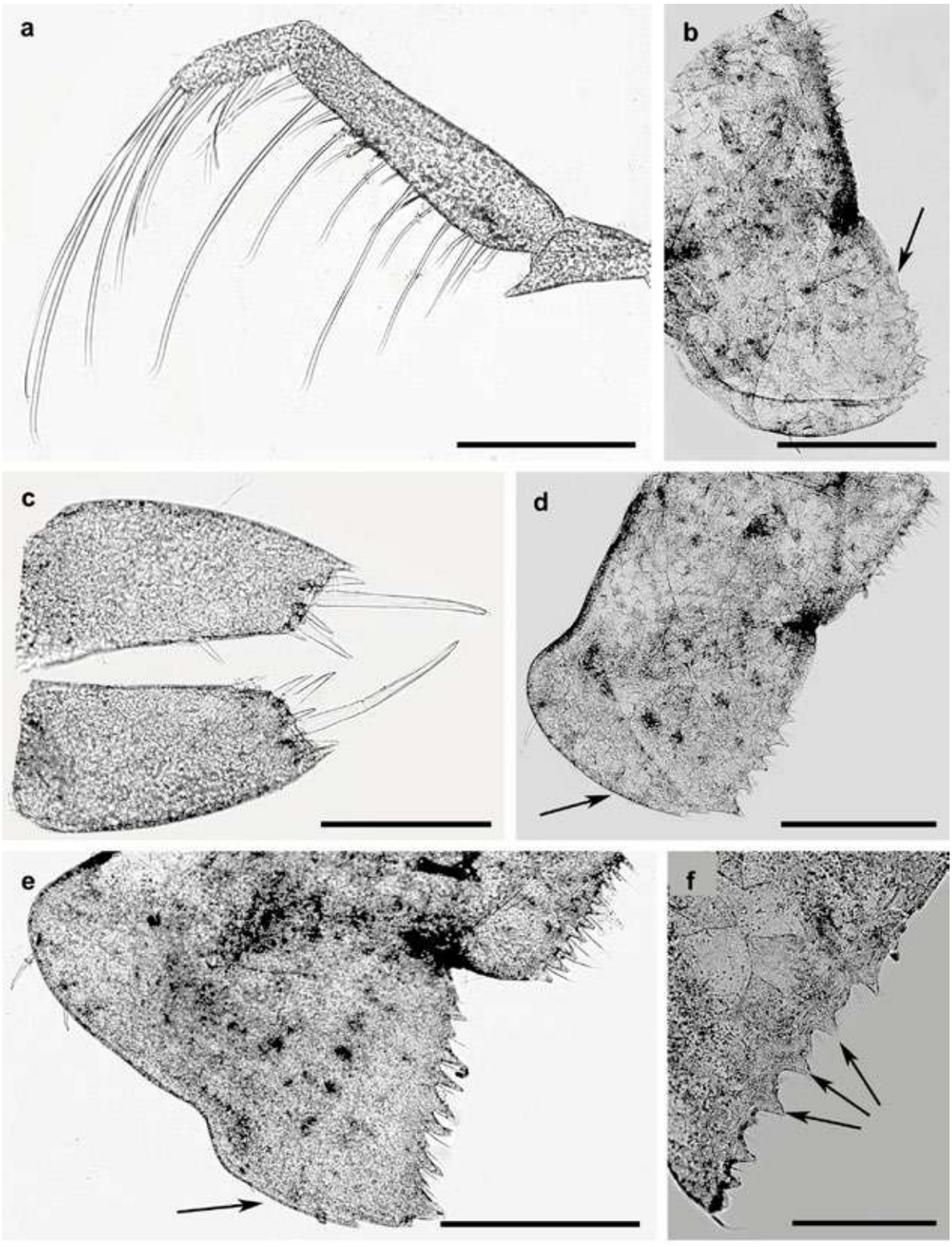

Plate 112. *Ceradocus* (*Denticeradocus*) *alama*. Male: a – palp of mandible; b – pleon 1 (fragment), epimer 1 (arrow); c – telson; d – pleon 2 (fragment), epimer 2 (arrow); e – pleon 3 (fragment), epimer 3 (arrow); f – urosome 2, dorsal part, teeth (arrows). Scale lines: b, d, and e – 0.5 mm; a, c, and f – 0.2 mm.

Family Maeridae
Genus *Elasmopus*

Elasmopus alkhiranensis Myers & Momtazi, 2015
Plates 113 and 114, and Fig. ZP-38.
Occurrence: pier constructions of Marinas' areas, Al-Nuwaiseeb area, Al-Khiran area, Auha Island area, Turtle Island area, East Doha area, Al-Judailiat (West Doha) area, Funaitees area,Kubbar Island area, Qaruh Island area, Umm Al-Maradim Island area, Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: fouling, macroalgae, pebbles, shells, sand, cobble, dead corals, rocks, ropes (as artificial habitat), and sponges.

Description (after Myers & Momtazi, 2015; modified). Male, 10.0 mm. Head with well-developed notch; eyes lobes truncate; eyes ovate. A1 about half of the body length, peduncular articles 1 and 2 subequal in length; article 3 about half of the length of article 2; primary flagellum shorter than peduncle, with 14 articles; accessory flagellum with 2–3 articles. A2 shorter than A1, articles 4 and 5 subequal in length; flagellum subequal to peduncular article 5, with 6–9 articles. Md palp with three articles; article 2 shorter than article 3, article 3 weakly falcate, setiferous along the posterior margin. Mx1 inner plate elongated with 3 stout distal setae; outer plate with 7 terminal complexly branched robust setae; palp 2 articulate, terminal article with 1 stout robust seta and 5 slender distal setae and 1 subdistal seta. Mx2 without oblique setal row. L with subacute mandibular processes. Lbr distally rounded. Pereon. Gn1 coxa deeper than broad, anterior margin weakly convex; basis stout, weakly excavated for the reception of carpus when folded; carpus and propodus subequal, anterior margins heavily setose; palm weakly convex; dactylus fitting palm. Gn2 coxa narrower than coxa 1, much deeper than broad; basis slender; carpus greatly reduced, cup-shaped; propodus greatly enlarged subovoid; palm a short shelf bordered with robust setae; dactylus very large falciform, greatly overlapping palm. P3 – P4 dactylus short, less than half of the length of propodus. P5 basis evenly convex, weakly crenulated. P6 basis, posterodistal margin strongly castelloserrate. P7 basis convex, posterodistal margin weakly produced. Ep1 – Ep3 posterodistal margin weakly serrated; U1 peduncle with a strong distolateral robust seta; U2 peduncle shorter than rami; inner ramus longer than outer; rami with robust setae. U3 outer ramus twice the length of peduncle; inner ramus about two thirds of the length of outer. T moderately cleft, each distal margin with two long and two short robust setae.
Female (sexually dimorphic characters). Gn2, carpus well developed, a little over half the length of propodus; propodus with palm very oblique, armed with robust setae; dactylus fitting palm.

Plate 113. *Elasmopus alkhiranensis*, Al-Khiran*:* a – female habitus; b – male habitus. Scale lines: a and b – 2 mm.

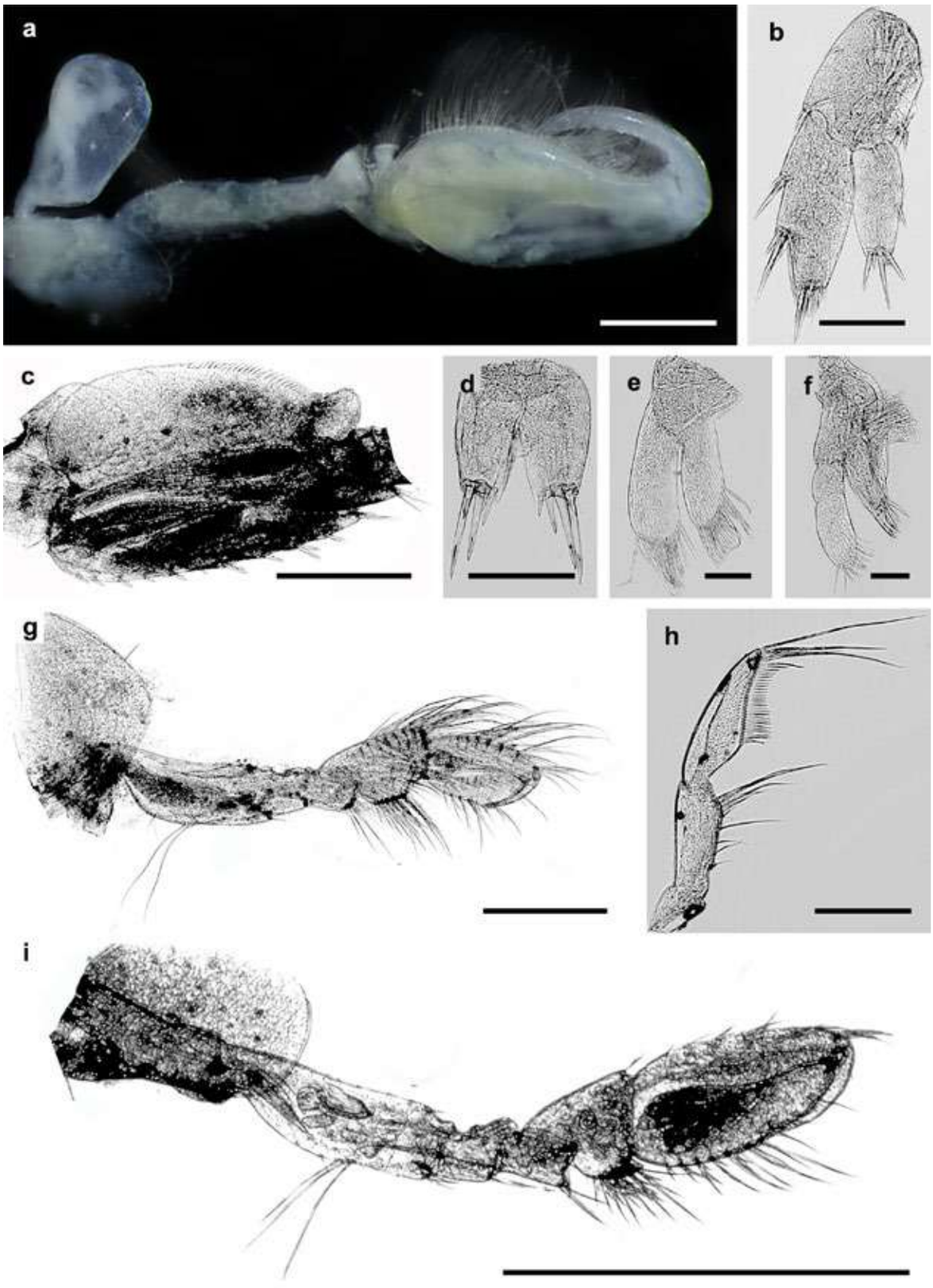

Plate 114. *Elasmopus alkhiranensis*, Al-Khiran. Male: a – gnathpod 2; b – uropod 3; c – pereopod 6, basipodite; d – telson; e – maxilla 2; f – maxilla 1; g – gnathopod 1; h – palp of mandible. Female: I – gnathopod 2. Scale lines: I – 1 mm; a, c, and g – 0.5 mm; b, d, and h – 0.2 mm; e and f – 0.1 mm.

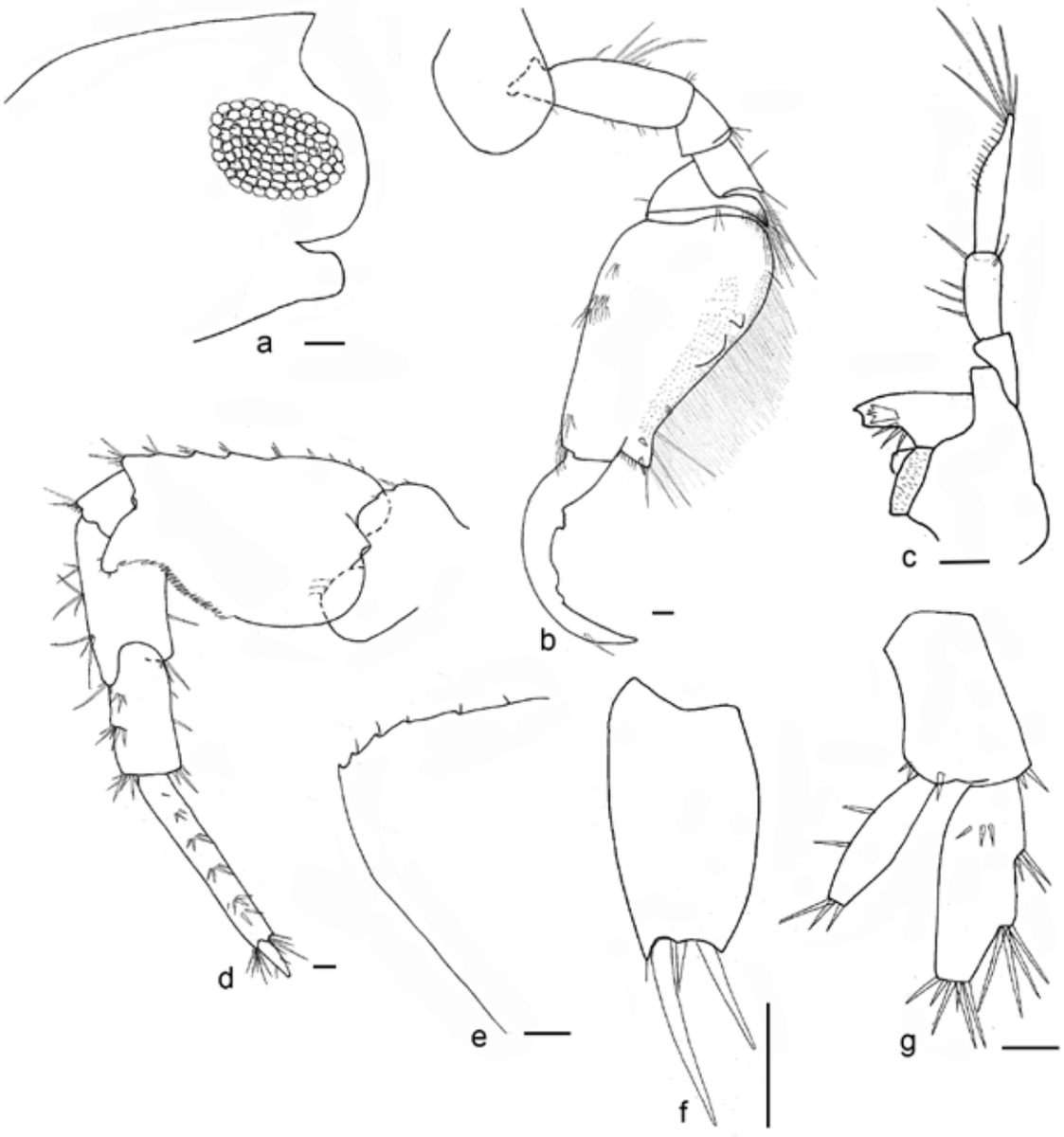

Fig. ZP-38. *Elasmopus alkhiranensis,* Al-Khiran. Male: a – head; b – gnathopod 2; c – mandible; d – pereopod 6; e – epimer 3; f – lobe of telson; g – uropod 3. Scale lines – 0.1 mm.

Family Maeridae
Genus *Maera*

Maera irregularis Myers & Nithyanandan, 2016
Plates 115 – 117.
Occurrence: pier constructions of Marinas, Al-Nuwaiseeb area, Funaitees area, Al-Salam beach (Kuwait Bay area), Al-Shumaimah (Khor Al-Sabiyah) area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Umm Al-Maradim Island area, Miskan Island area, and Auha Island area.
Intertidal and Subtidal Zones.
Habitats: fouling, cobble, rocks, and sponges.

Description (after Myers & Nithyanandan, 2016; modified). Male, 5.0 mm. Eye lobes rounded, eyes large, ovate, with loose ommatidia. A1 peduncle elongated; article 2 longer than article 1; article 3 short, a little over one third of the length of article 2; acc.fl. elongate with 5 articles; primary flagellum shorter than peduncle with 16 articles. A2 much shorter than A1; peduncular article 5 shorter than article 4; flagellum subequal in length with peduncular article 5, with 6 articles. Gn1 coxa weakly produced forward; basis moderately stout; carpus and propodus subequal in length; carpus with a notch on the anterior margin; propodus palm evenly convex; dactylus fitting palm. Gn2 enormous, basis stout, excavate on the anterior margin for the reception of carpus and propodus when folded; carpus short, cup-shaped; propodus four times the length of carpus, subrectangular, palm irregular, with two proximal humps separated by a v-shaped excavation, followed by a sloping palp delineated by a small spine, followed by a stout spine; dactylus stout, curved, fitting palm, with long setae on the anterior margin. P3 – P7 is typical for genus.Ep1 and Ep2 with small posterodistal spine; Ep3 with larger, triangular spine. U1 and U2, rami subequal, longer than peduncle. U3 large; peduncle short; rami twice the length of peduncle, flattened, leaf-like with numerous long setae marginally and distally. Telson almost completely divided, terminally notched, with three short robust setae on each side.
Female is similar to male.

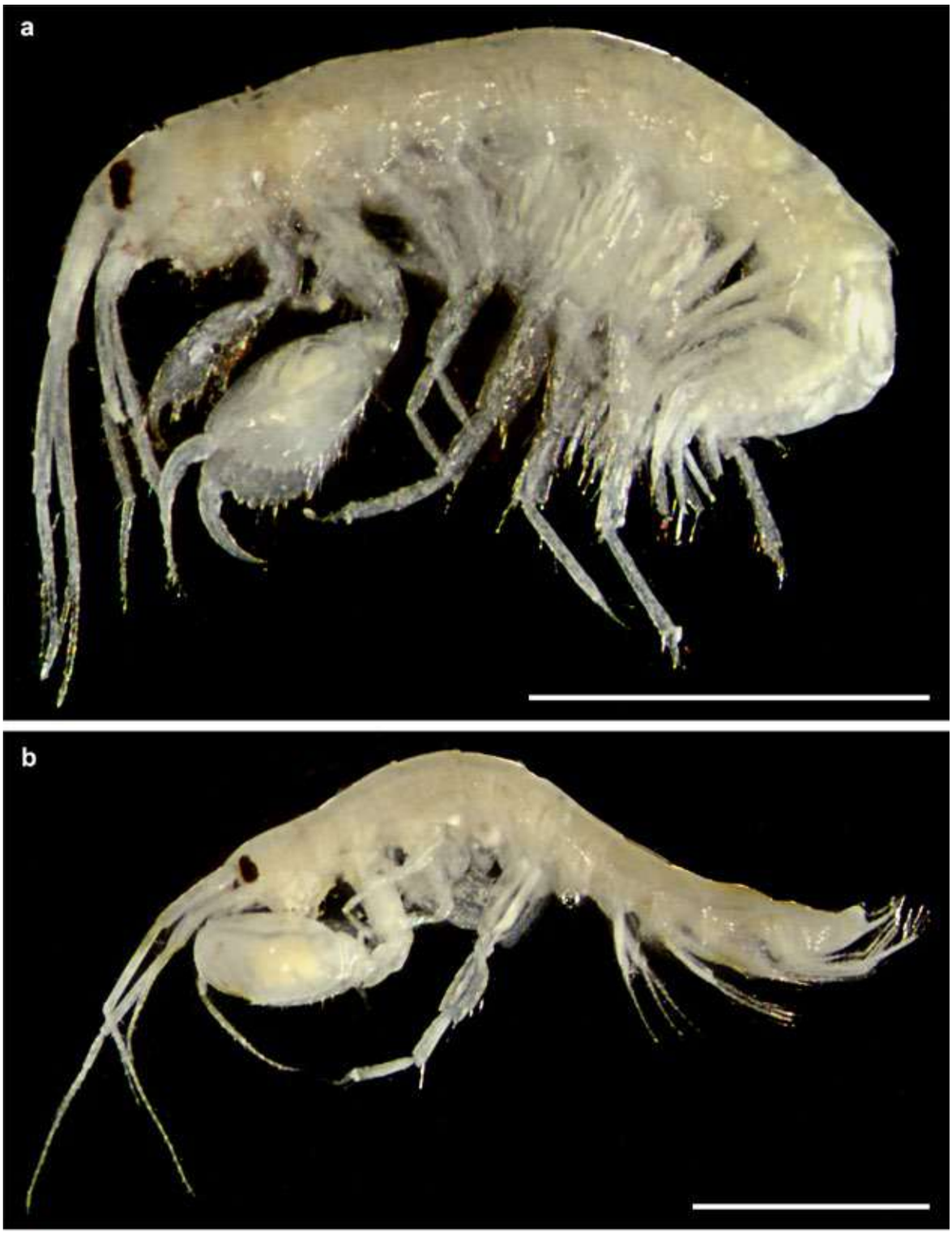

Plate 115. *Maera irregularis*, Al-Nuwaiseeb*:* a – female habitus; b – male habitus. Scale lines: a and b – 2 mm.

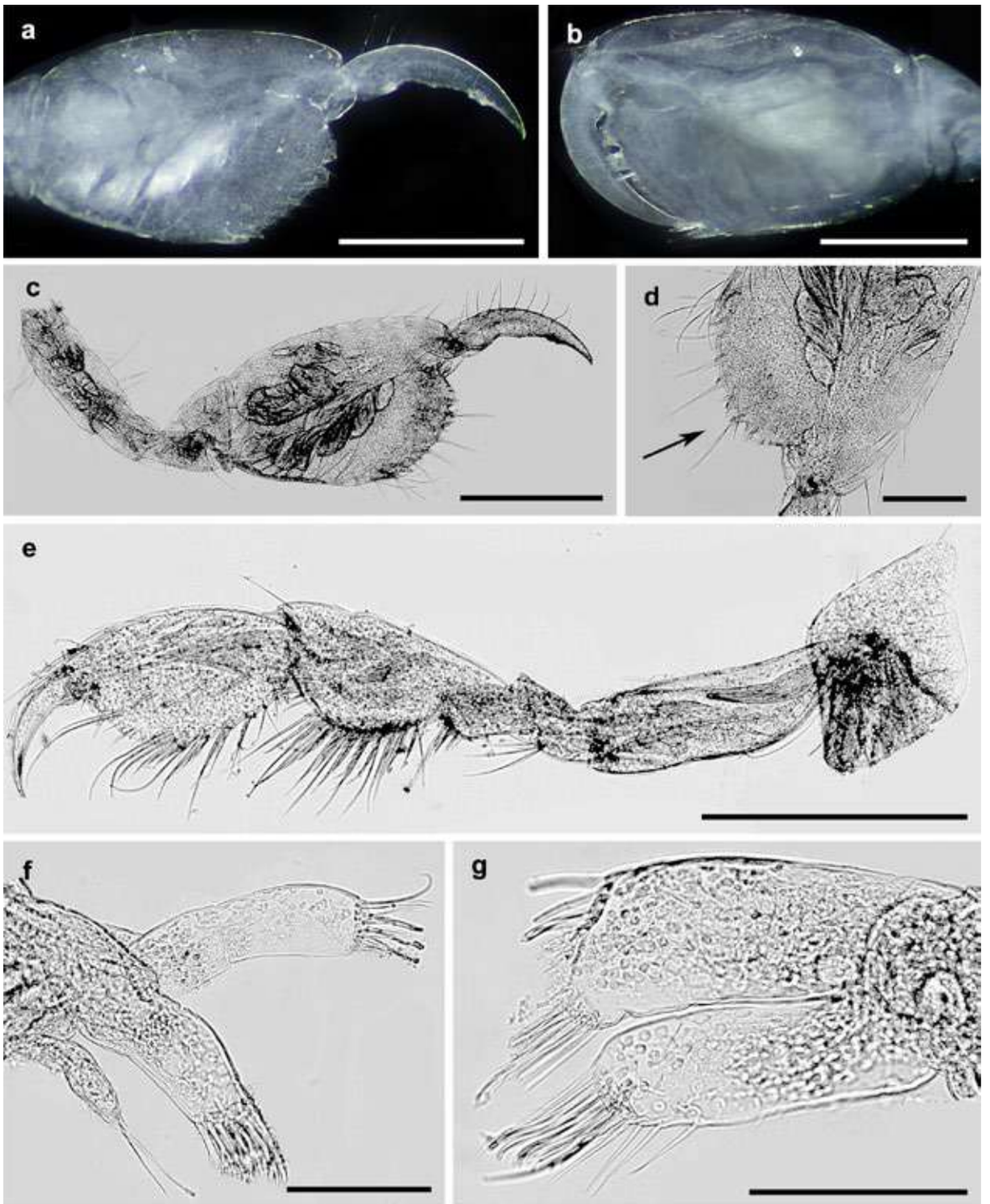

Plate 116. *Maera irregularis*, Al-Nuwaiseeb. Male: b – gnathopod 2, propodus, dactylus; e – gnathopod 1; f – maxilla 1; g – maxilla 2. Female: a – gnathopod 1; c – gnathopod 2; d – gnathopod 2, palm (arrow). Scale lines: a, b, c, and e – 0.5 mm; d – 0.2 mm; f and g – 0.1 mm.

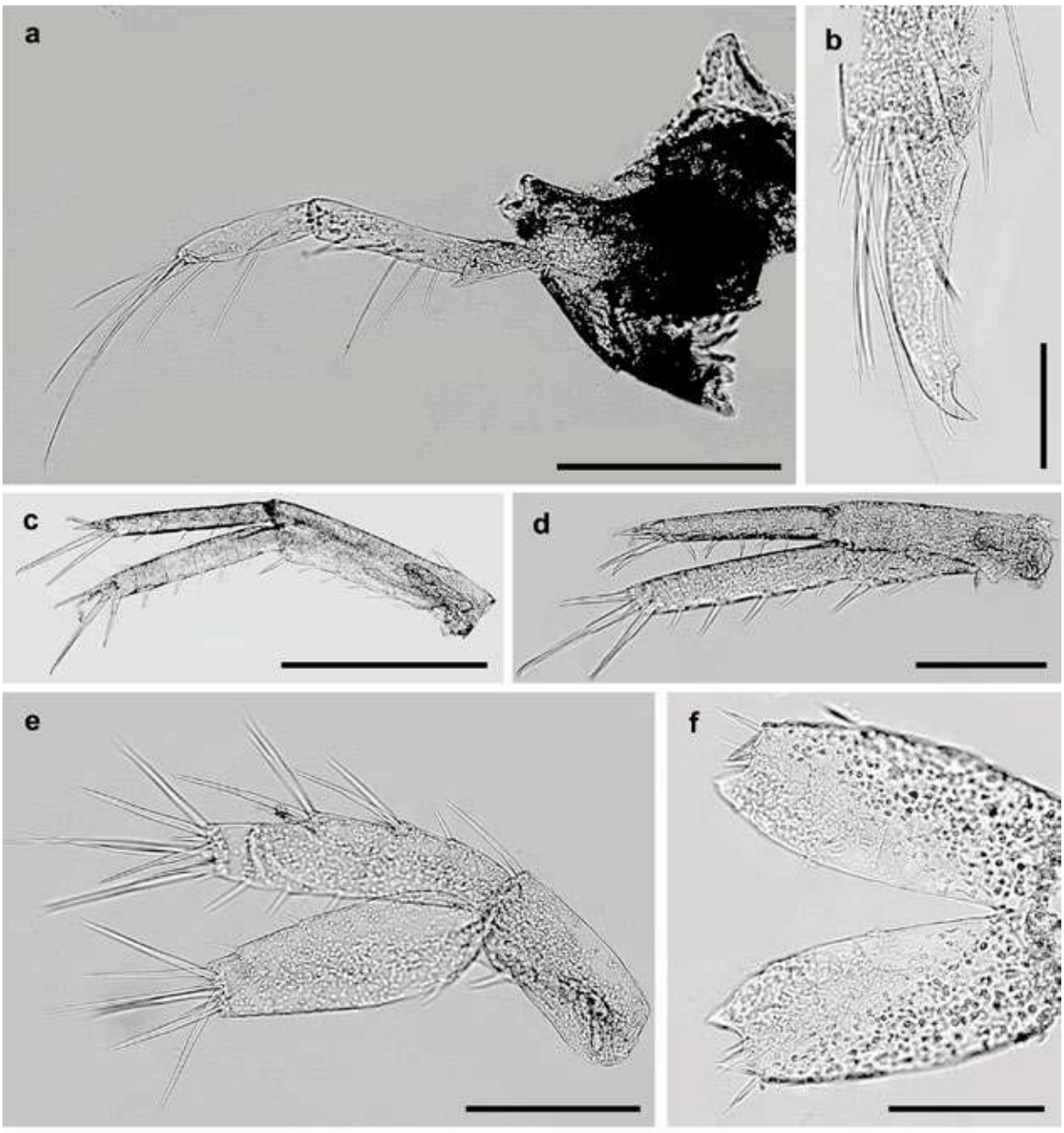

Plate 117. *Maera irregularis*, Al-Nuwaiseeb. Male: a – mandible; c – uropod 1; d – uropod 2; f – telson. Female: b – pereopod 7, dactylus; e – uropod 3. Scale lines: c – 0.5 mm; a, d, and e – 0.2 mm; b and f – 0.1 mm.

Family Maxillipiidae
Genus *Maxillipius*

Maxillipius rectitelson Ledoyer, 1973
Plates 118 – 120 and Fig. ZP-39.
Occurrence: Al-Nuwaiseeb area, Al-Khiran area, Al-Bida'a area, Auha Island area, Failaka Island area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: shells, pebbles, sponges, rocks, sand, aggregations of polychaete tubes, and *Sargassum* spp. (macroalgae).

Description (after Coleman, 2009; modified). Female, 3.2 mm. Head bulky, rostrum short, blunt. Eyes large. Lbr entire. Md multidentate, molar triturative, palp not developed. L with inner lobes. Mx1 inner plate without setae, medial robust seta of the outer plate stouter and longer than the remaining setae, directed medially; palp uniarticulate, distally expanded with 4 apical setae, separated 3 teeth. Mx2 inner lobe less thin than half of the width of outer lobe. Mxp palp article 2 medially, strongly expanded and almost reaching the distal margin of article 3, which is folded against the distal margin of article 2. Cox1 not visible. Gn1 carpus distally expanded, not produced, dactylus slender. Gn2. Cox2 anteriorly rounded, not produced, carpus not much wider than propodus; propodus slender without palm. P6 apical articles extremely elongated. U1 peduncle longer than ramus, with spine medially and dorsally and minute serration, outer ramus shorter than inner, both rami serration with tiny spines medially. U2 peduncle slightly shorter than inner ramus with serration with tiny spines. Outer ramus shorter than inner, both rami serration with tiny spines. U3 peduncle equal in length with rami, serration, with tiny spines; outer ramus slightly shorter than inner, both rami with serration and tiny spines. T small near triangular without spines or setae.
Male specimens were not found in our investigations.

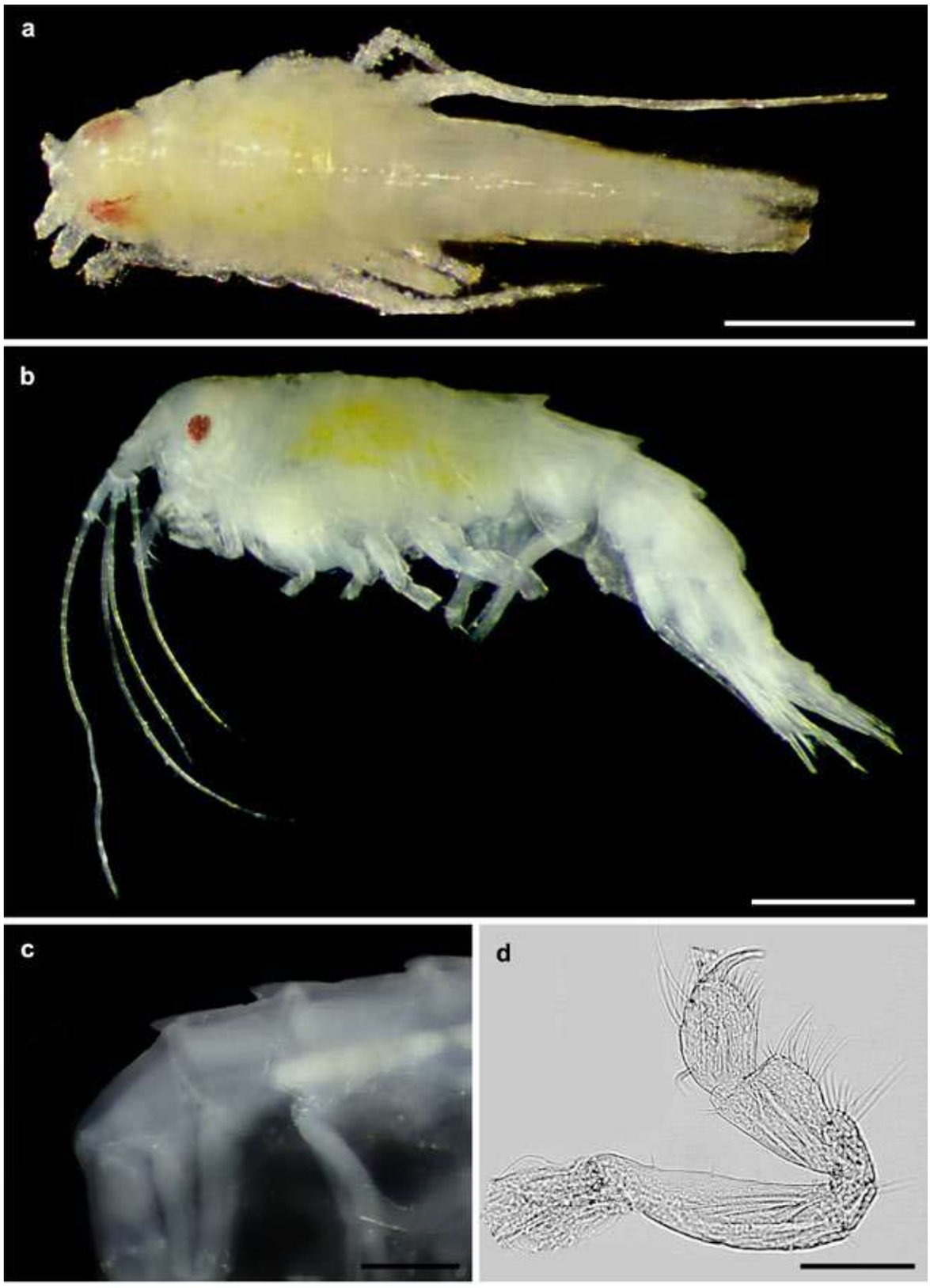

Plate 118. *Maxillipius rectitelson*, Al-Khiran. Female: a – habitus, dorsal view; b – habitus, lateral view; c – pleon; d – gnathopod 1. Scale lines: a and b – 0.5 mm; c – 0.2 mm; d – 0.1 mm.

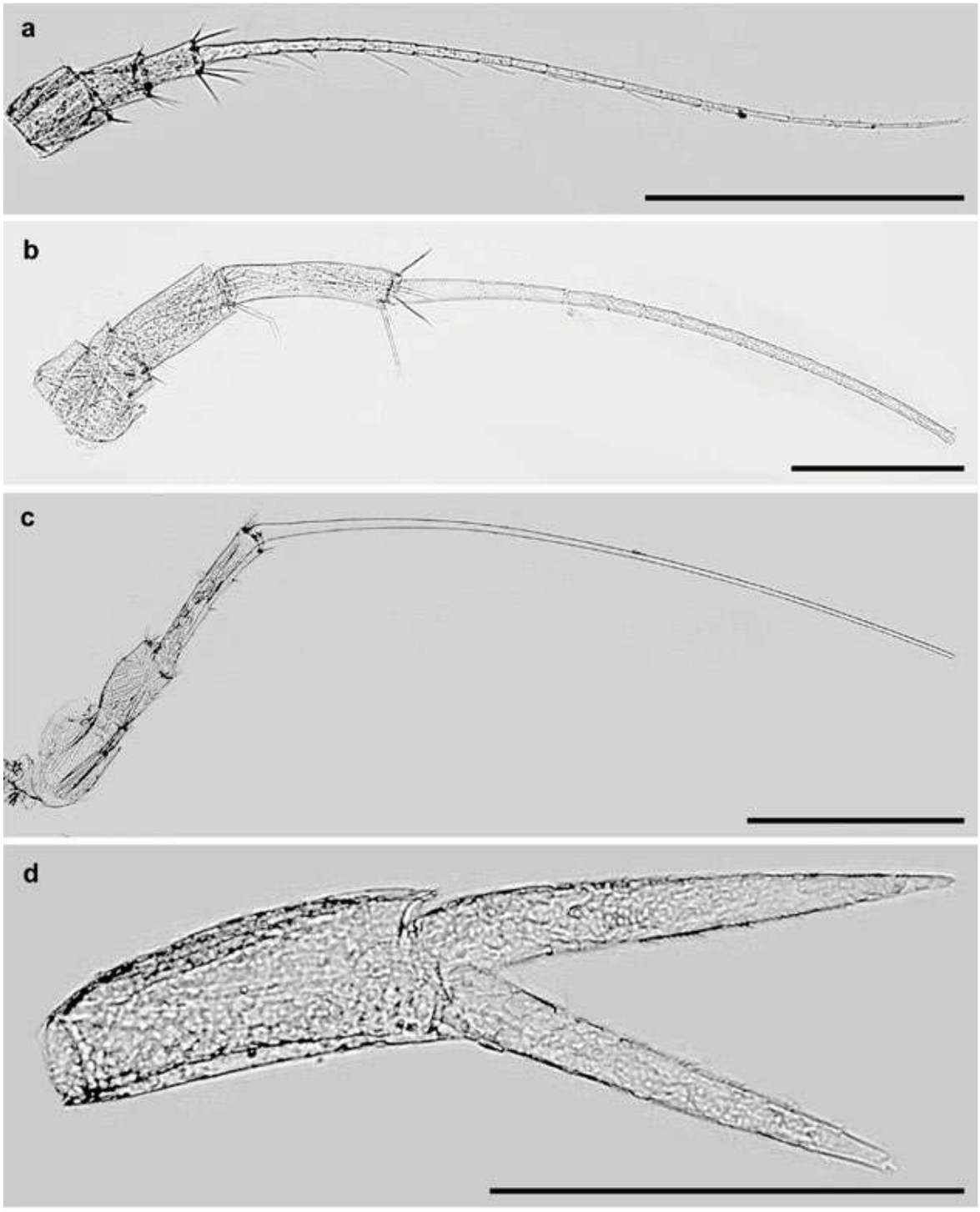

Plate 119. *Maxillipius rectitelson*, Al-Khiran. Female: a – antenna 1; b – antenna 2; c – pereopod 6; d – uropod 3. Scale lines: a and c – 0.5 mm; b and d – 0.2 mm.

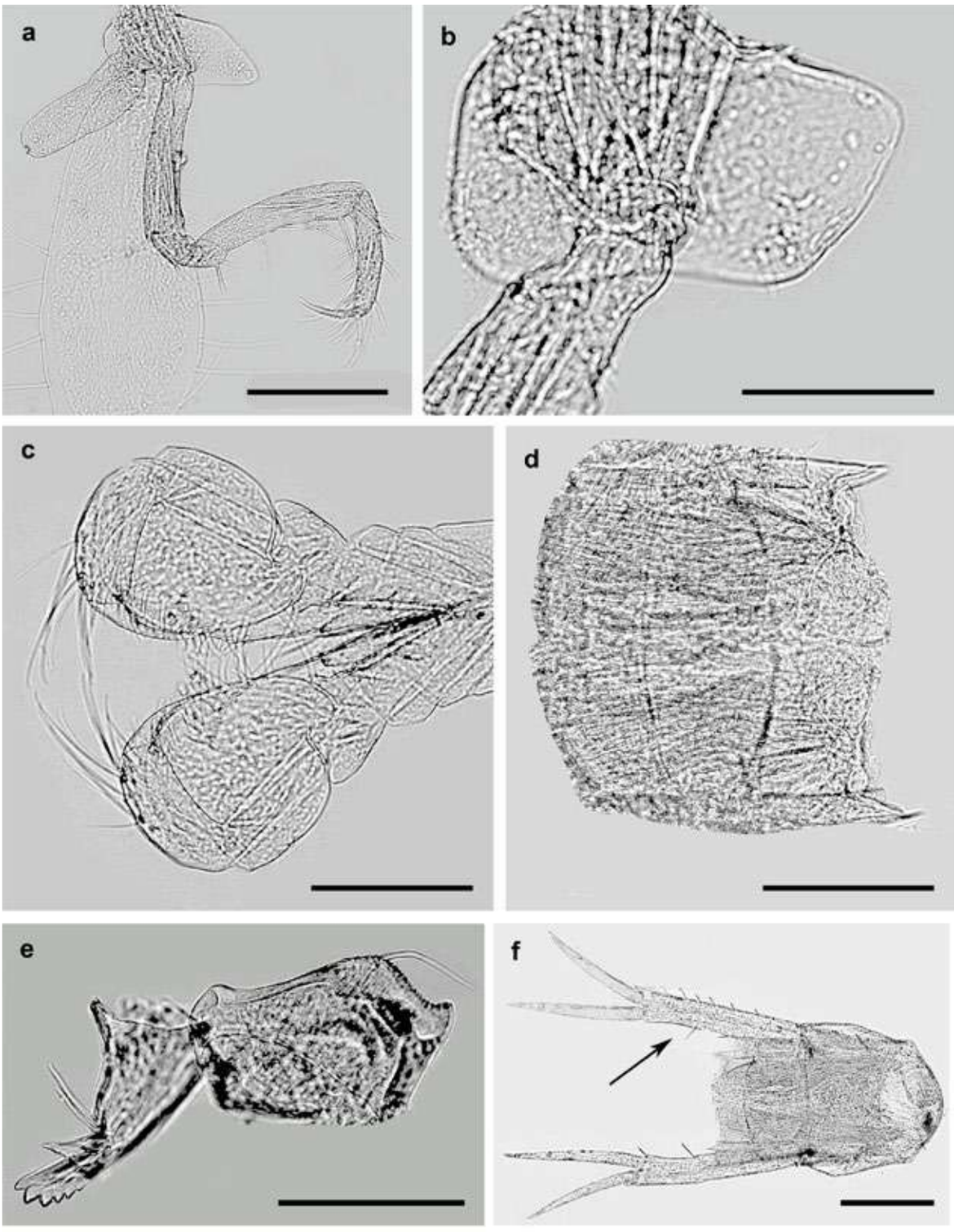

Plate 120. *Maxillipius rectitelson*, Al-Khiran. Female: a – gnathopod 1; b – coxa 4; c – maxilliped; d – telson; e – mandible; f – urosome, uropod 1 (arrow). Scale lines: a and f – 0.2 mm; b, c, d, and e – 0.1 mm.

Fig. ZP-39. *Maxillipius rectitelson,* Al-Khiran. Female: a – pereopod 6; b – gnathopod 2; c – cephalon; d – maxilliped; e – mandible; f – pleon 2, dorsal serration; g – pleon 1, dorsal serration; h – uropod 3, telson; i – gnathopod 1; j – coxa 4. Scale lines – 0.1 mm.

Family Megaluropidae
Genus *Megaluropus*

Megaluropus excavatus Ledoyer, 1979
Plates 121 and 122, and Fig. ZP-40.
Occurrence: Al-Khiran area, Al-Nuwaiseeb area, Funaitees area, Al-Bida'a area, Failaka Island area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, and rocks.

Description. Female, 4.5 mm. Pleon segments 1 with minute serrations dorsodistally. Pleon segments 2-3 distal margin denticulate. Us1 with dorsodistal margin crenulate. Us2 dorsodistal margin denticulate. Us3 with 7 strong spines dorsodistally. Lateral cephalic lobes produced, almost rounded, but with somewhat angular tip; eyes almost rounded, large. A1 shorter than A2. A1 peduncular articles 1-2 subequal, article 1 shorter than cephalic lobes, article 3 short, flagellum with 10-articles, acc.fl. 2-articles. A2 peduncular article 4 slightly longer than article 5, flagellum 11-articles; antennal gland cone much shorter than peduncle article 3. Cox1 – Cox4 longer than broad, with numerous long marginal setae, Cox1 and Cox3 shorter than Cox2 and Cox4. Cox4 without posterodistal lobe. Gn1 with long setae, carpus bigger than propodus both tapering distally, dactylus slightly shorter than propodus, propodus with a row of setae posteriorly on the inner edge and with serration along of palm edge. Gn2 merus tapering in the middle part of the posterior side; carpus as long as propodus with lobe in the middle part of the posterior side; propodus slightly longer than dactylus with serration on the palmar edge. Basis P5 – P7 with posterodistal lobe. Ep1 with slightly concave, distally bearing small teeth; Ep2 with posterodistal tooth; Ep3 with posterior margin convex, coarsely crenulate, with short setae. U3 damaged. T lobes tapering, distal margin crenulate with short setae.
Males were not found in our investigations.

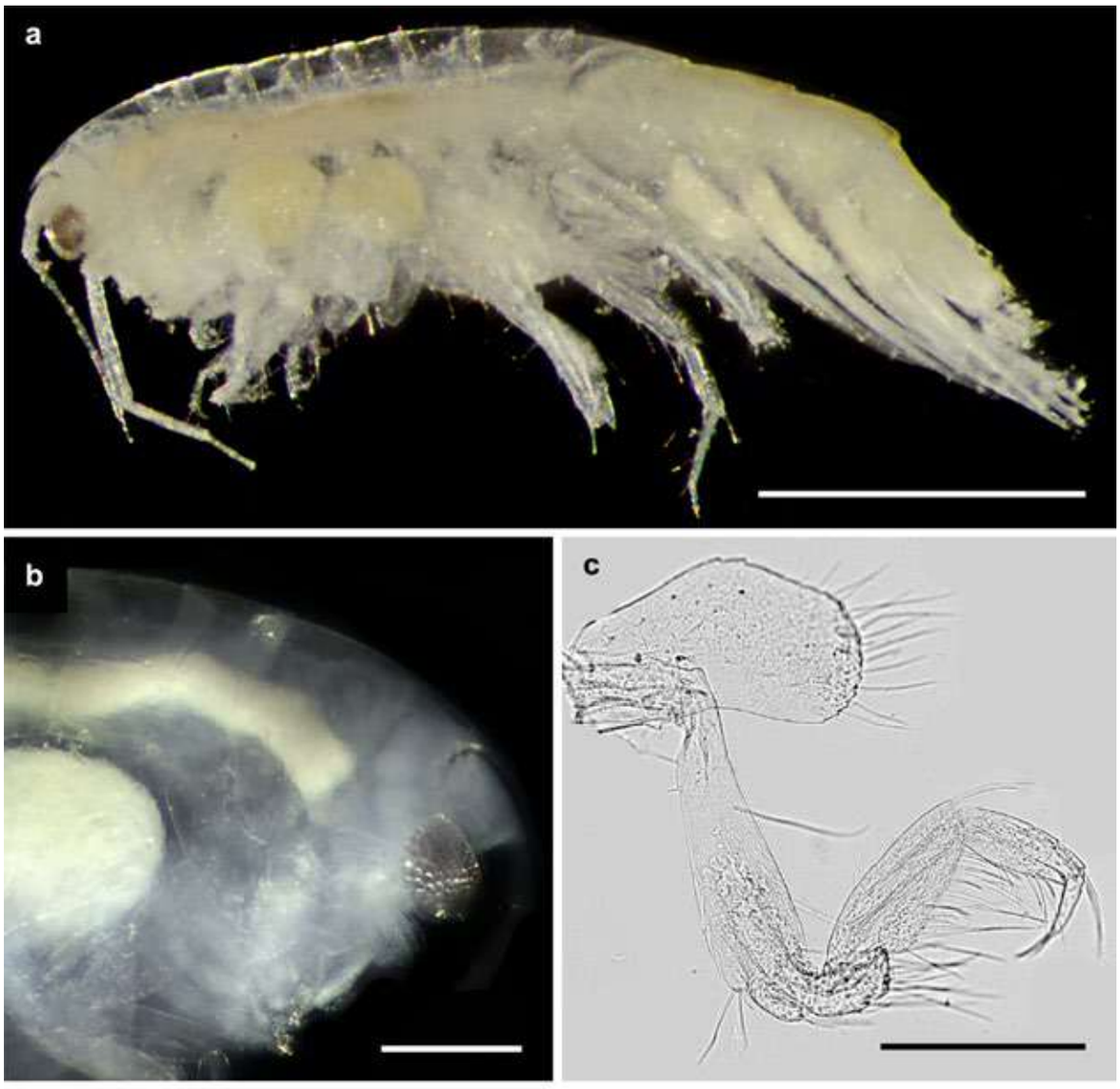

Plate 121. *Megaluropus excavatus*, Funaitees. Female: a – habitus; b – head; c – gnathopod 1. Scale lines: a – 1 mm; b and c – 0.2 mm.

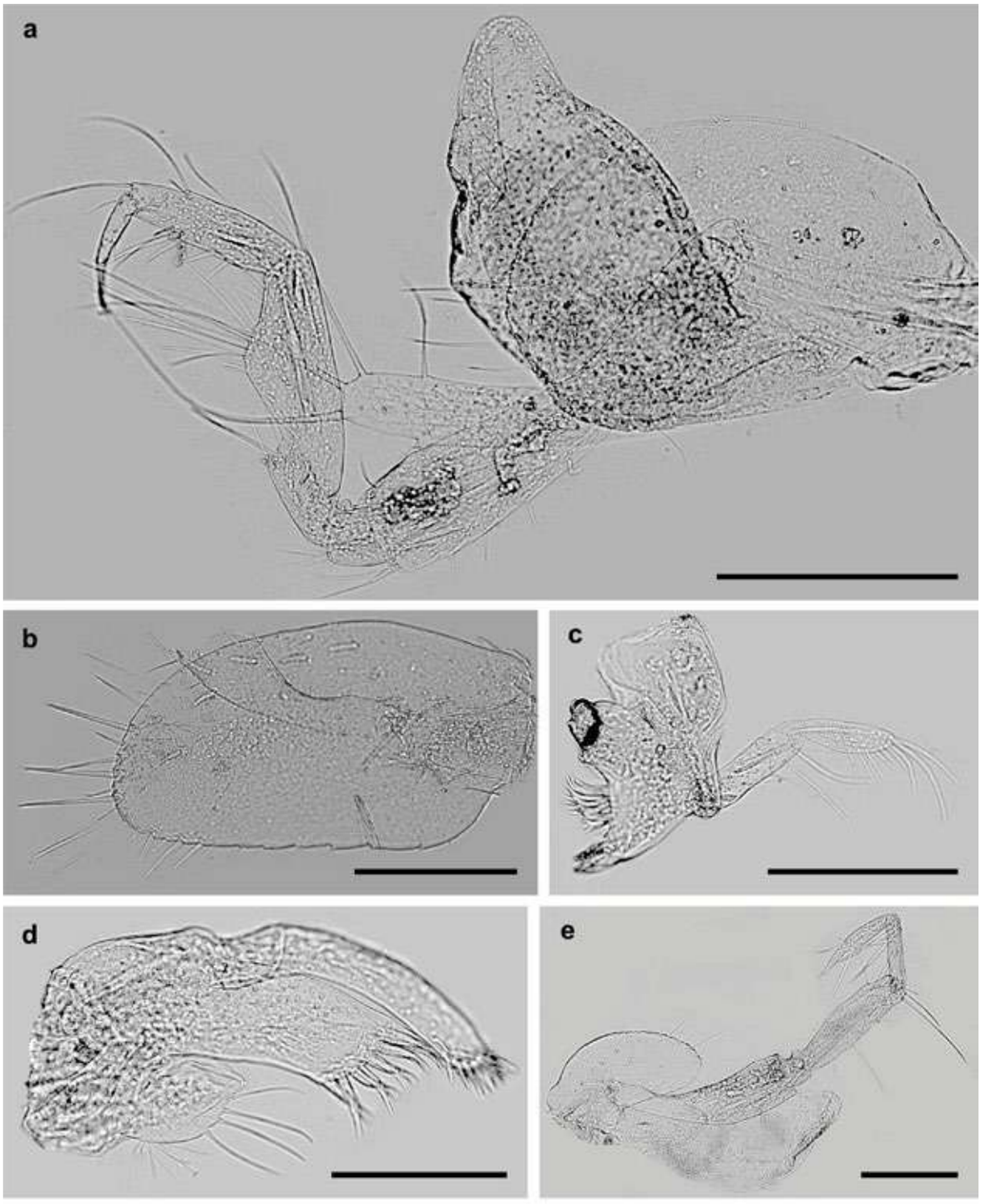

Plate 122. *Megaluropus excavatus*, Funaitees. Female: a – gnathopod 2; b – coxa 4; c – mandible; d – maxilla 1; e – pereopod 3. Scale lines: a, b, c, and e – 0.2 mm; d – 0.1 mm.

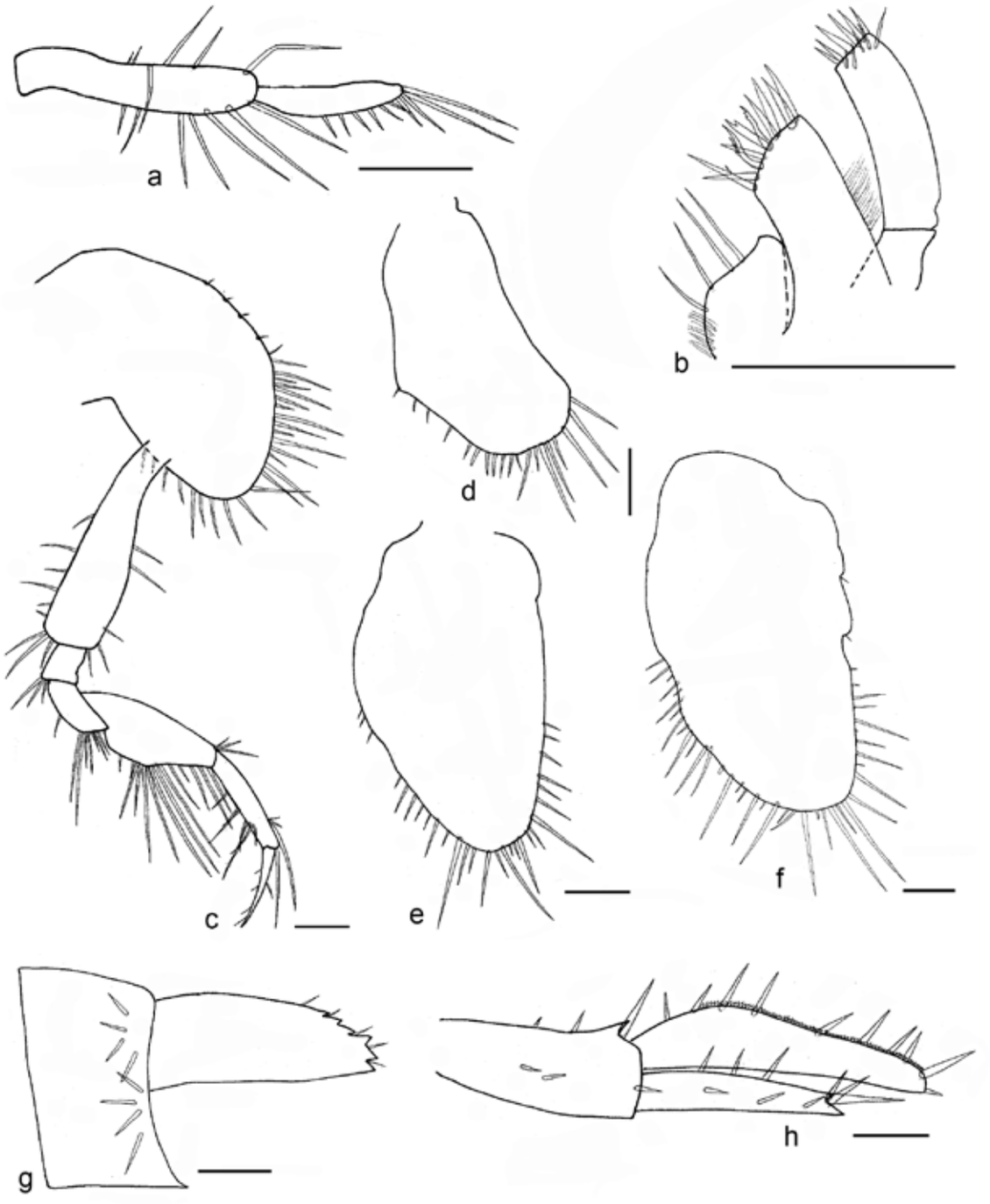

Fig. ZP-40. *Megaluropus excavatus,* Al-Nuwaiseeb. Female: a – palp of mandible; b – maxilla 1; c – gnathopod 2; d – coxa 1; e – coxa 3; f – coxa 4; g – urosome segment 3, telson; h – uropod 2. Scale lines – 0.1 mm.

Family Megaluropidae
Genus *Megaluropus*

Megaluropus* sp. cf. *monasteriensis
Plates 123 – 126 and Fig. ZP-41.

Occurrence: Al-Khiran area, Al-Nuwaiseeb area, Funaitees area, Qaruh Island area, Al-Messilah beach area, Kubbar Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, and rocks.

Description (after Karaman, 1982; modified). Female, 5.5 mm. **Pleon segments 1-2 with distal margin small crenulations**. Pleon segments 3 with distal margin denticulate. Us1 – Us2 with distal margin denticulate. Us3 with 1 spine on each side. Lateral cephalic lobes produced, subacute; eyes reniform, large, higher than broad. A1 peduncular articles 1-2 subequal, article 1 longer than cephalic lobes, article 3 short, flagellum damaged, acc.fl. 2-articles. A2 peduncular article 4 slightly longer than article 5, flagellum 13-articles; antennal gland cone much shorter than peduncle article 3. Cox1 – Cox4 longer than broad, with numerous long marginal setae, Cox1 and Cox3 shorter than Cox2 and Cox4. Cox4 with posterodistal lobe. Gn1 with long setae, carpus bigger than propodus both tapering distally, dactylus about 1/2 the length of propodus with a row of setae posteriorly on the inner edge. Gn2 similar to Gn1 but carpus triangular, not tapering. Basis P5 – P7 with posterodistal lobe. Ep1 – Ep3 with posterior margin convex, coarsely crenulate, with short setae. U3 rami **broadly** ovate, with **several lateral spines.** T lobes slightly tapering, distal margin crenulate with short setae.
Males were not found in our investigations.
Taxonomic characters for distinguishing *Megaluropus* sp. cf. *monasteriensis* from *Megaluropus monasteriensis* (Karaman, 1982), are expressed in **bold** text.

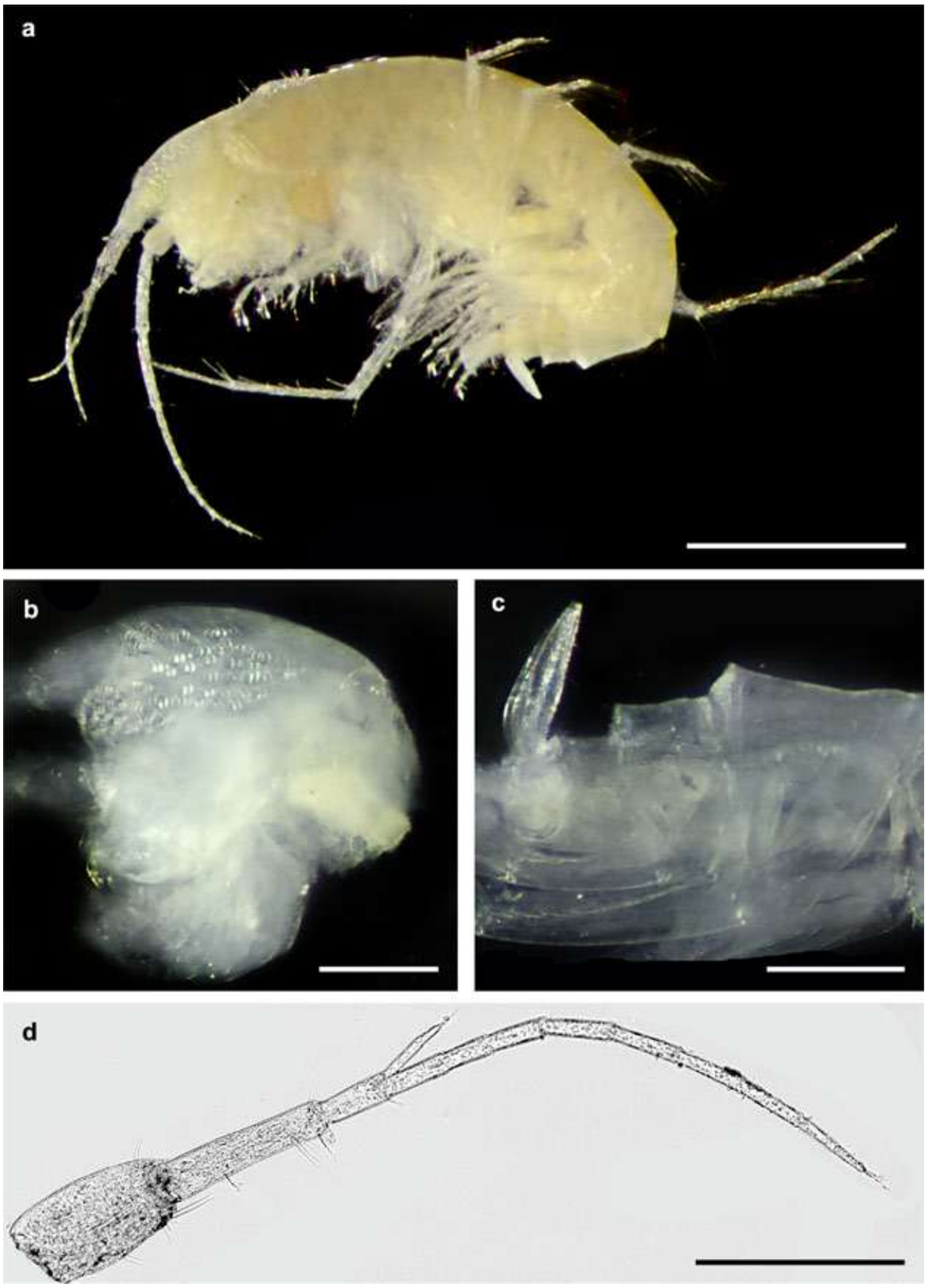

Plate 123. *Megaluropus* sp. cf. *monasteriensis*, Funaitees. Female: a – habitus; b – head; c – urosome; d – antenna 1. Scale lines: a – 1 mm; d – 0.5 mm; b and c – 0.2 mm.

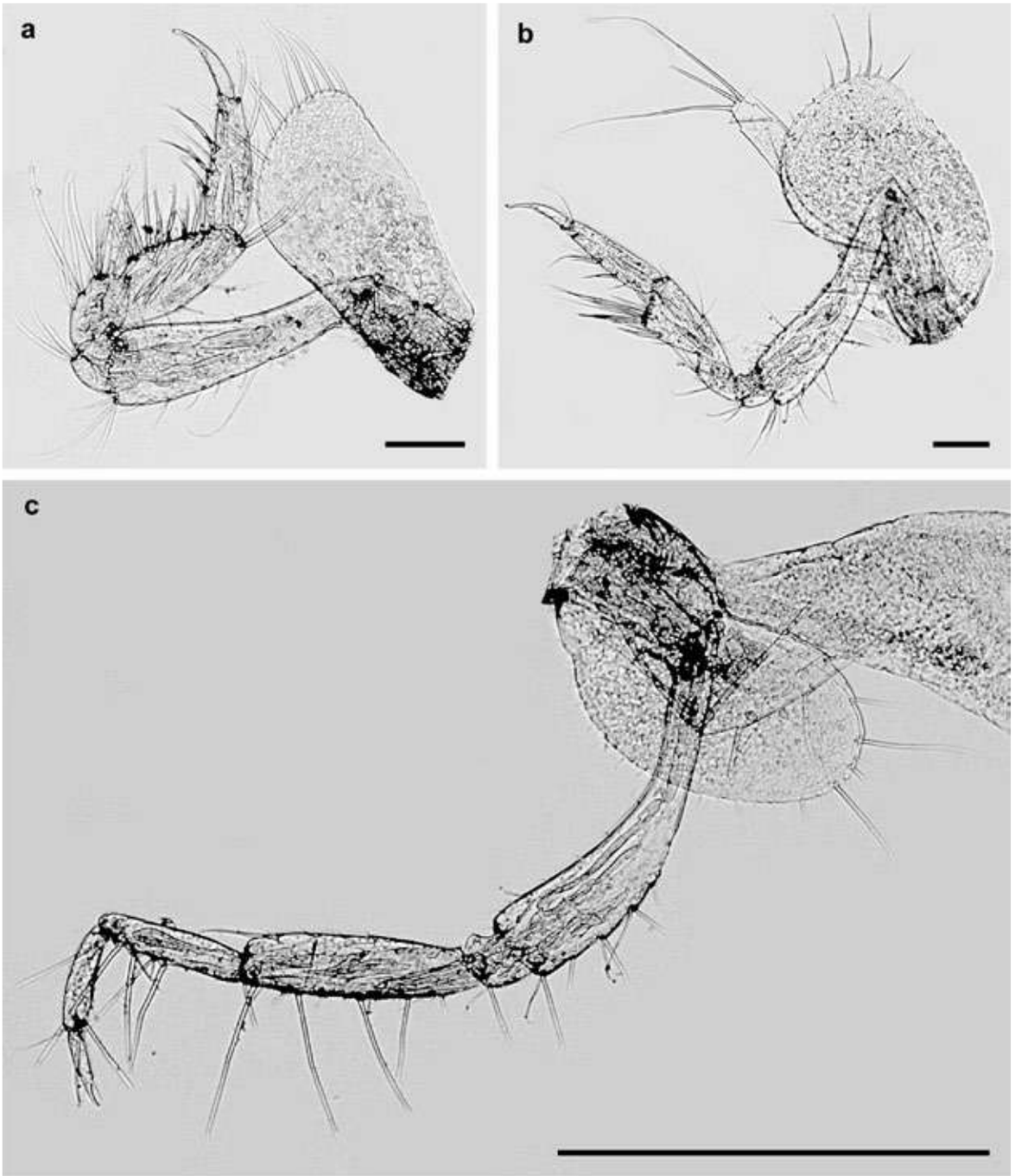

Plate 124. *Megaluropus* sp. cf. *monasteriensis*, Funaitees. Female: a – gnathopod 1; b – gnathopod 2; c – pereopod 3. Scale lines: c – 0.5 mm; a – 0.1 mm; b – 0.05 mm.

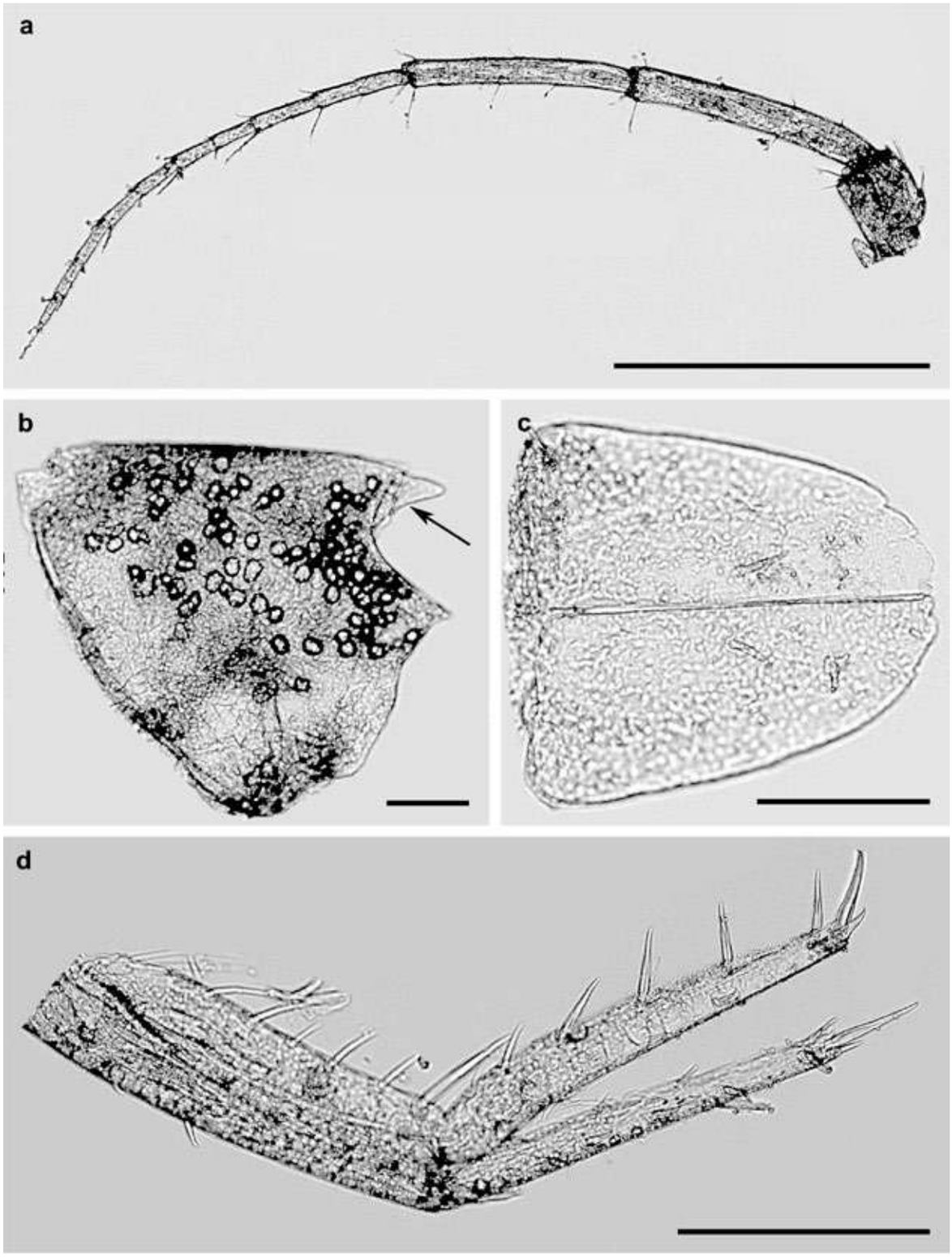

Plate 125. *Megaluropus* sp. cf. *monasteriensis*, Funaitees. Female: a – antenna 2; b – head, rostrum (arrow); c – telson; d – uropod 1. Scale lines: a – 0.5 mm; c and e – 0.2 mm; b – 0.1 mm.

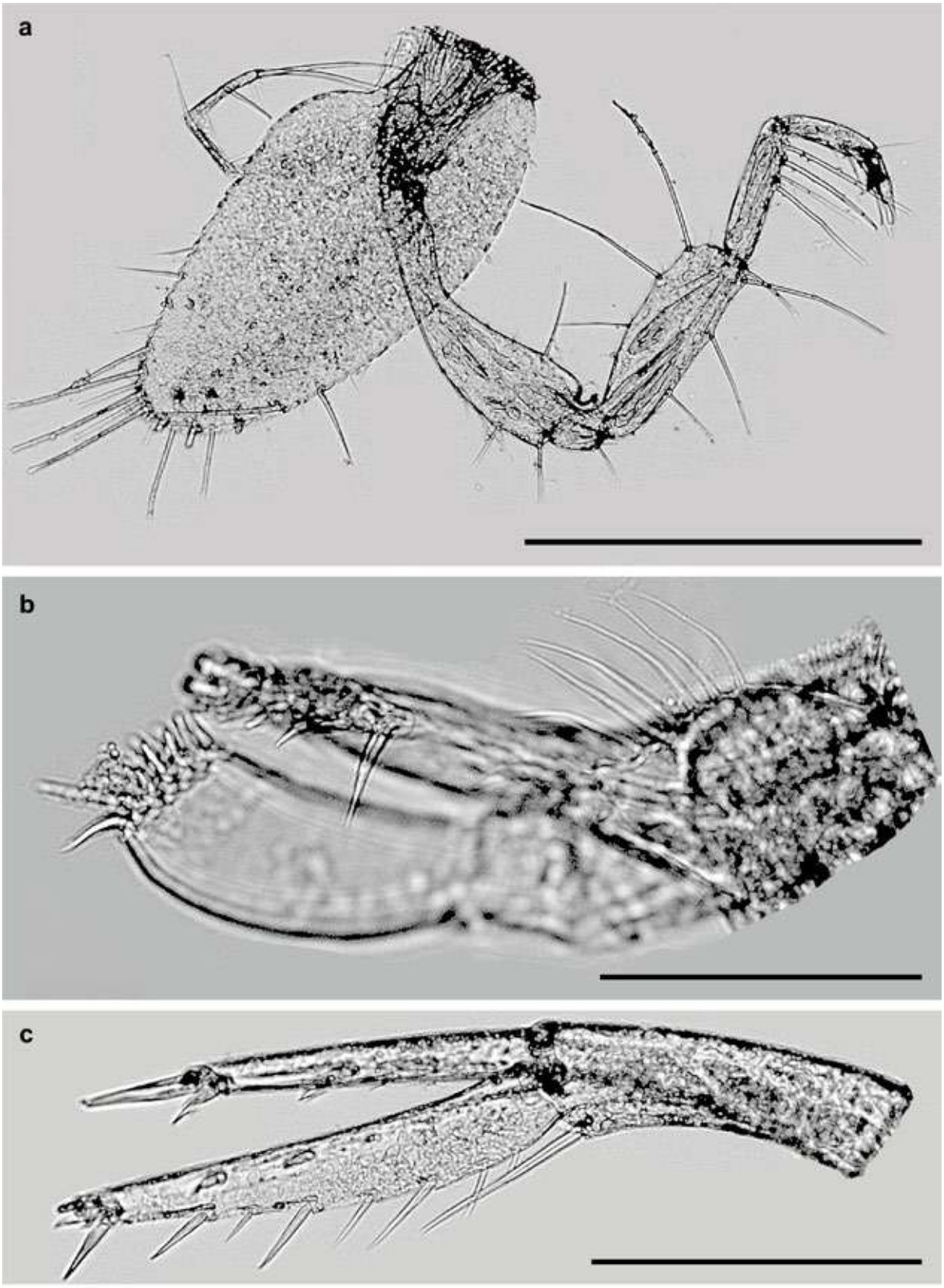

Plate 130. *Megaluropus* sp. cf. *monasteriensis*, Funaitees. Female: a – pereopod 4; b – maxilla 1; c – uropod 2. Scale lines: a – 0.5 mm; c – 0.2 mm; b – 0.1 mm.

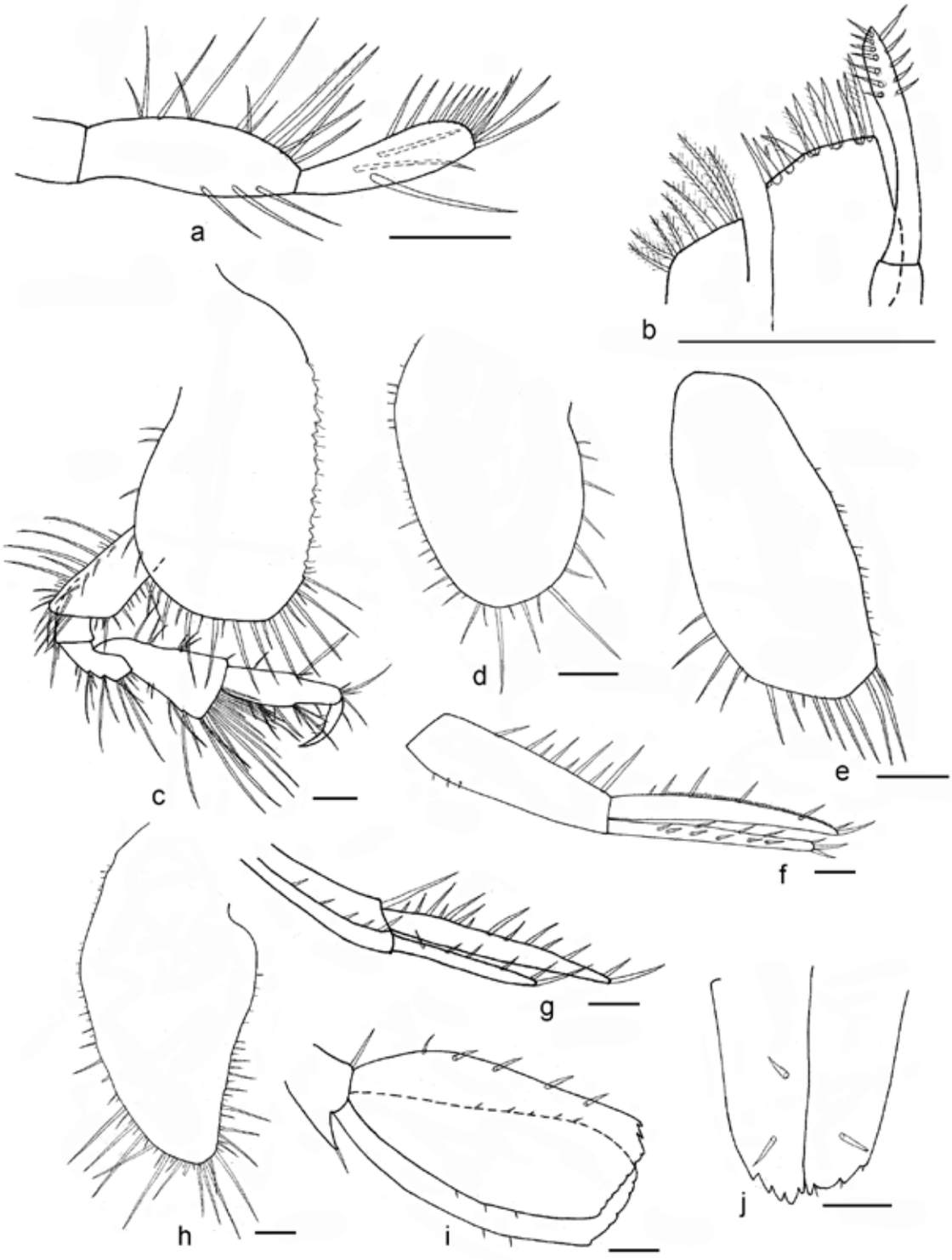

Fig. ZP-41. *Megaluropus* sp. cf. *monasteriensis*, Funaitees. Female: a – palp of mandible; b – maxilla 1; c – gnathopod 2; d – coxa 3; e – coxa 1; f – uropod 1; g – uropod 2; h – coxa 4; i – uropod 3; j – telson. Scale lines – 0.1 mm.

Family Melitidae
Genus *Dulichiella*

Dulichiella fresnelii (Audouin, 1826)
Plates 127 – 130 and Fig. ZP-42.
Occurrence: Al-Khiran area, Auha Island area, Al-Nuwaiseeb area, Boubyan Island, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, and Miskan Island area.
Intertidal and Subtidal Zones.
Habitats: sponges, biofouling areas, macroalgae, shells, pebbles, rocks, aggregation of polychaete tubes, and ropes (as artificial habitat).

Description (after Lowry and Springthorpe, 2007; modified). Male, 6 mm. Eyes round. Lateral cephalic lobe broad, truncated, anteroventral corner with slender setae. A1 peduncular article 1 shorter than article 2, article 1 with 3 spines ventrally. A2 peduncular article 2 cone gland **reaching** to the end of peduncular article 3; article 4 longer than article 5. Md palp article 1 about as long as broad, inner margin article 1 not produced distally; article 2 subequal to article 3. Gn1. Cox1 anteroventral corner not produced, anterior margin concave, posteroventral corner not present; carpus longer than propodus, propodus stout, palm straight, palm defined by posterodistal corner with posterodistal robust setae. Gn2. Cox2 posteroventral corner notch present; (larger) propodus distolateral crown with 4 rounded spines, fourth spine well developed, palm sinusoidal, posterodistal corner produced, upturned, dactylus overlapping corner, dactylus apically hooked; (smaller Gn2) merus with sharp posteroventral spine, palm slightly convex without robust setae defined stout spines, dactylus with **two** setae on the anterior margin. P5 dactylar unguis anterior margin with **one** accessory spine. P6 – P7 carpus and propodus with bunches of long slender setae. P6 basis posterior margin straight, dactylar unguis anterior margin with **one** accessory spine. P7 basis posterior margin tapering distally. Pl1 – 7 dorsal spines; Pl2 – 7 dorsal spines, Pl3 – **6 dorsal spines.** Us1 – 5 dorsal spines, Us2 **– 5 dorsal spines**, Us3 – 2 dorsal spines. Pl1-Pl3 with sparse dorsal setae. Ep1 with **1 anteroventral spine**. Ep2 posteroventral corner acute. Ep3 posteroventral corner acute with **1 fine spine and 2 setae anteroventrally.** Us1 with 3 setae between spines. Us2 with 1 robust seta between spines. Us3 with 2 robust setae between spines. U3 outer ramus 1.7 times longer than peduncle, inner ramus scale-like, short. T with dorsal robust setae.
Female, 5.5 mm. Gn2 much smaller than that of Gn2 male. Gn2, basis with setae anteriorly, posteriorly, and posterodistally; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus with setae posteriorly, anteriorly, laterally, posterodistally, and anterodistally; propodus longer than carpus with setae anteriorly, laterally and posteriorly, palm with serration and little teeth, well defined by spines; dactylus strong with teeth on the inner side.
Taxonomic characters for distinguishing *Dulichiella fresnelii* of Kuwait from *Dulichiella fresnelii* by Lowry and Springthorpe, 2007, are expressed in **bold** text.

Plate 127. *Dulichiella fresnelii*, Al-Khiran. Male: a – habitus; b – urosome. Scale lines: a – 2 mm; b – 0.5 mm.

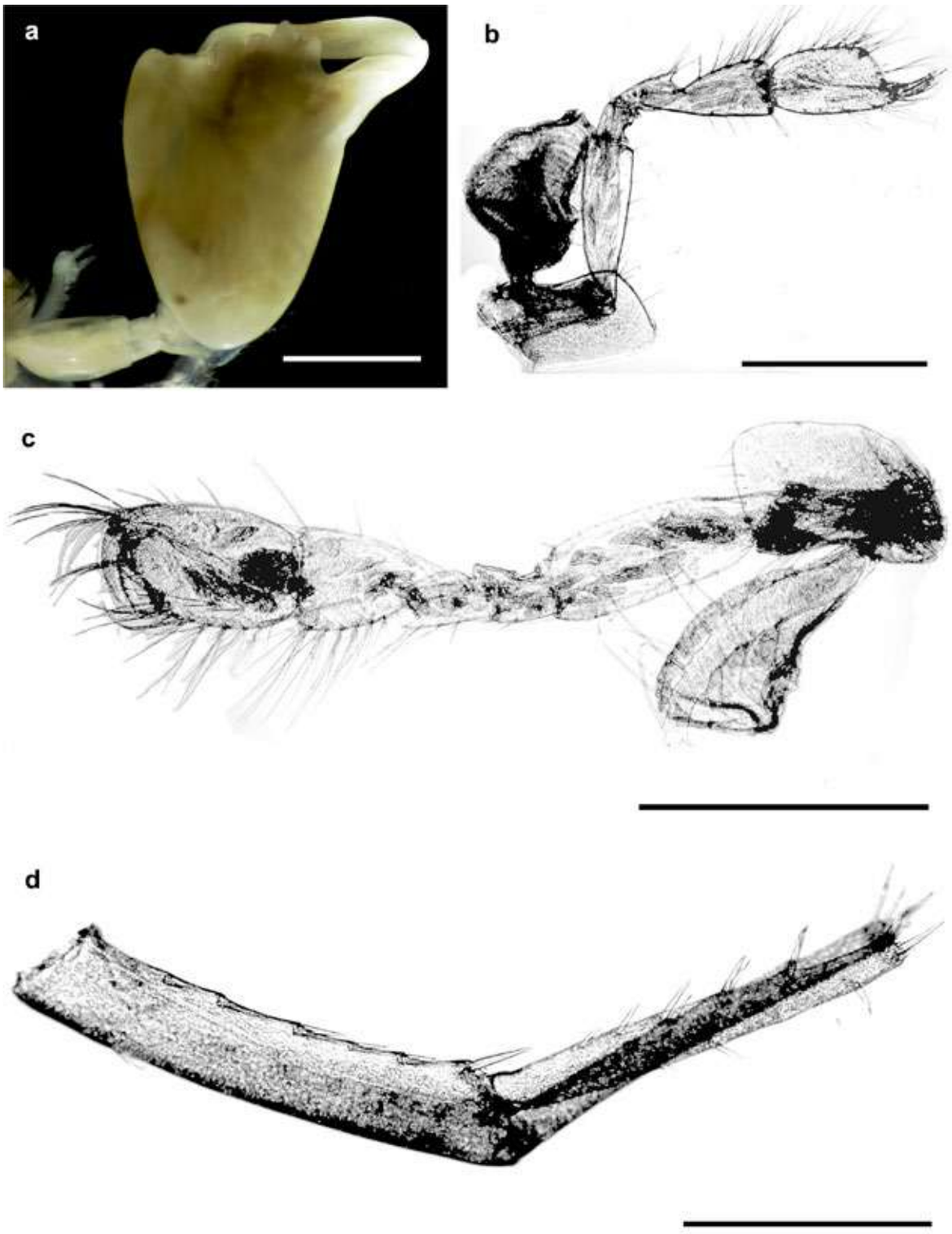

Plate 128. *Dulichiella fresnelii*, Al-Khiran. Male: a – gnathopod 2, left; b – gnathopod 2, right; d – uropod 3. Female: c – gnathopod 2. Scale lines: a, b, and c – 1 mm; d – 0.5 mm.

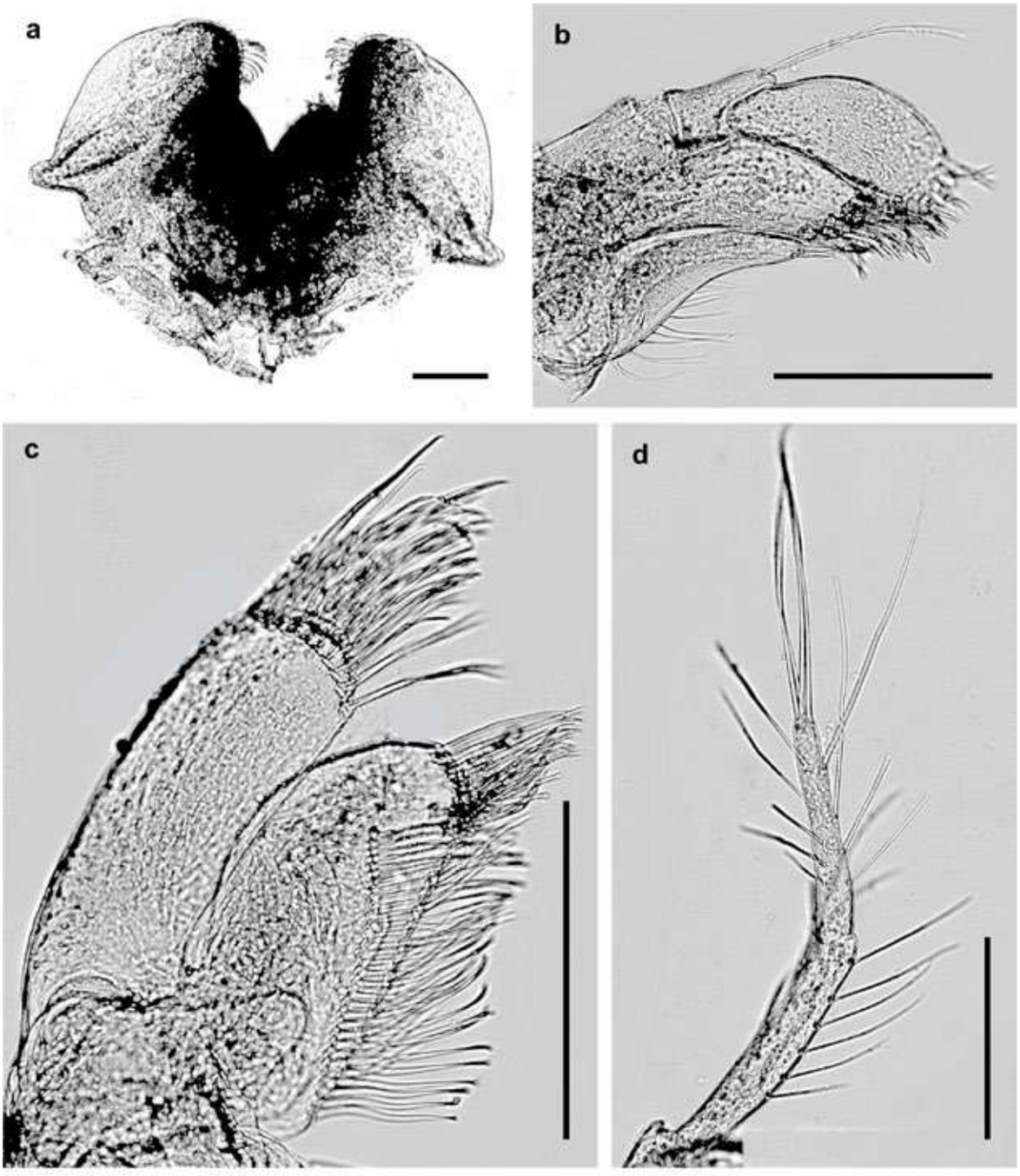

Plate 129. *Dulichiella fresnelii*, Al-Khiran. Male: a – labium; b – maxilla 1; c – maxilla 2; d – palp of mandible. Scale lines: b, c, and d – 0.2 mm; a – 0.1 mm.

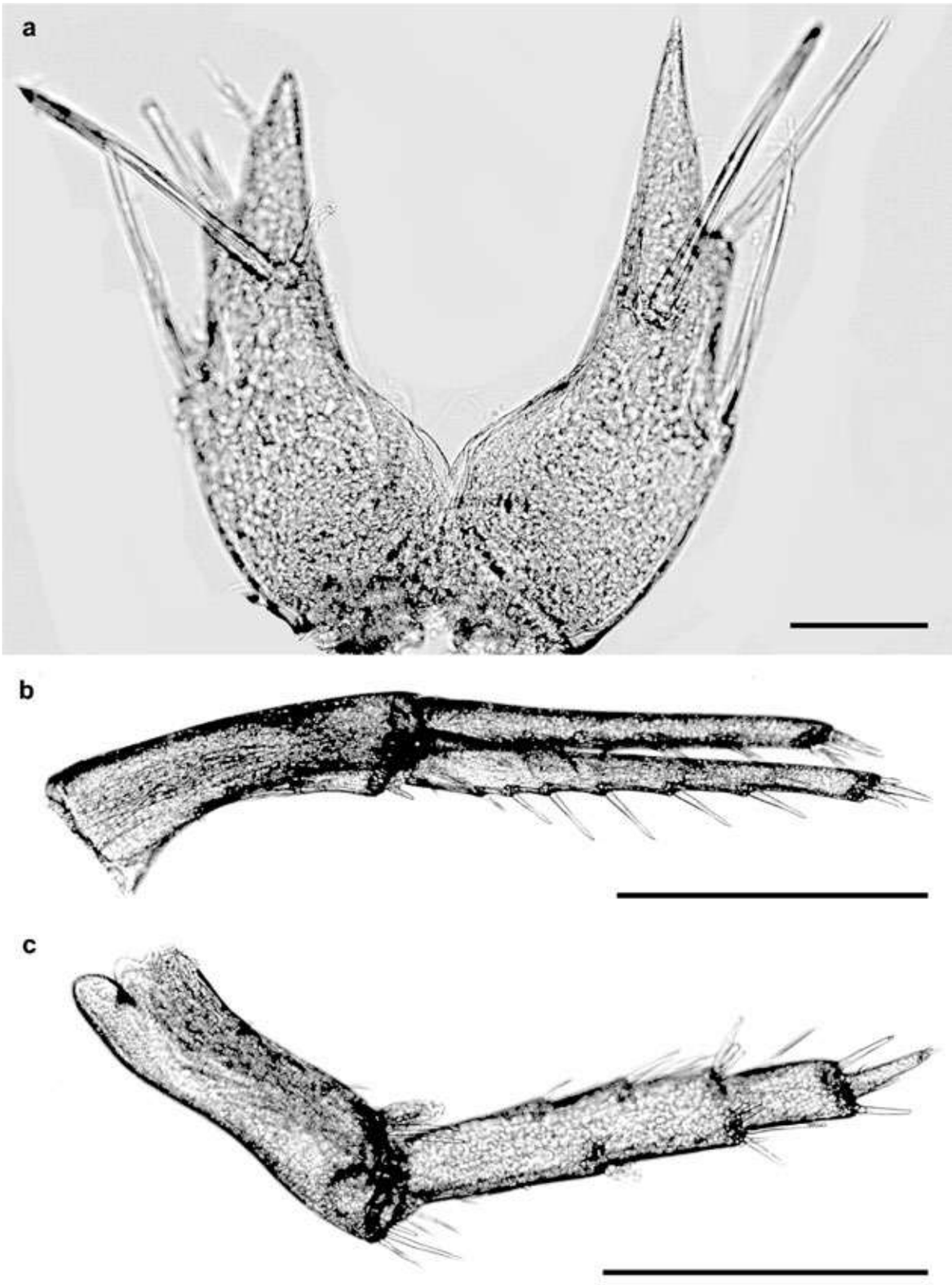

Plate 130. *Dulichiella fresnelii*, Al-Khiran. Male: a – telson; b – uropod 2; c – uropod 3. Scale lines: b and c – 0.5 mm; a – 0.1 mm.

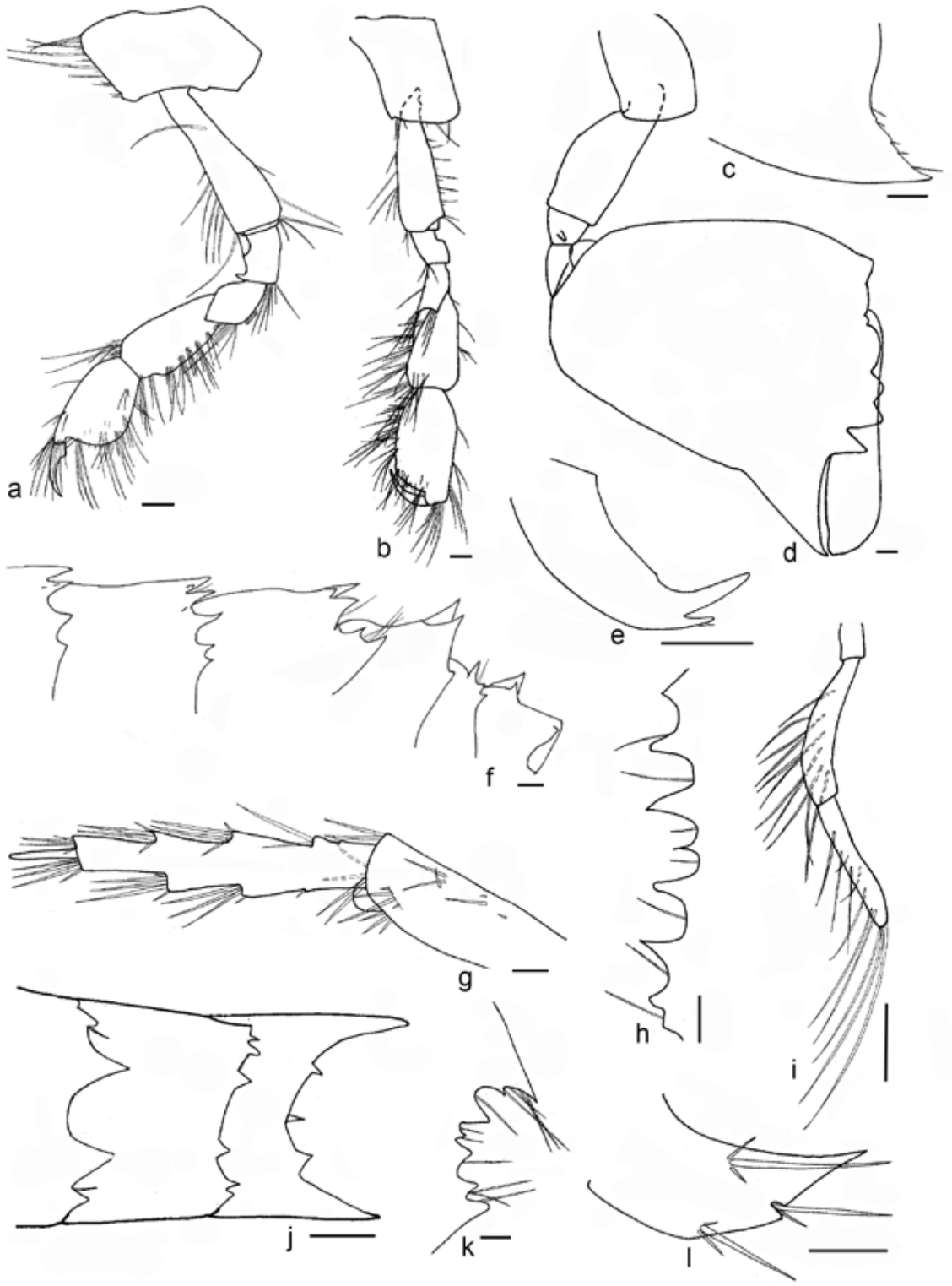

Fig. ZP-42. *Dulichiella fresnelii,* Al-Khiran. Male: a – gnathopod 1; b – gnathopod 2 left; c – epimer 3; d – gnathopod 2 right; e – pereopod 7, dactylus; f – pleon, urosome; g – uropod 3; h – pleon 2, dorsal serration; i – mandible palp; j – urosome, dorsal view; k – pleon 3, dorsal serration; l – lobe of telson. Scale lines – 0.1 mm.

Family Melitidae
Genus *Melita*

Melita persia Momtazi & Sari, 2014
Plates 131 – 134 and Fig. ZP-43.
Occurrence: Salwa area, Al-Nuwaiseeb area, Julia'a beach area, Al-Messilah beach area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, Al-Aushairij (East Doha area), and Auha Island area.
Intertidal Zone.
Habitats: cobble, pebbles, sand, shells, and rocks.

Description (after Momtazi & Sari, 2014; modified). Adult male. Head. Eyes ovoid, anteroventral corner subquadrate. A1 peduncular article 1, with one posterodistal stout seta and a few fine setae, article 2 longest, article 3 shorther than article 1; flagellum 28-articulate, acc.fl. 3-articulate. A2 peduncular article 2 gland cone not reaching to the end of peduncular article 3; article 4 subequal to article 5, flagellum 8-articulate. Lbr with apical setules. Md molar columnar triturative, mandible palp article 2 is equal to article 3, article 3 with terminal setae and lateral setae on both sides, article 2 with 11 long setae on the inner margin, inner margin article 1 not produced distally. Mx1 inner plate with 9 apical plumose setae, outer plate with 9 setal-teeth; palp 2- articulate, distal article with lateral long setae and apical short setae. Mx2 inner plate with several apical long setae, two medial setae and fine setae on the lateral margin; outer plate with several apical long setae and fine setae on the lateral margin. Mxp, palp 4-articulate, article 2 longest. Gn1 coxa not anteroventrally produced, ventral margin with short and long setae; basis with a group of setae on the anterodistal margin and some long setae on the posteromedial margin; propodus with transverse palm with 1 robust facial seta; anterior margin forming a hood above dactylus; dactylus with medial protrusion on the posterior margin. Gn2 equal in size on both sides, coxa subrectangular with setae on the distal margin; basis with a few groups of long setae on the anterior margin and long setae on the posteromedial margin; merus slightly produced ventrodistally; carpus triangle, shorter than propodus; propodus subovoid, medial surface covered with fine setae, palmar margin weakly convex with posterodistal shelf, stout setae and slender setae on palm; dactylus broad throughout its length and slightly tapered at tip and closing across on the inner face of propodus. P3, coxa subrectangular, with short setae on the ventral margin; propodus and carpus subequal; dactylus short. P4 similar to pereopod 3 except coxa deeply excavate posteriorly. P5, coxa with round anterior lobe, posterior margin weakly serrated with short setae. P6, coxa with small anterior lobe; basis subovate, anterior margin with stout setae, posterior margin serrated with fine setae. P7 basis, anterior margin with numerous robust setae, posterior margin convex and weakly serrated. Ep1, posterior margin smooth. Ep2, posterior corner with small acute tooth, distal margins with two stout setae. Ep3, posterior margin weakly serrated with three stout setae on the distal margin. Us1 dorsally smooth. Us2 with 3 small stout setae on each side and 1 cusp. Us3, dorsally smooth. U1, peduncle with a basofacial stout seta, some stout setae on the peduncle; rami subequal to each other, shorter than peduncle. U2, rami subequal to each other, equal to peduncle. U3, outer ramus long, up to 3 × length of peduncle; inner ramus reduced, with two apical robust setae. T deeply cleft, halves with pointed apex; inner margin of each lobe with two distal stout setae and three short lateral stout setae; outer margin with two distal stout setae and two proximal stout setae.
Female with eggs. Gn1 as same as male except without stout facial spine on the propodus palm. Gn2 small, with grouped setae on the anterior and posterior margin of propodus and 2 locking spines, dactylus not reaching to the end of palm. Cox6 with completely curved anterior lobe.

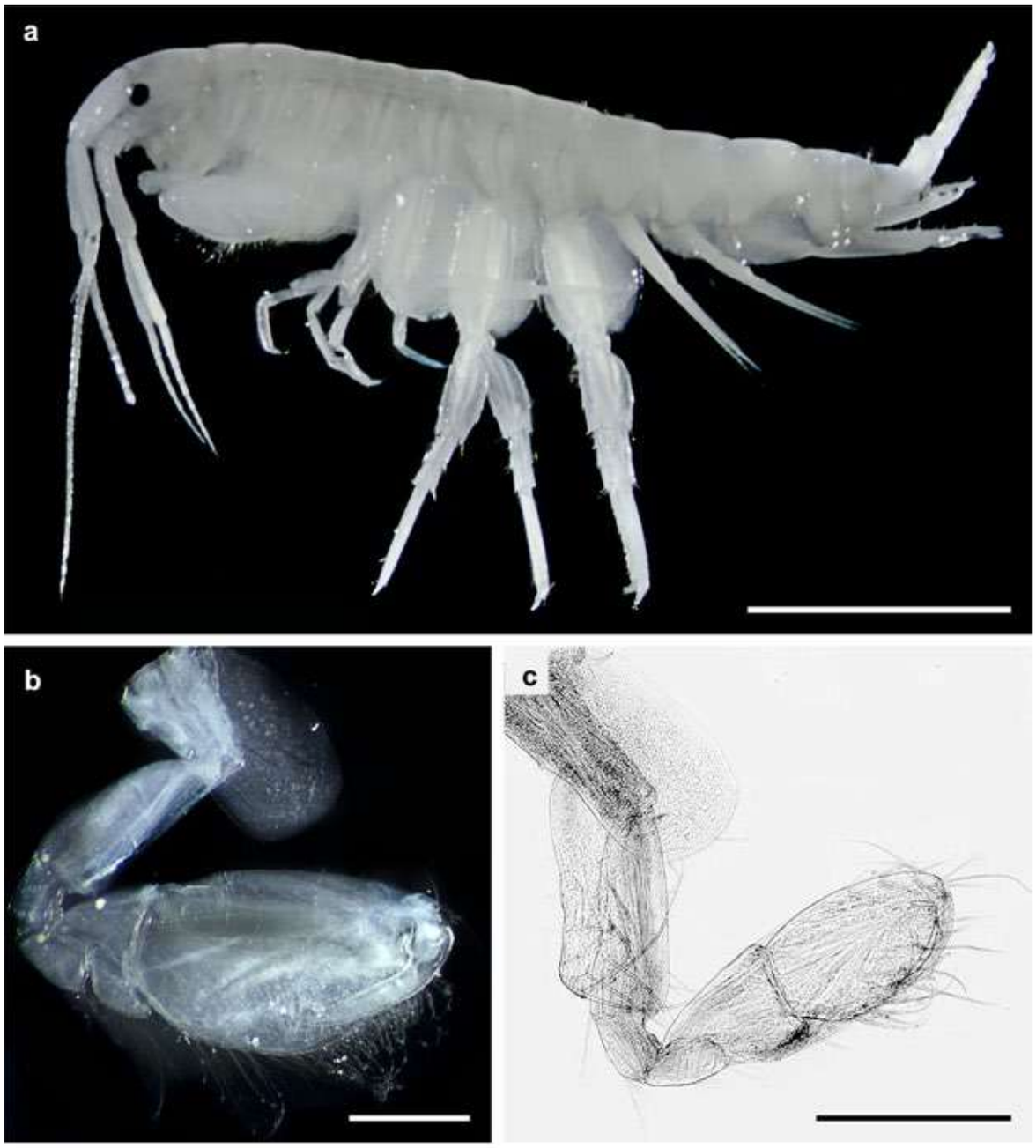

Plate 131. *Melita persia*, Salwa. Male: a – habitus; b – gnathopod 2. Female: c – gnathopod 2. Scale lines: a – 2 mm; b and c – 0.5 mm.

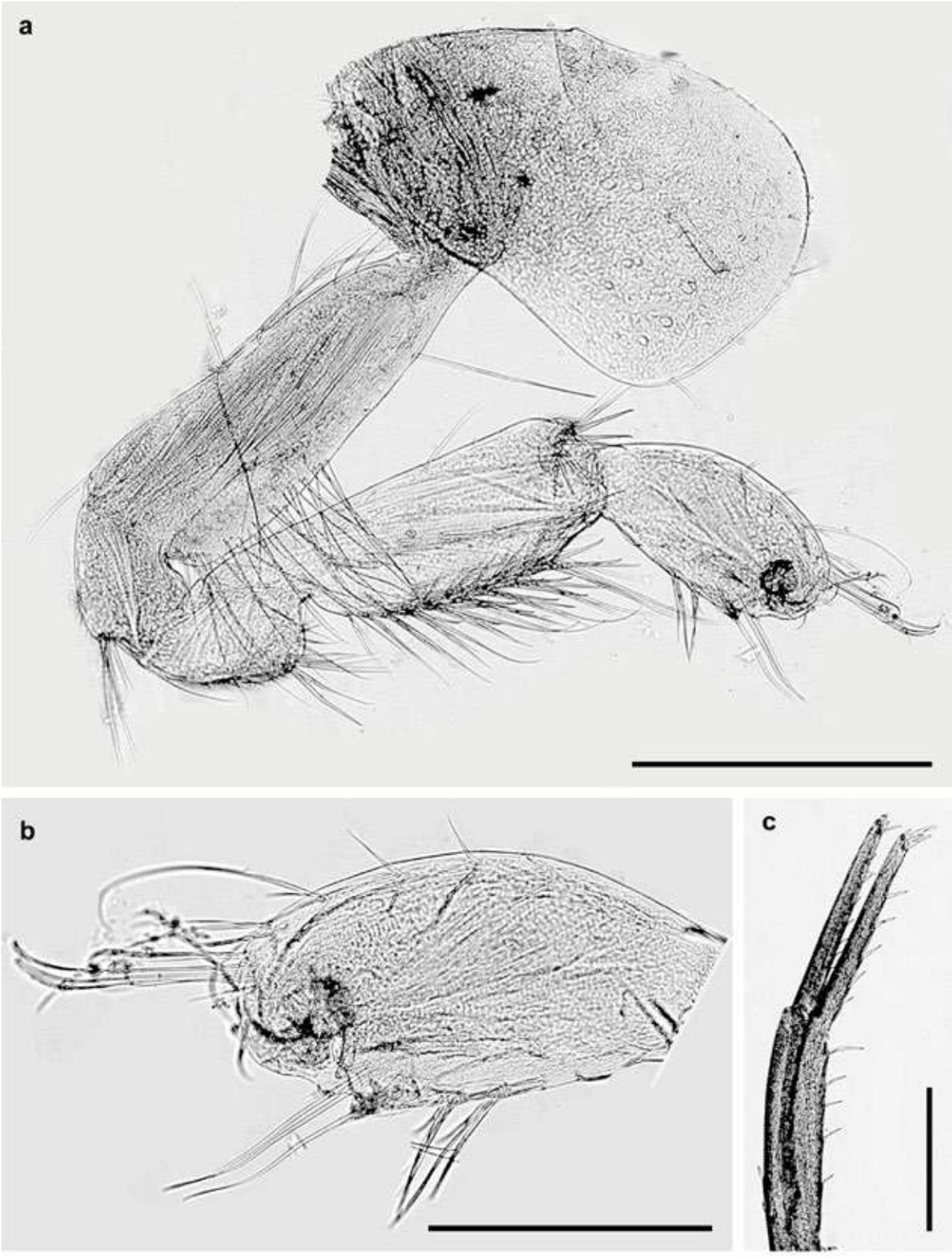

Plate 132. *Melita persia*, Salwa. Male: a – gnathopod 1; b – gnathopod 1, propodus; c – uropod 1. Scale lines: a, b, and c – 0.5 mm.

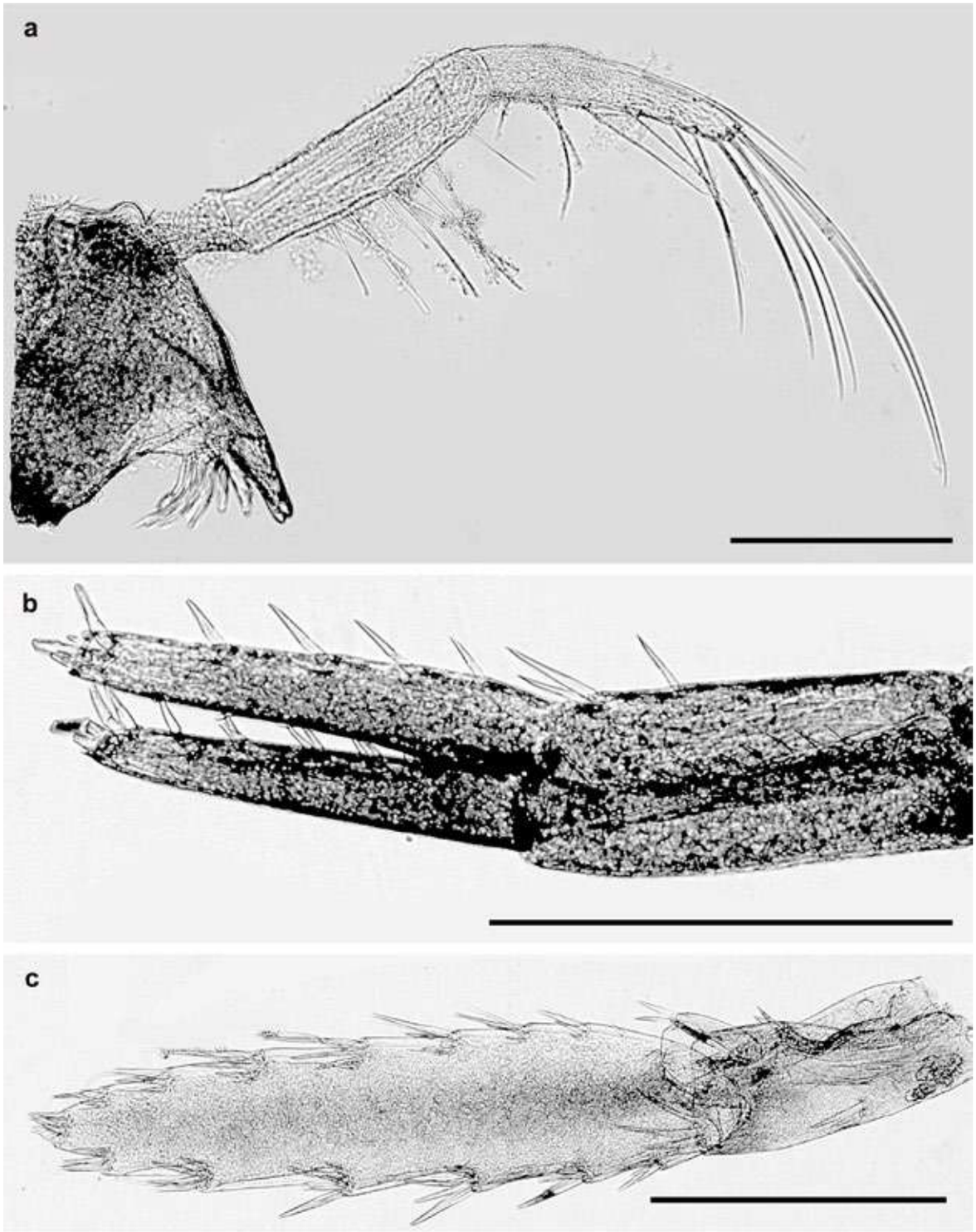

Plate 133. *Melita persia*, Salwa. Male: a – mandible; b – uropod 2; c – uropod 3. Scale lines: b and c – 0.5 mm; a – 0.2 mm.

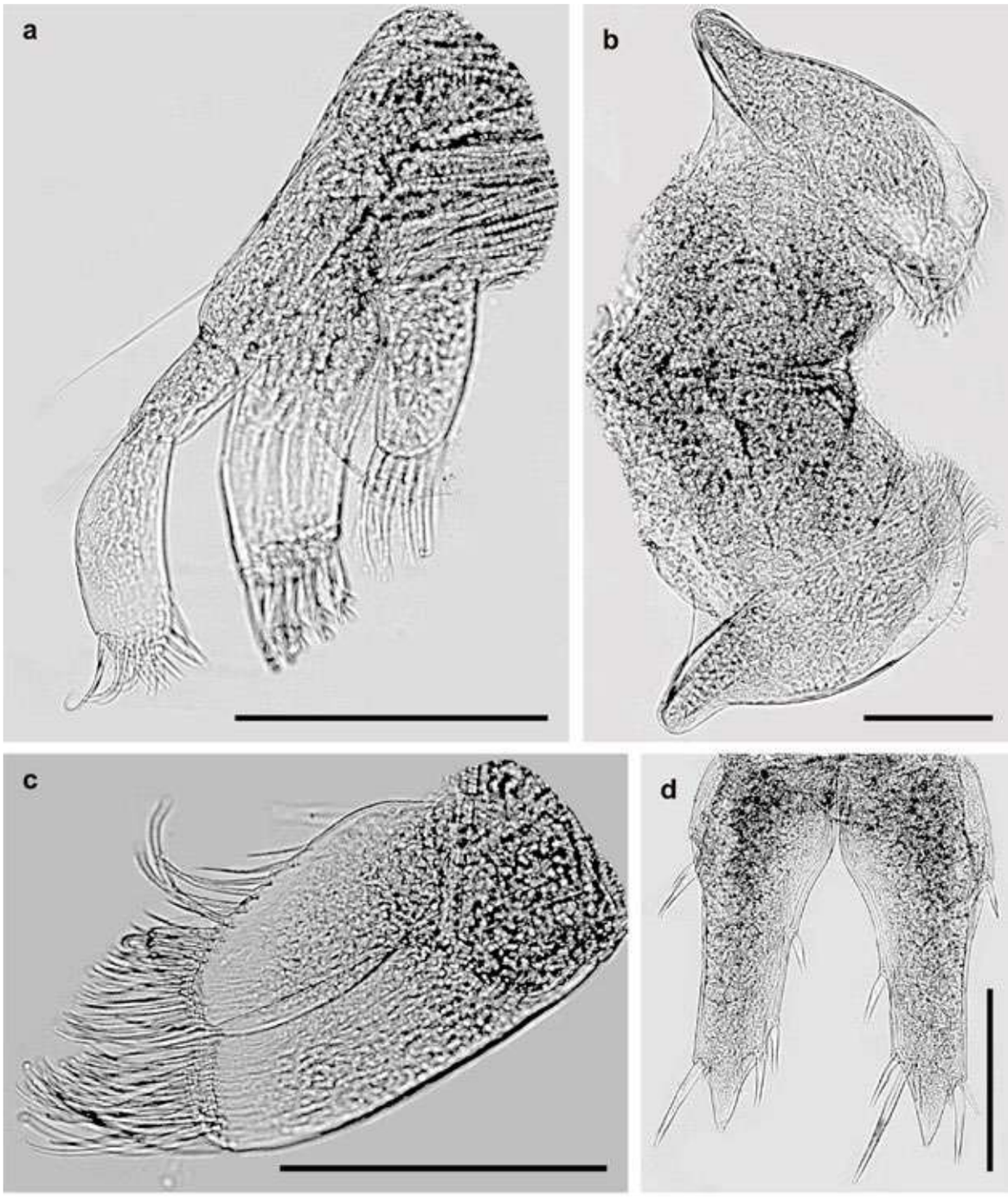

Plate 134. *Melita persia*, Salwa. Male: a – maxilla 1; b – labium; c – maxilla 2; d – telson. Scale lines: a, c, and d – 0.2 mm; b – 0.1 mm.

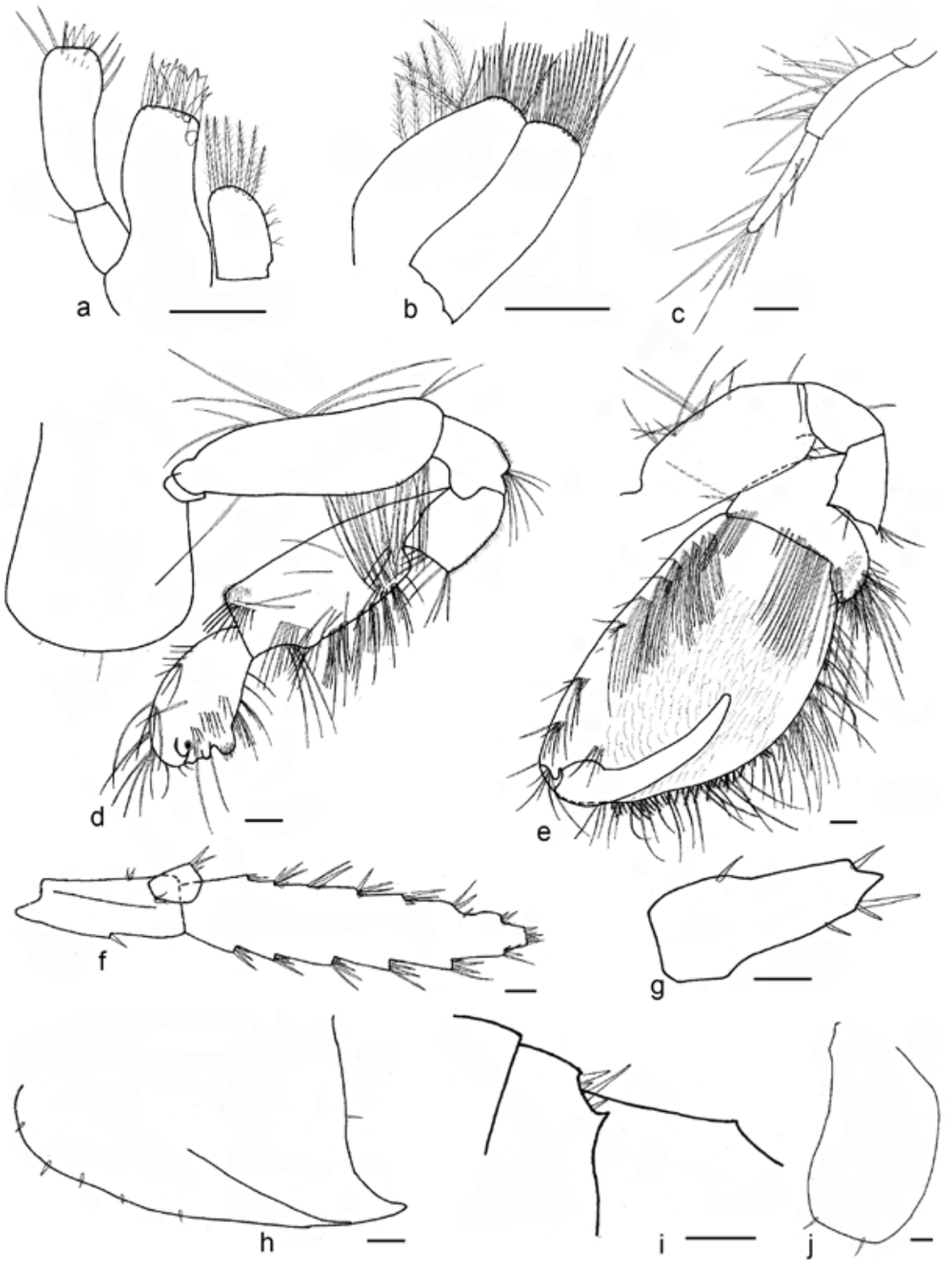

Fig. ZP-43. *Melita persia,* Salwa. Male: a – maxilla 1; b – maxilla 2; c – mandible palp; d – gnathopod 1; e – gnathopod 2; f – uropod 3; g – lobe of telson; h – epimer 3; i – urosome; j – cox4. Scale lines – 0.1 mm.

Family Melphidippidae
Genus *Melphisana*

Melphisana madagascarensis Ledoyer, 1984
Plates 135 and 136, and Fig. ZP-44.
Occurrence: Salmiya area, Al-Nuwaiseeb area, Al-Bida'a area, Auha Island area, Failaka Island, Al-Khiran, Ras Al-Zour, and Miskan Island.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, sponges, rocks, and *Sargassum* spp. (macroalgae).

Description. Male, 3.5 mm. Metasome and urosome dorsally toothed. Eyes on filling lobe. A1 primary flagellum much longer than peduncle; acc.fl. 1-articulate, vestigial. A2 damaged. Ratio Md palp articles about 4:9:3; article 3 linear. Inner lobes of L present. Coxae short, poorly setose; Cox4 unlobate. Gnathopods feeble. Gn1 basis slightly widened distally with small setae anterodistally and posterodistally; ischium-merus with setae posterodistally; carpus widened proximally with plumose setae posteriorly and a few setae anteriorly; propodus shorter than carpus with plumose setae posteriorly and medioanteriorly; dactylus long with setae on the inner side. Gn2 damaged. Ep3 with small tooth distoventrally. U1 – U3 damaged. T uncleft with 2 small projections distolaterally.
Female, 3.5 mm. Gn1 similar to Gn1 male. Gn2 basis slightly widened distally with small setae anterodistally and posterodistally; ischium-merus with a few setae posterodistally; carpus widened in the middle with plumose setae posteriorly and a few setae anteriorly; propodus slightly shorter, widened in the middle with plumose setae posteriorly and medioanteriorly; dactylus long with setae on the inner side. U1 peduncle slightly shorter than the inner ramus with spines dorsally; outer ramus shorter than the inner ramus with spines dorsally and apically; inner ramus with spines dorsally and apically; surface of peduncle and rami with tiny serration. U2 peduncle shorter than rami with 1 small spine middorsally and 2 spines distodorsally; outer ramus shorter than inner ramus with spines dorsally and apically; inner ramus with spines dorsally and apically; surface of peduncle and rami with tiny serration. U3 damaged. T uncleft with 2 small projections and spines distolaterally.

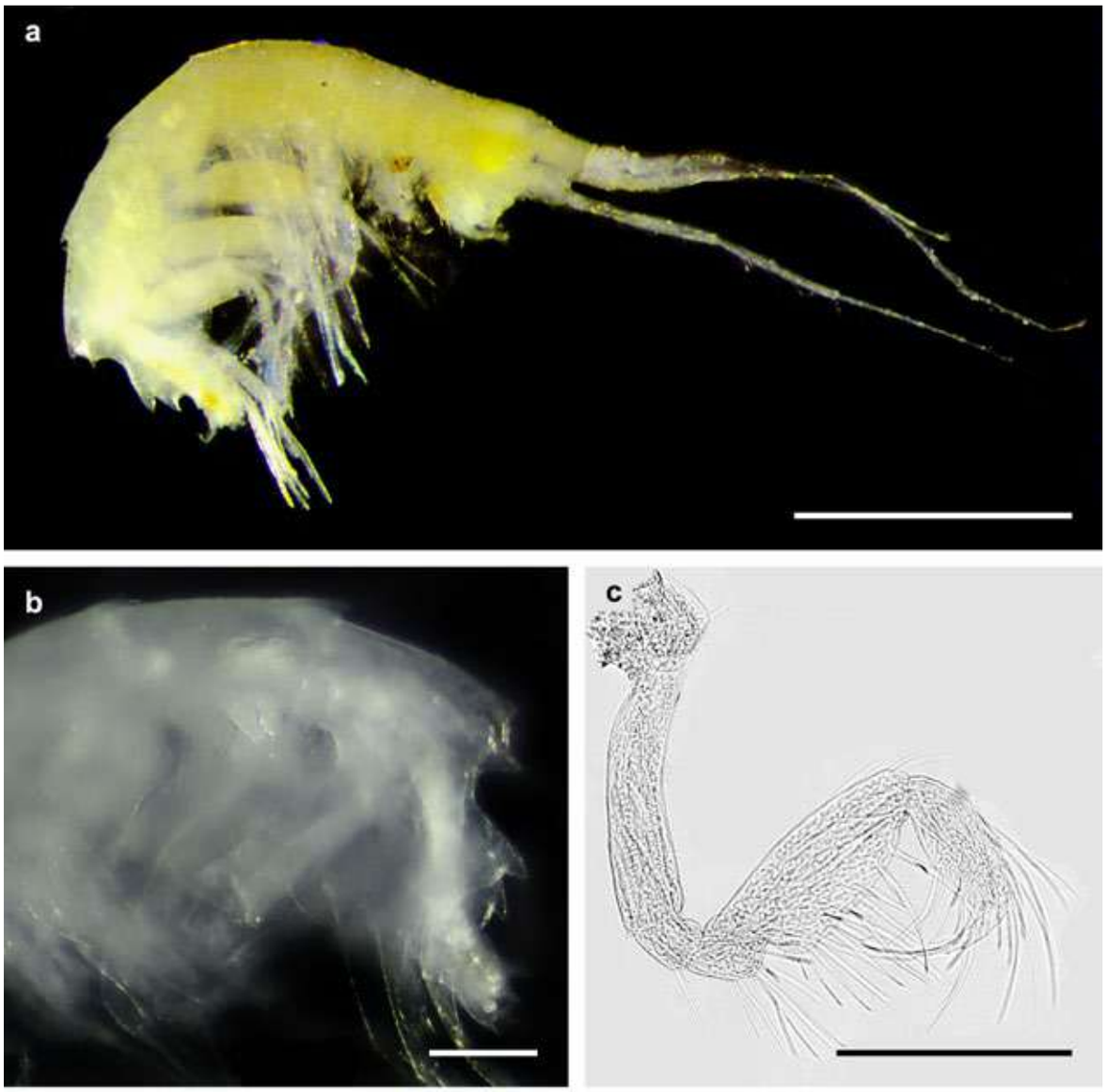

Plate 135. *Melphisana madagascarensis*, Al-Nuwaiseeb. Female: a – habitus; b – pleon, urosome; c – gnathopod 1. Scale lines: a – 1 mm; b and c – 0.2 mm.

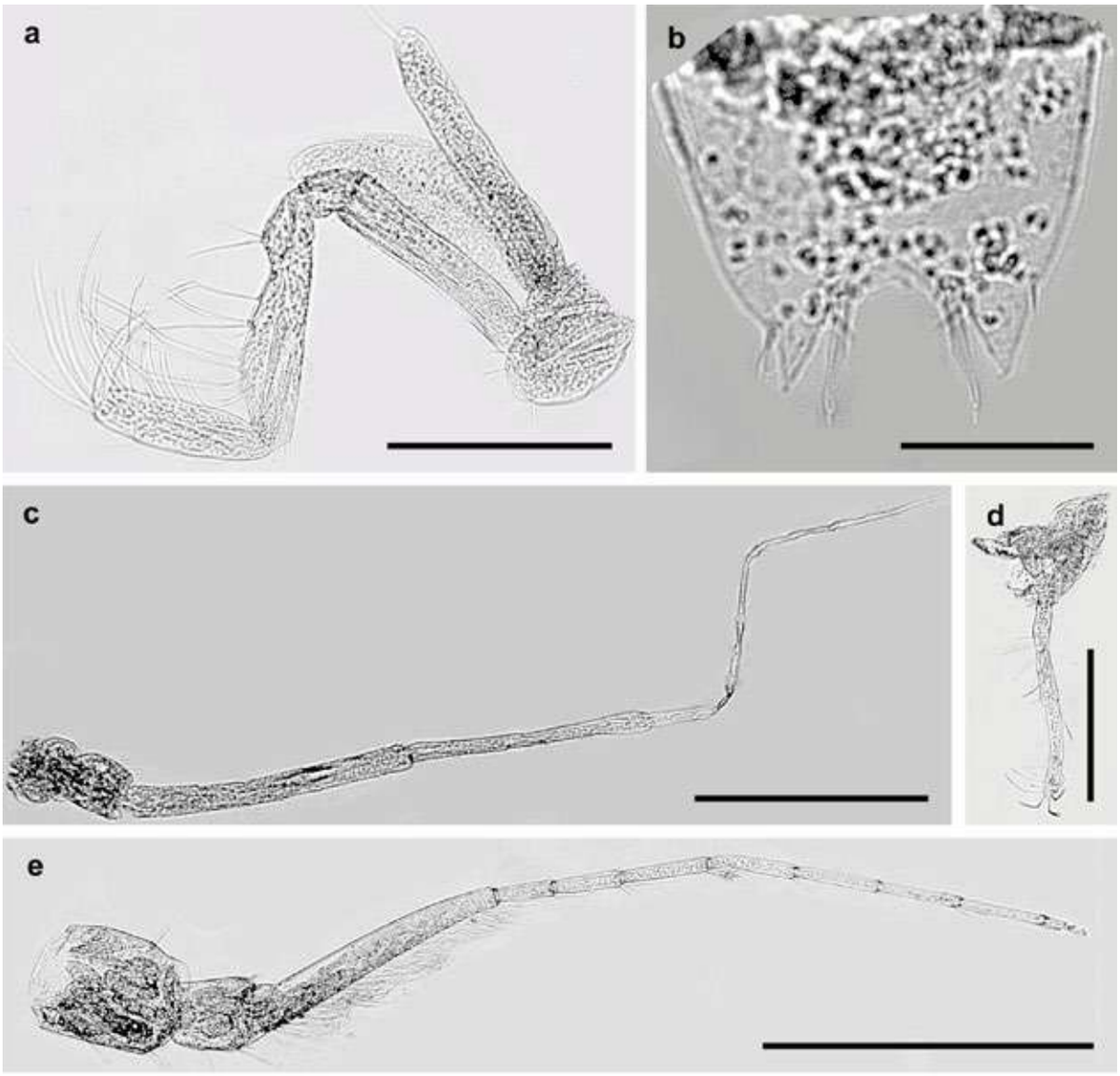

Plate 136. *Melphisana madagascarensis*, Al-Nuwaiseeb. Male: b – telson; c – antenna 2; d – mandible; e – antenna 1. Female: a – gnathopod 2. Scale lines: c and e – 0.5 mm; a and d – 0.2 mm; b – 0.05 mm.

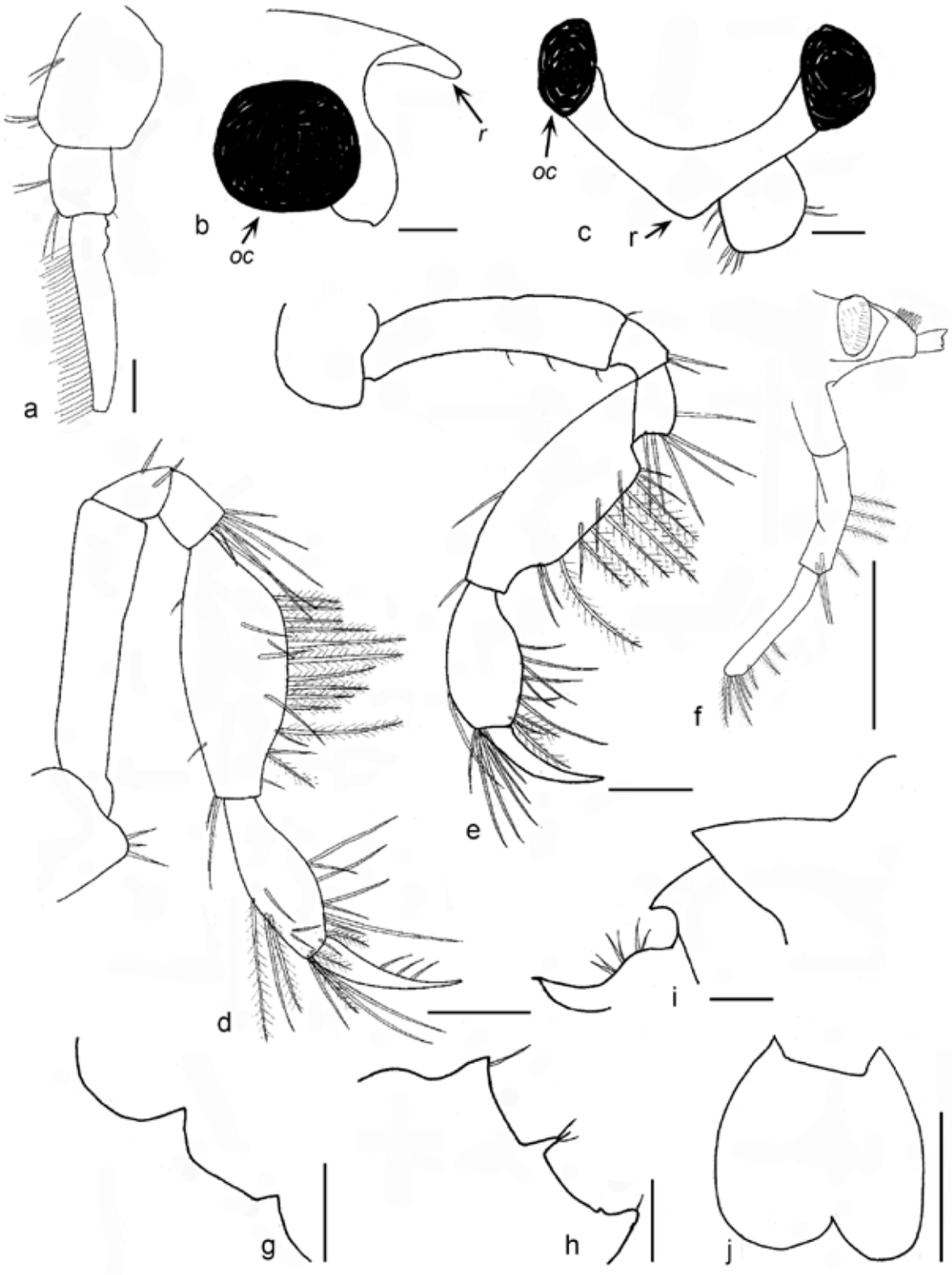

Fig. ZP-44. *Melphisana madagascarensis,* Salmiya. Female: a – antenna 2, peduncle; b – head, lateral view; c – head, dorsal view; d – gnathopod 1; e – gnathopod 2; f – palp of mandible; g – pleon 2, dorsal serration; h – pleon 3, dorsal serration; i – urosome; j – telson. Scale lines – 0.1 mm. Designations: oc – oculus; r – rostrum.

Family Neomegamphopidae
Genus *Neomegamphopus*

***Neomegamphopus* sp.**
Plates 137 and 138, and Fig. ZP-45.
Occurrence: Al-Nuwaiseeb area, Al-Bida'a area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand, muddy sand, shells, pebbles, cobble, rocks, and *Sargassum* spp. (macroalgae).

Description. Male, 3.0 mm. Head with ocular lobe strongly produced, eyes oval. A1 article 1 equal to article 3, article 2 longer than article 1; flagellum 9-articles, acc.fl. 2-articles. A2 longer than A1, peduncle article 3 shorter than article 4, article 4 equal to article 5 length; flagellum 8-articles. Epistome not produced. Md palp article 1 short, article 3 equal to article 2 and armed long setae. Outer plate Mx1 with 9 spines; inner plate with 3 setae. Mxp apex of dactylus with 3 setae subapically and 2 setae apically. Gn1 basis with minute setae distoanteriorly and distoposteriorly; ischium with setae distoposteriorly; merus with setae and small teeth distoposteriorly; carpus long with groups of setae posteriorly with strong tooth distoposteriorly and additional small tooth near the proximal part of distoposterior tooth; propodus width about half of the width of carpus, shorter than carpus with hump on the middle part of the inner edge; dactylus as long as propodus with setae proximally. Gn2 basis with tiny setae distally; ischium with tiny setae distally; merus with setae distally; carpus slightly longer than propodus with groups of setae posteriorly; propodus with group of setae anteriorly and posteriorly, palm not defined; dactylus shorter than propodus with serration and small spines on the inner edge. P3 – P4 similar. P5 – P7 merus-carpus with strong spines dorsoposteriorly. Ep1 – Ep3 each with small notches and setae on the posteroventral margin, posterior margin strongly convex. U1 peduncle longer than rami with dorsal and distal spines; interramal tooth on peduncle with length 1/2 of the length of inner ramus; outer ramus shorter than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U2 peduncle shorter than inner ramus without interramal tooth with spine distally; outer ramus shorter than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U3 peduncle shorter than inner ramus with spine dorsodistally; outer ramus shorter than inner with spines dorsally and apically with 2 long setae; inner ramus with spines dorsally and apically. T with each lateral apex with a small spine and setae.
Females were not found in our investigations.

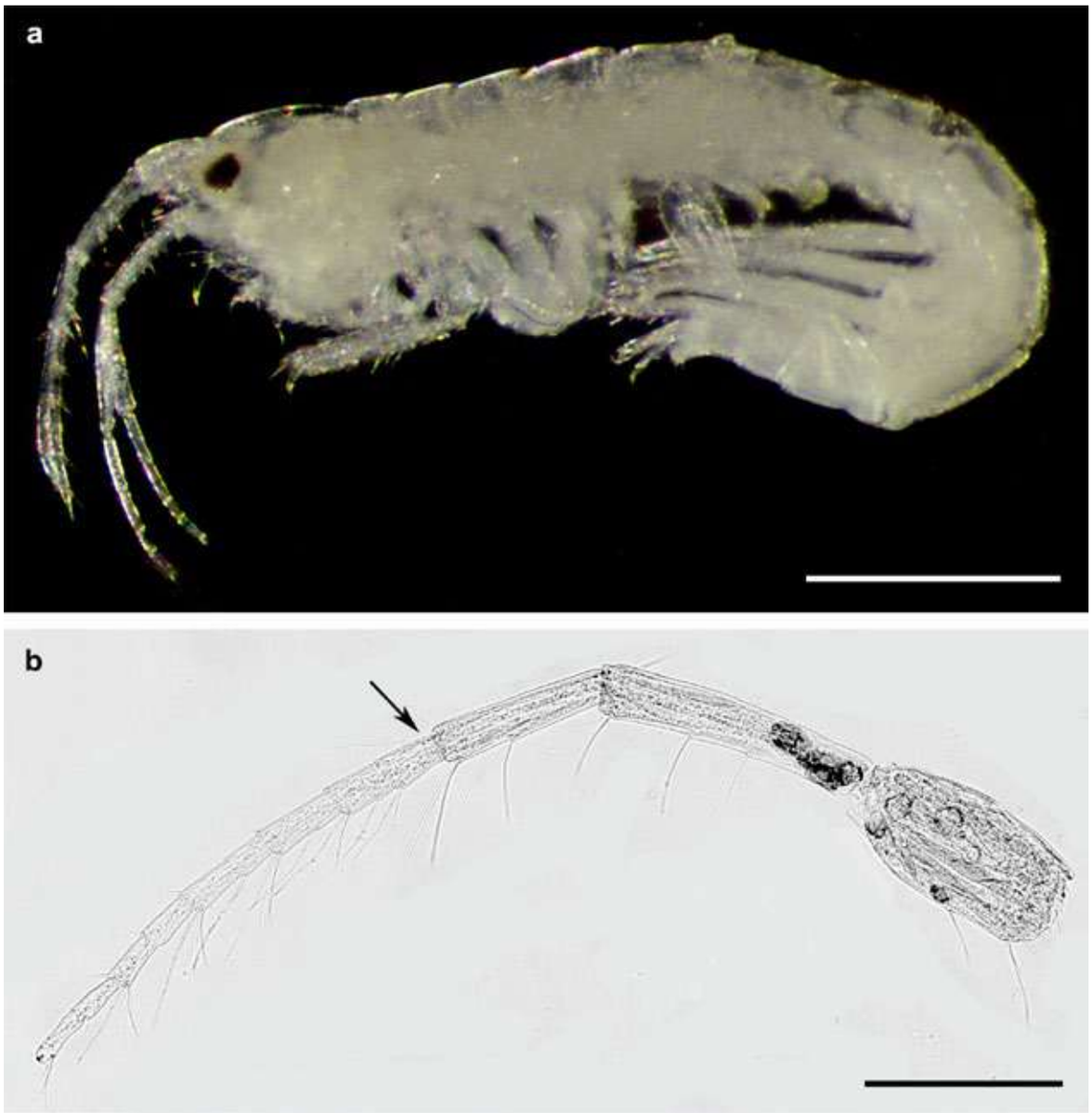

Plate 137. *Neomegamphopus* sp. Al-Bida'a. Male: a – habitus; b – antenna 1, accessory flagellum (arrow). Scale lines: a – 0.5 mm; b – 0.2 mm.

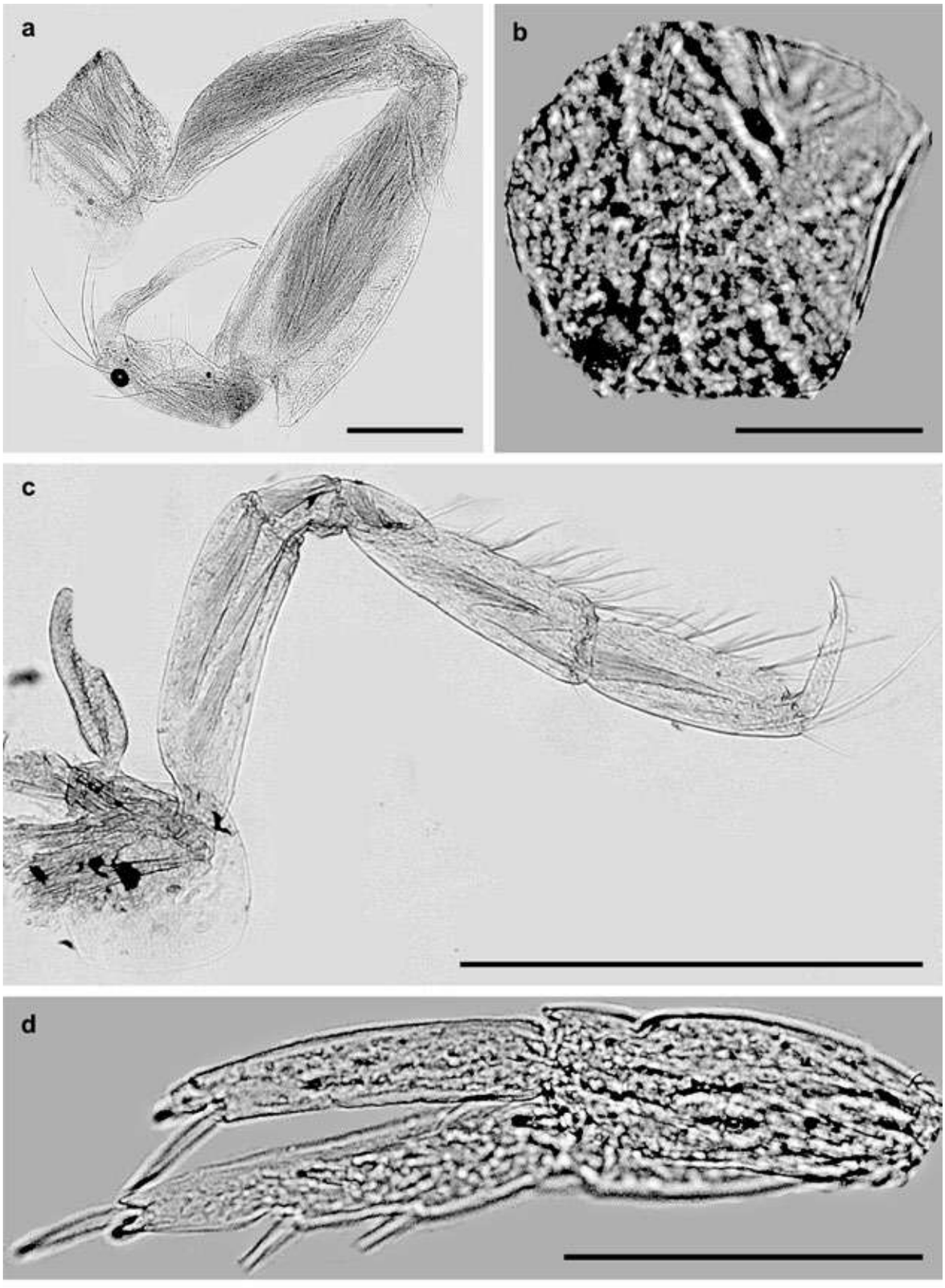

Plate 138. *Neomegamphopus* sp., Al-Bida'a. Male: a – gnathopod 1; b – telson; c – gnathopod 2; d – uropod 3. Scale lines: c – 0.5 mm; a – 0.2 mm; d – 0.1 mm; b – 0.05 mm.

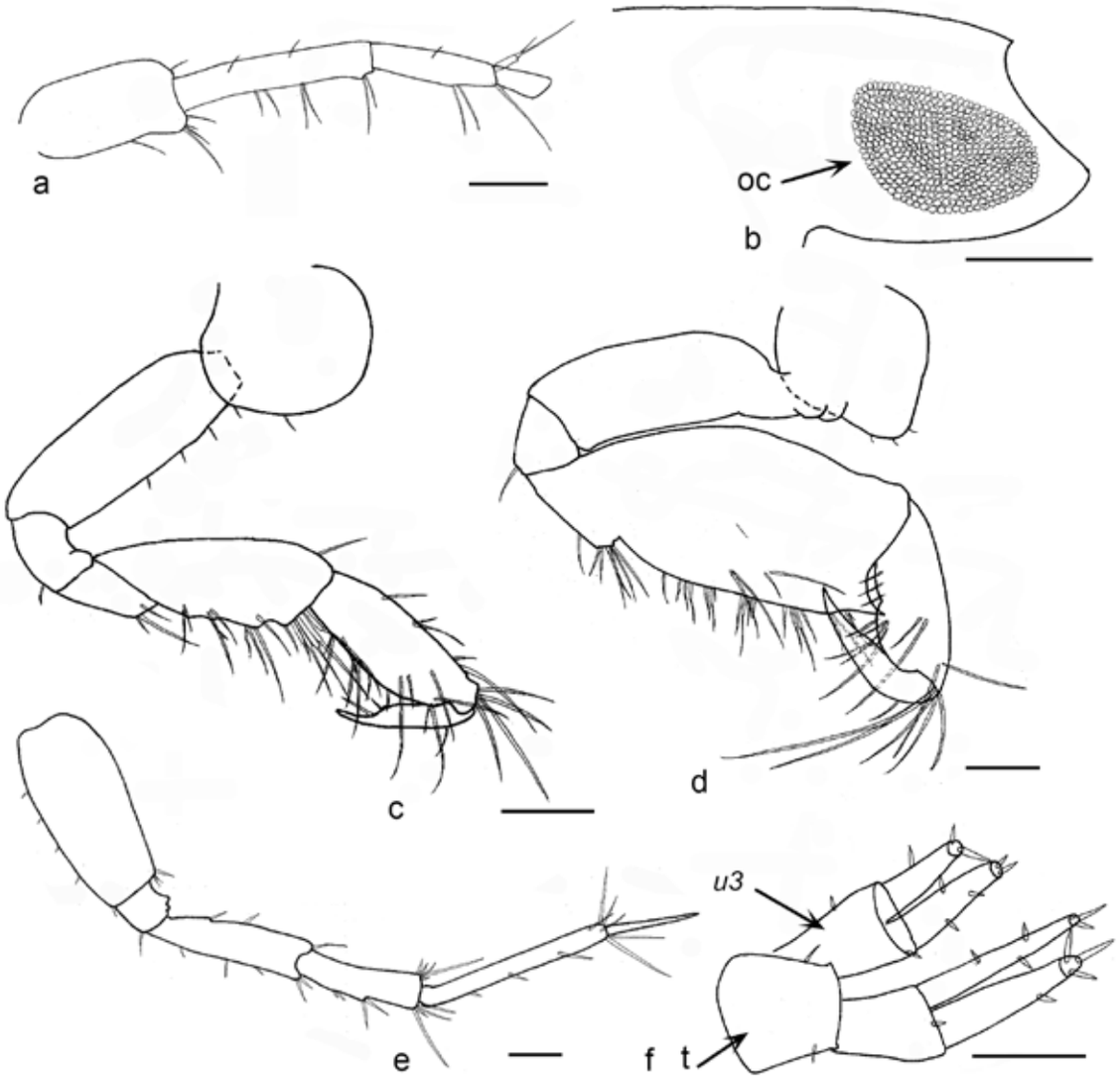

Fig. ZP-45. *Neomegamphopus* sp., Al-Bida'a. Male: a – antenna 1, peduncle; b – head, lateral view; c – gnathopod 1; d – gnathopod 2; e – pereopod 7; f – telson, uropod 3. Scale lines – 0.1 mm. Designations: oc – oculus; u3 – uropod 3; t – telson.

Family Oedicerotidae
Genus *Perioculodes*

***Perioculodes* sp. 1**

Plates 139 and 140, and Fig. ZP-46.

Occurrence: Funaitees area, Kuwait Bay area (subtidal), Al-Bida'a area, Al-Messilah beach area, Qaruh Island area, Umm Al-Maradim Island area, Al-Shumaimah (Khor Al-Sabiyah area), Failaka Island area, Al-Khiran area, Al-Nuwaiseeb area, and Ras Al-Zour area.

Intertidal and Subtidal Zones.

Habitats: sand, shells, rocks, dead corals, pebbles, muddy sand, oyster shells' aggregations, sponges, macroalgae, and ropes (as artificial habitat).

Description. Female, 2.15 mm. Head, rostrum not extending the apex article 1 of A1. Eyes absent. A1 article 1 slightly longer than article 2-3; flagellum 9-articles. A2 article 3 shorter than articles 4-5; flagellum 29-articles. Md, molar represented by spinose hump; palp 3-articles, article 3 slightly shorter than article 2, article 3 with setae apically and posteriorly. Mx1 with biarticulate palp terminally bearing setae, article 2 palp widened distally, inner plate with seta apically, outer plate with 7 strong apical spines. Inner plate of Mxp with 2 setae, outer plate near the distal end of article 2 of Mxp palp. Gn1. Cox1 widened anteroventrally with setae anteroventrally; basis slightly widened distally with setae anteriorly and posteriorly; ischium with seta posterodistally; merus with seta posterodistally and seta anterodistally; carpal lobe not extending far beyond the hind margin; propodus with palm defined by spine and small curved spines along; dactylus covered palm. Gn2. Cox2 slightly widened ventrally with setae ventrally; basis-dactylus similar to basis-dactylus Gn1. P3 and P4 strongly setose, similar; dactylus as long as propodus. U1 peduncle longer than rami with small spines dorsally; outer ramus shorter than inner with spines dorsally; inner ramus without spines. U2 peduncle as long as inner ramus with spines dorsally; inner ramus longer than outer without spines; outer ramus with spines dorsally. U3 peduncle shorter than rami, rami equal in length with spines dorsally. T minute concave distally with setae distally.
Males were not found in our investigations.

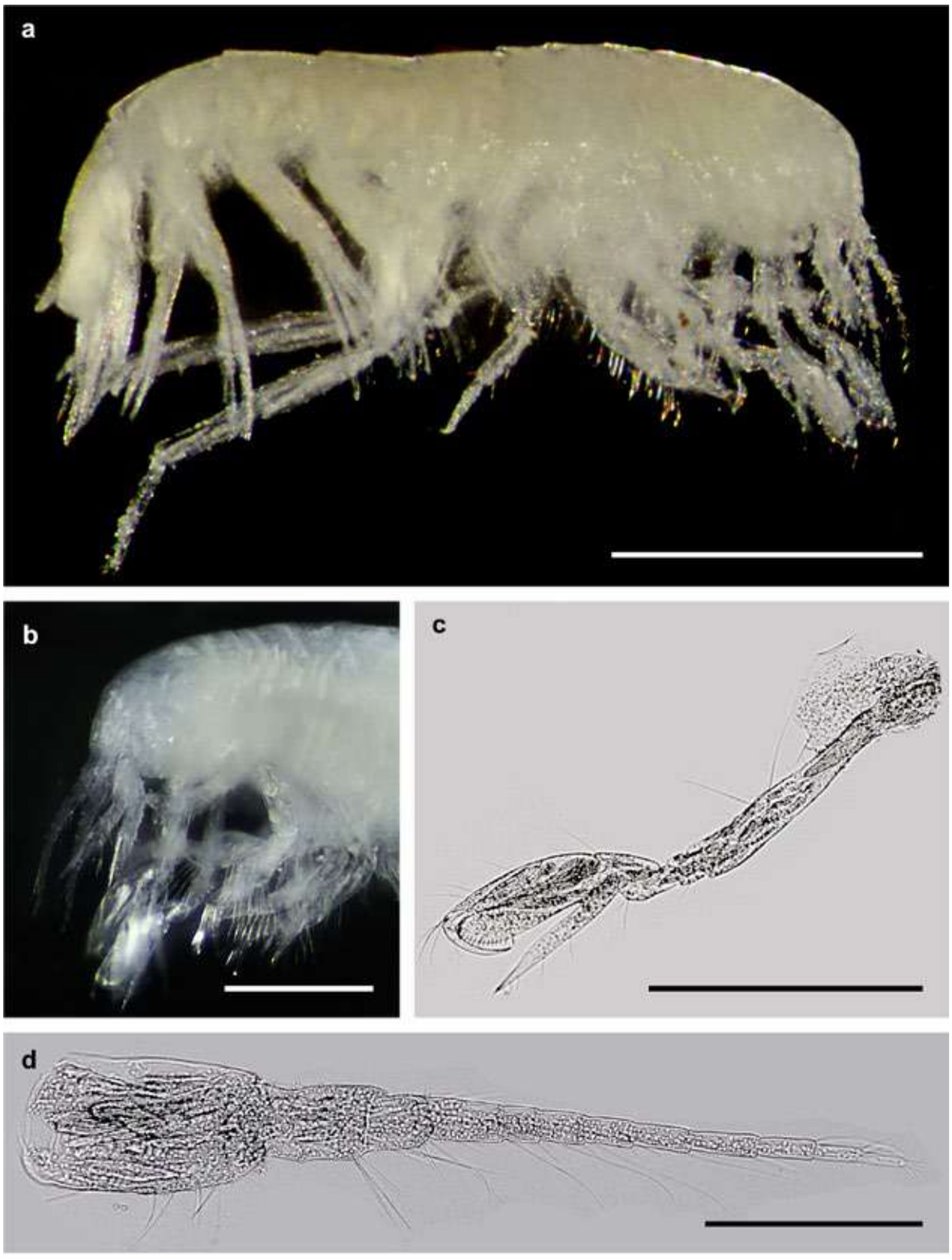

Plate 139. *Perioculodes* sp. 1, Kuwait Bay. Female: a – habitus; b – head; c – gnathopod 1; d – antenna 1. Scale lines: a – 1 mm; b and c – 0.5 mm; d – 0.2 mm.

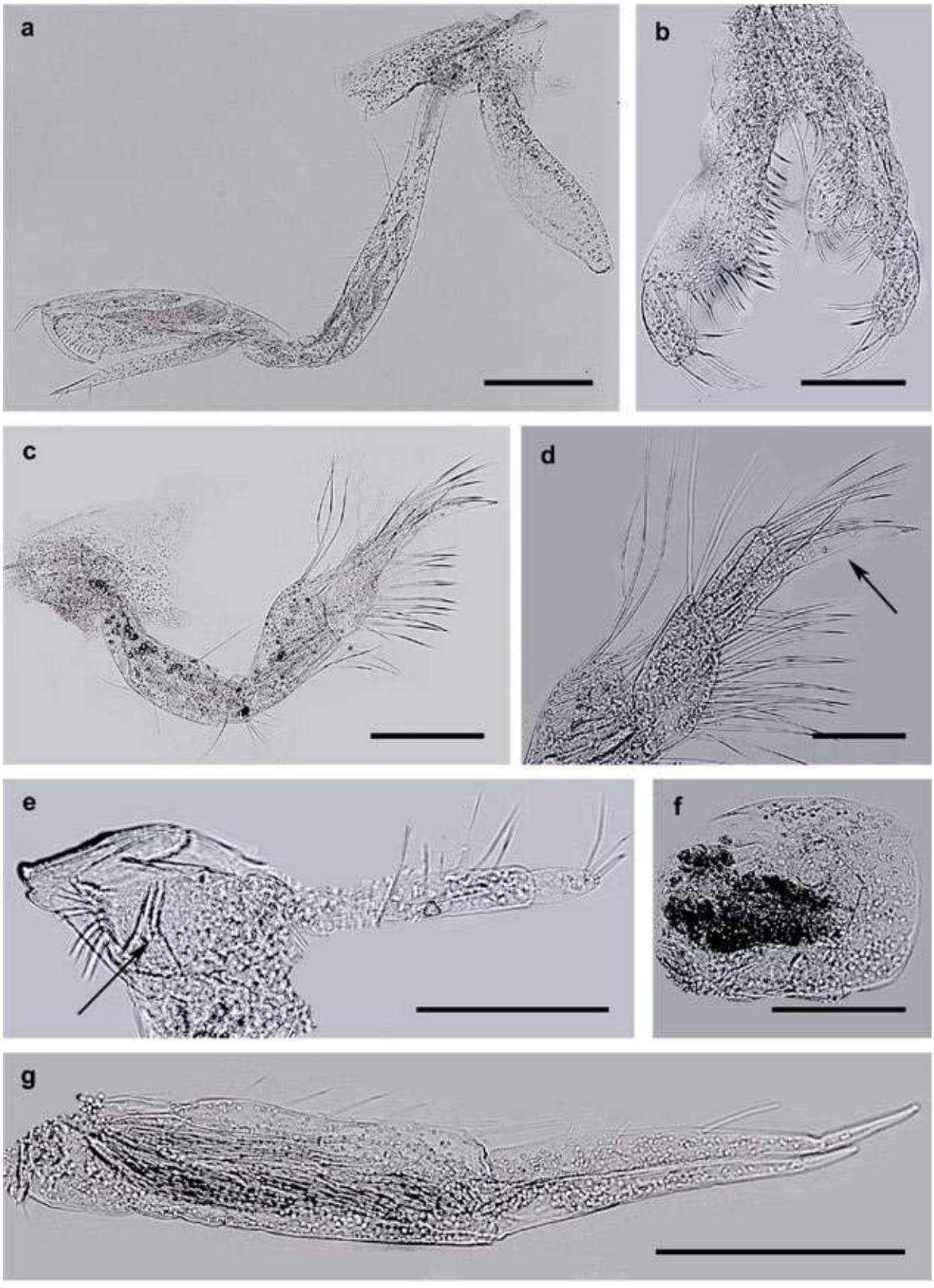

Plate 140. *Perioculodes* sp. 1, Kuwait Bay. Female: a – gnathopod 2; b – maxilliped; c – pereopod 3; d – pereopod 3, propodus, dactylus (arrow); e – mandible, molar (arrow); f – telson; g – uropod 1. Scale lines: a, c, and g – 0.2 mm; b, d, e, and f – 0.1 mm.

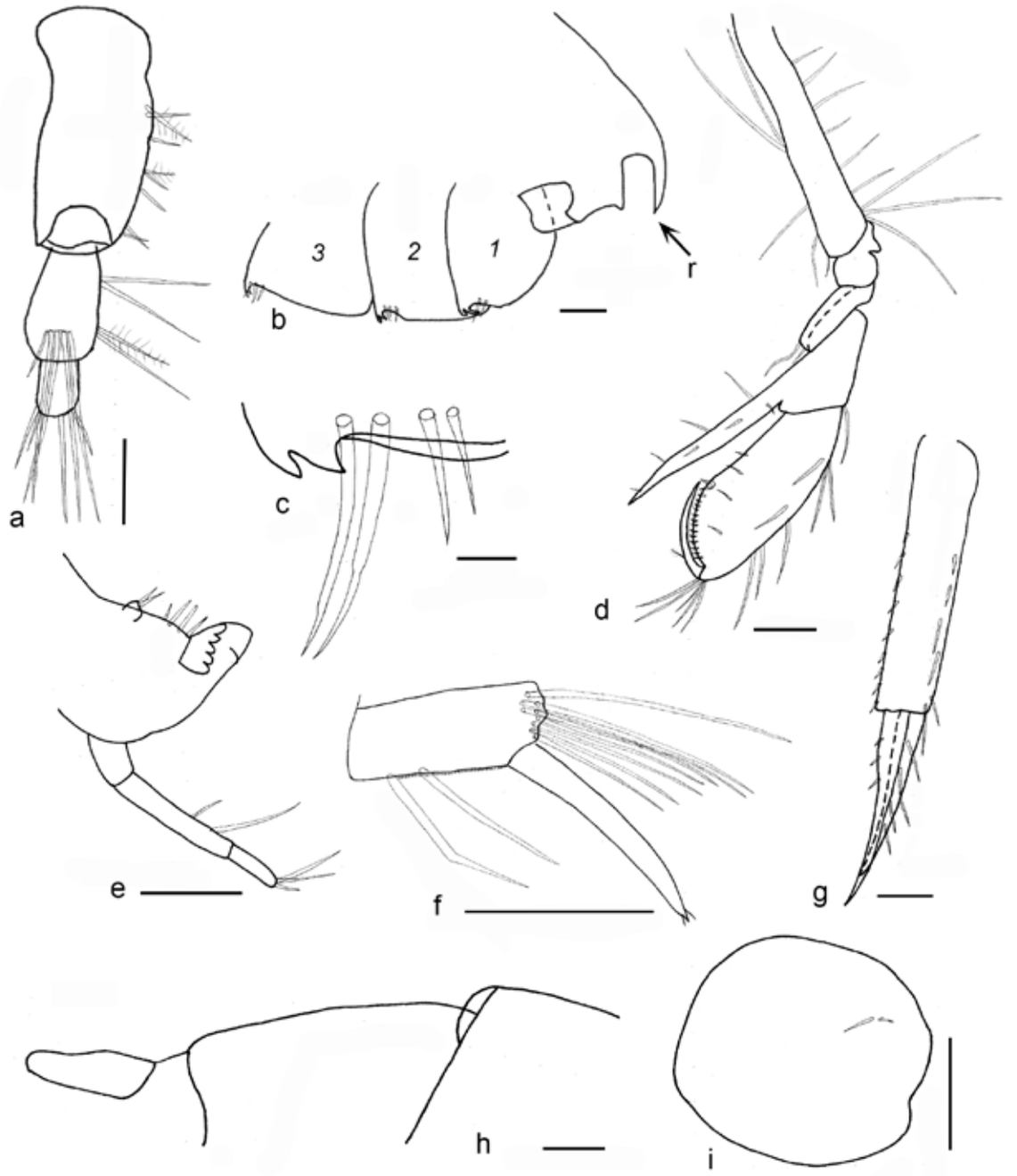

Fig. ZP-46. *Perioculodes* sp. 1, Kuwait Bay. Female: a – antenna 1, peduncle; b – head+coxae; c – coxa 3, ventral teeth; d – gnathopod 1; e – mandible; f – pereopod 3, propodus+dactylus; g – uropod 1; h – urosome+telson; i – telson. Scale lines: c – 0.01 mm; others – 0.1 mm. Designations: r – rostrum; 1, 2, and 3 – coxae 1, 2, and 3.

Family Oedicerotidae
Genus *Perioculodes*

Perioculodes* sp. 2 cf. *megapleon
Plates 141 – 143 and Fig. ZP-47.
Occurrence: Funaitees area, Qaruh Island area, Kuwait Bay area (subtidal), Al-Bida'a area, Umm Al-Maradim Island area, Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Al-Aushairij (East Doha area), Al-Messilah beach area, Miskan Island area, and Auha Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, rocks, sponges, and ropes (as artificial habitat).

Description. Female, 4.7 mm. Head, rostrum not extending apex article 1 of A1. Eyes present. A1 article 1-3 subequal in length, all with long setae; flagellum 8-articulate. A2 article 1 as long as article 5; article 4 slightly longer than article 1 and 5; all articles with long setae; flagellum 9-ariclets. Md incisor toothed, molar represented by spinose hump; palp 3-articles, article 2 the longest, article 3 with 4 setae apically. Lbr with two teeth on the inner side of each outer lobe. Mx1 with biarticulate palp terminally bearing setae, inner plate with 1 seta, outer plate with 7 strong apical spines. Inner plate of Mxp with 5 setae, outer plate near the distal end of article 2 of Mxp palp. Gn1. Cox1 widened ventrally and with setae ventrally; basis slightly widened distally with setae anteriorly and posteriorly; ischium with seta posterodistally; merus with setae posterodistally and seta anterodistally; carpal lobe extending far beyond the hind margin; propodus with palm defined by spine; dactylus covered palm. Gn2. Cox2 slightly widened ventrally with setae ventrally; basis-dactylus similar to basis-dactylus Gn1. Cox4 the greatest. P3 and P4 strongly setose, similar; dactylus small about 1/3 the length of propodus. U1 peduncle slightly longer than rami with spines dorsally; outer ramus shorter than inner with spines dorsally; inner ramus with spines dorsally. U2 peduncle as long as inner ramus with spines dorsally; inner ramus longer than outer with spines middorsally; outer ramus with spines dorsally. U3 damaged. T emarginate.
Male is similar to female but A2 is very long, about 3/4 the length of body.

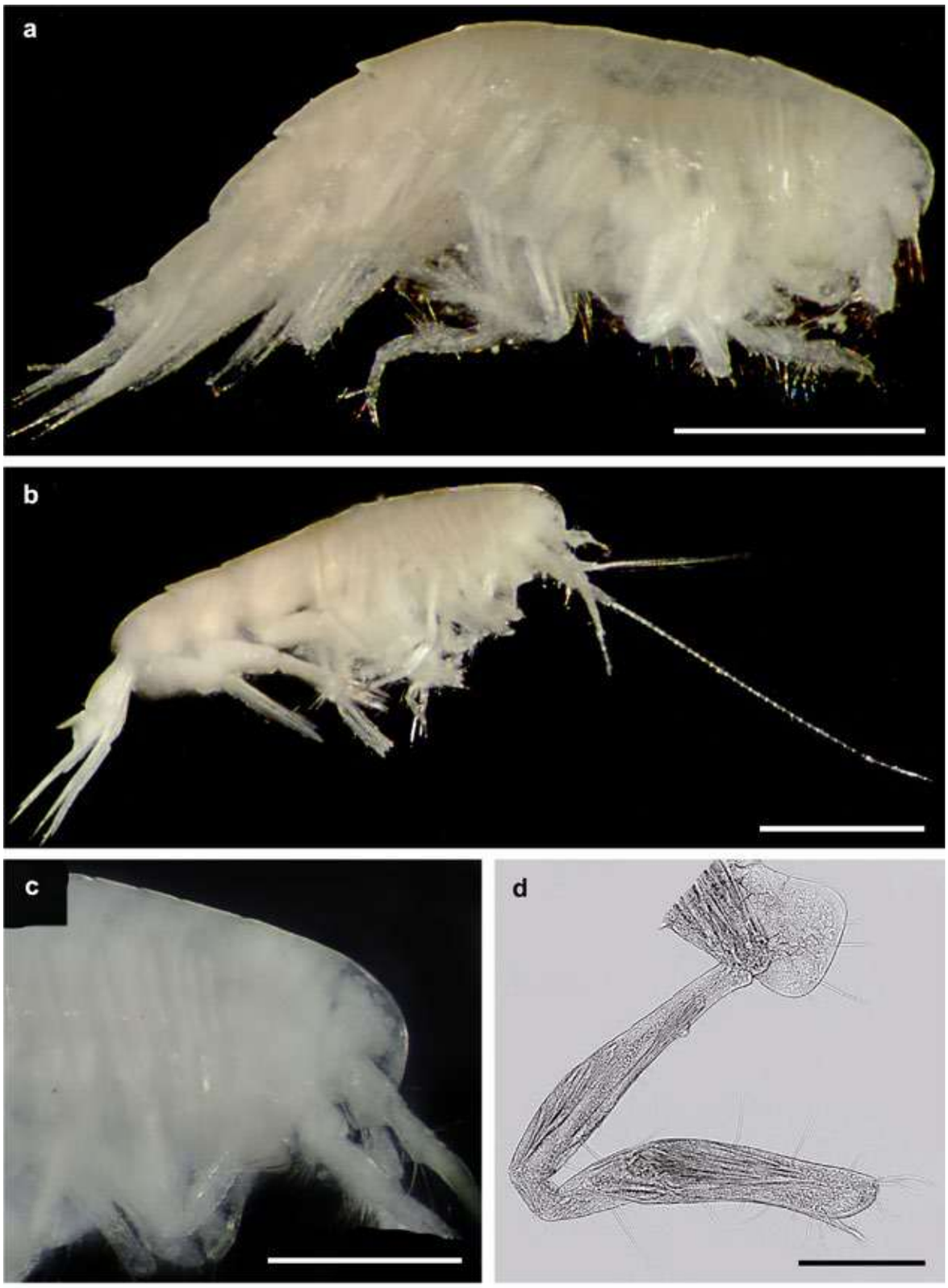

Plate 141. *Perioculodes* sp. 2 cf. *megapleon*, Al-Bida'a. Male: b – habitus; d – gnathopod 1. Female: a – habitus; c – head. Scale lines: a and b – 1 mm; c – 0.5 mm; d – 0.2 mm.

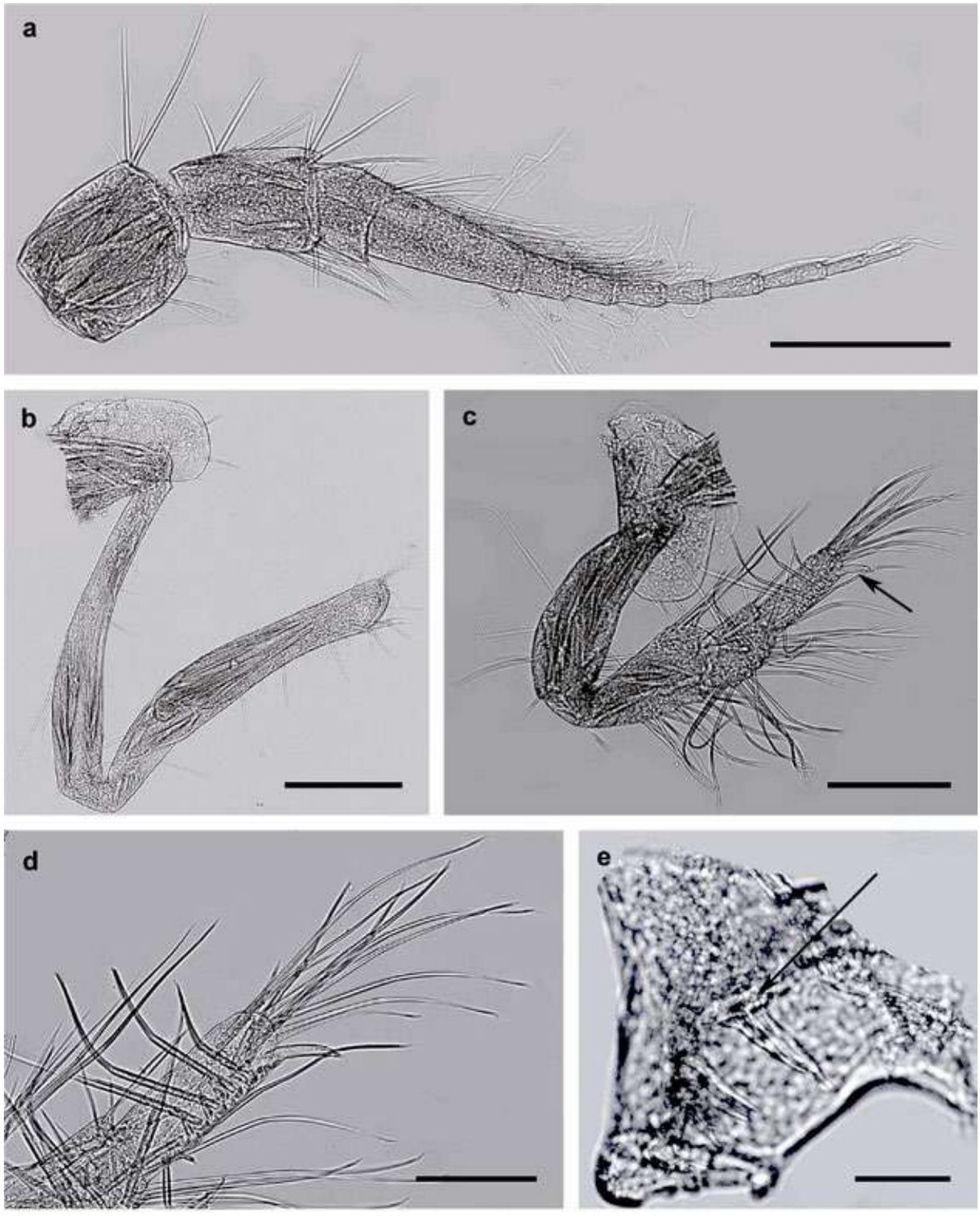

Plate 142. *Perioculodes* sp. 2 cf. *megapleon*, Al-Bida'a. Male: a – antenna 1; b – gnathopod 2; c – pereopod 3, dactylus (arrow); d – pereopod 3, propodus,dactylus; e – mandible, molar (arrow). Scale lines: a, b, and c – 0.2 mm; d – 0.1 mm; e – 0.05 mm.

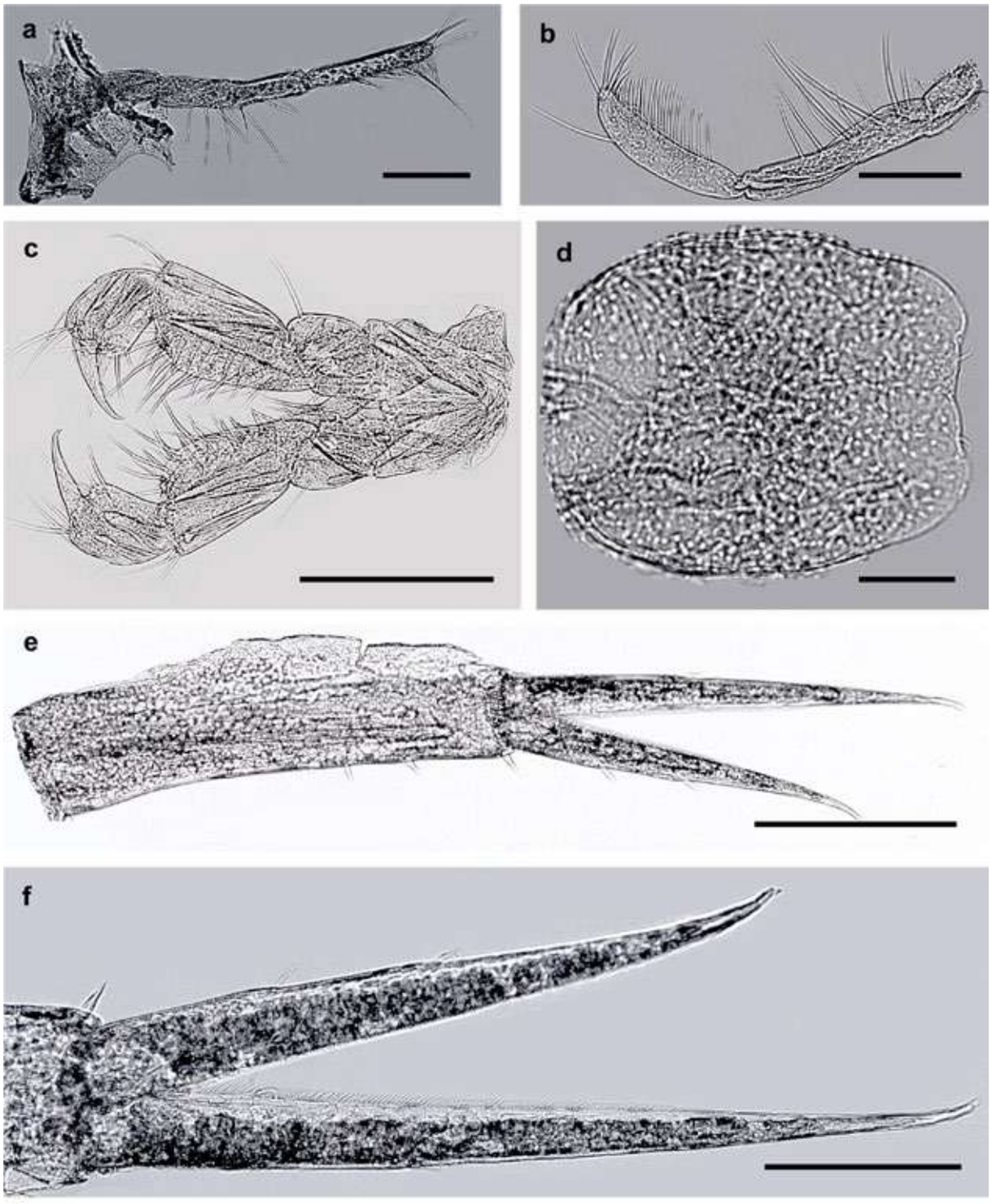

Plate 143. *Perioculodes* sp. 2 cf. *megapleon*, Al-Bida'a. Male: a – mandible; b – palp of mandible; c – maxilliped; d – telson; e – uropod 1; f – uropod 1, rami. Scale lines: c and e – 0.2 mm; a, b, and f – 0.1 mm; d – 0.05 mm.

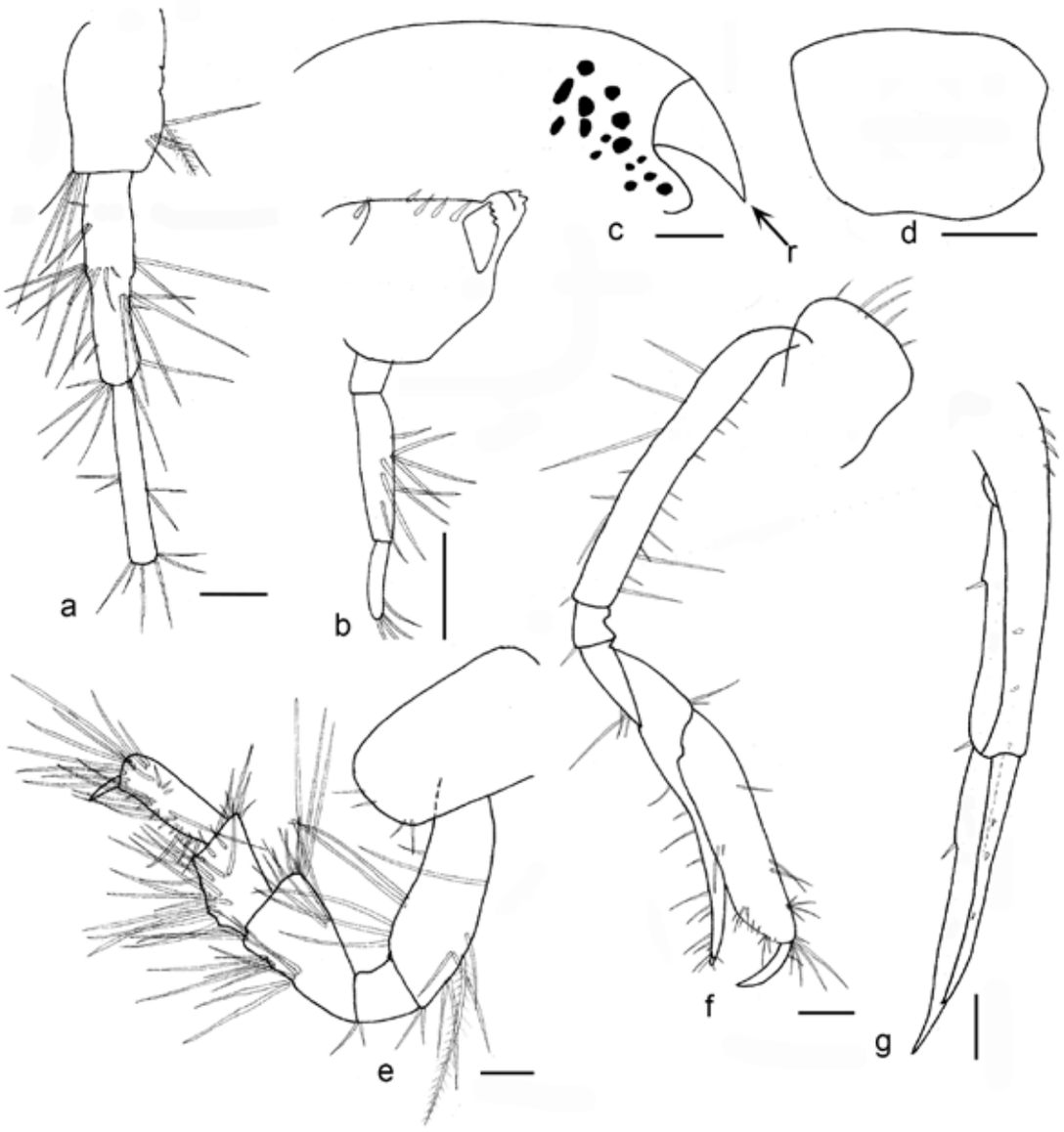

Fig. ZP-47. *Perioculodes* sp. 2 cf. *megapleon*, Kuwait Bay. Female: a – antenna 1, peduncle; b – mandible; c – head; d – telson; e – pereopod 3; f – gnathopod 2; g – uropod 1. Scale lines – 0.1 mm. Designations: r – rostrum.

Family Oedicerotidae
Genus *Perioculodes*

Perioculodes* sp. 3 cf. *serra
Plates 144 – 146 and Fig. ZP-48.
Occurrence: Kuwait Bay area and Al-Bida'a area.
Subtidal Zone.
Habitats: sand and shells.

Description. Male, 4.7 mm. Head, rostrum not extending the apex article 1 of A1. Eyes present. A1 article 1 longer than article 3 and as long as article 2; all articles with long setae; flagellum 11-articles. A2 articles 1-2 slightly shorter than article 3, all with long setae; all articles with long setae; flagellum very long 49-articles. Md, molar represented by spinose hump; palp 3-articles, **article 3 as long as article 2**, article 3 **with a row of setae**. L with two teeth on the inner side of each outer lobe. Mx1 with biarticulate palp terminally bearing setae, inner plate with tiny setae, outer plate with 7 strong apical spines. Inner plate of Mxp with 5 setae, outer plate near the distal end of article 2 of Mxp palp. Gn1. Cox1 widened ventrally and with setae ventrally; basis slightly widened distally with setae anteriorly and posteriorly; ischium with seta posterodistally; merus with setae posterodistally and seta anterodistally; carpal lobe extending far beyond the hind margin; propodus with palm defined by spine; dactylus covered palm. Gn2. Cox2 slightly widened ventrally with setae ventrally; basis-dactylus similar to basis-dactylus Gn1. Cox4, the greatest **concave midventrally**. P3 and P4 strongly setose, similar; dactylus about 1/2 of the length of propodus. U1 peduncle as long as inner ramus with spines dorsally; outer ramus shorter than inner with spines dorsally and **strongly serrate**; inner ramus strongly serrate. U2 peduncle as long as the inner ramus with spines dorsally; inner ramus longer than outer, strongly serrate; outer ramus with spines dorsally and serrate. U3 damaged. T not emarginate with setae distally.
Female, 3.5 mm. Similar to male but A2 much shorter, flagellum 19 articles.
Taxonomic characters for distinguishing *Perioculodes* sp. 3 cf. *P. serra* from *Perioculodes serra* Walker, 1904, are expressed in **bold** text.

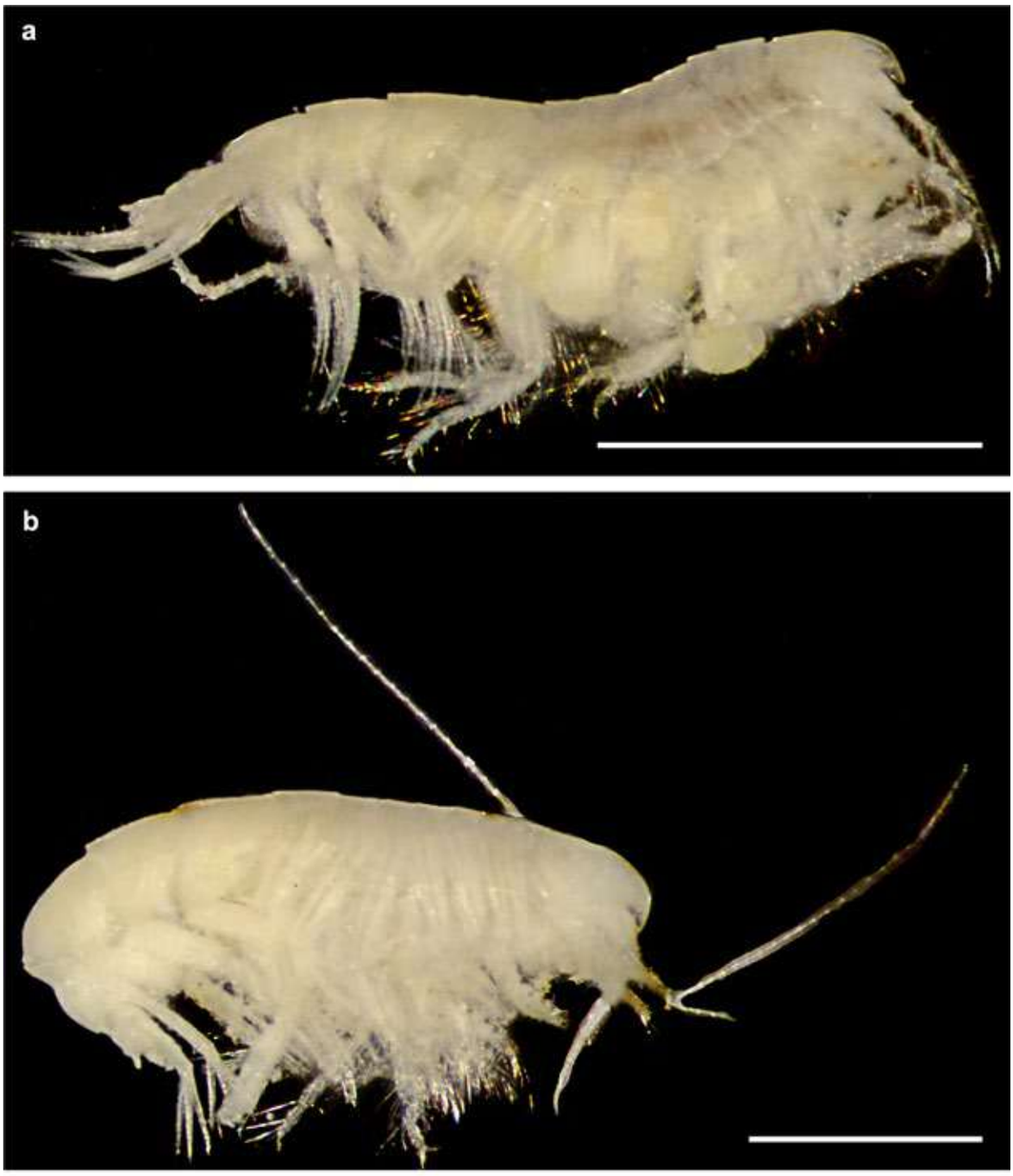

Plate 144. *Perioculodes* sp. 3 cf. *serra*, Al-Bida'a: a – male habitus; b – female habitus. Scale lines: a – 2 mm; b – 1 mm.

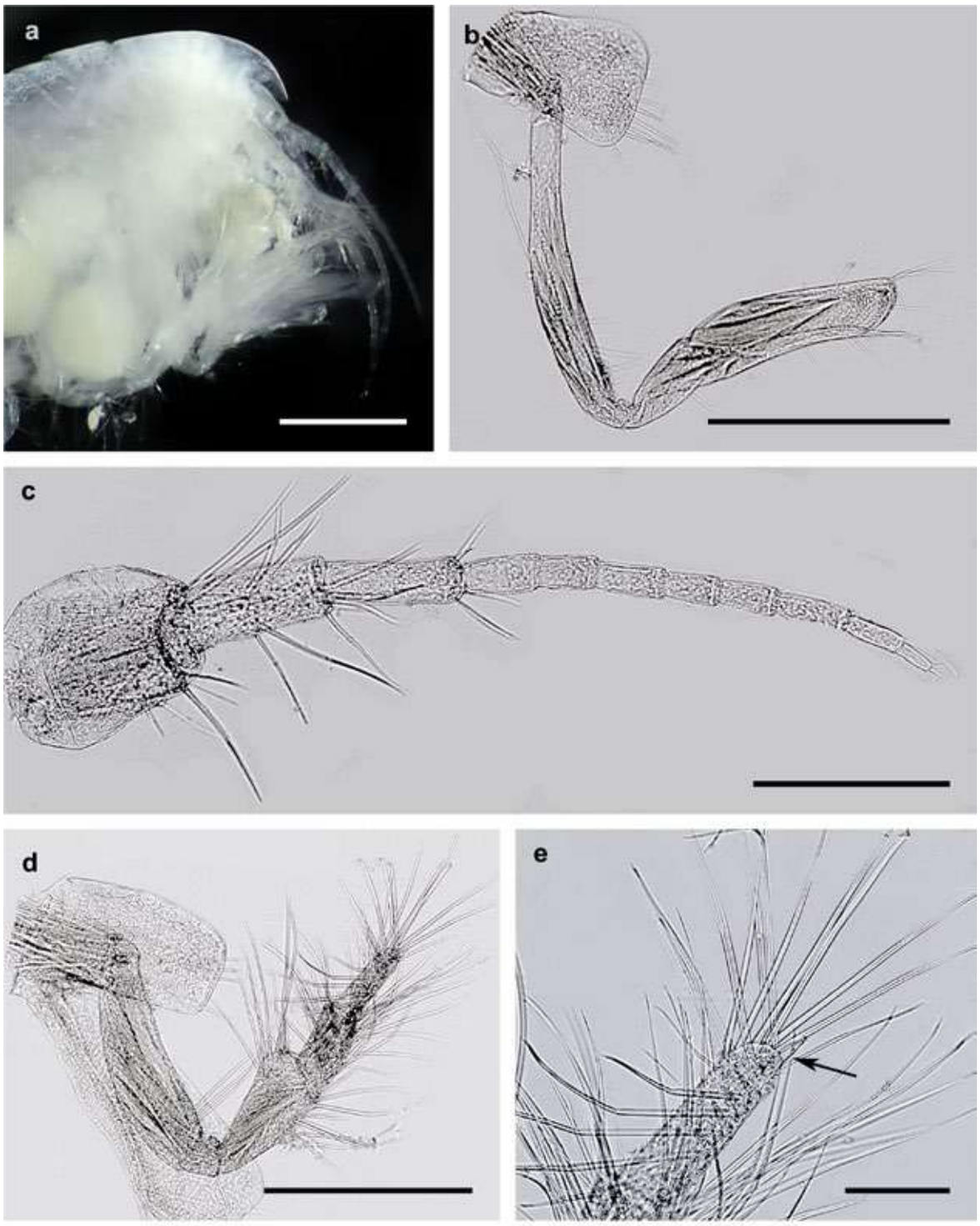

Plate 145. *Perioculodes* sp. 3 cf. *serra*, Al-Bida'a. Female: a – head; b – gnathopod 1; c – antenna 1; d – pereopod 3; e – pereopod 3, propodus, dactylus (arrow). Scale lines: a, b, and d – 0.5 mm; c – 0.2 mm; e – 0.1 mm.

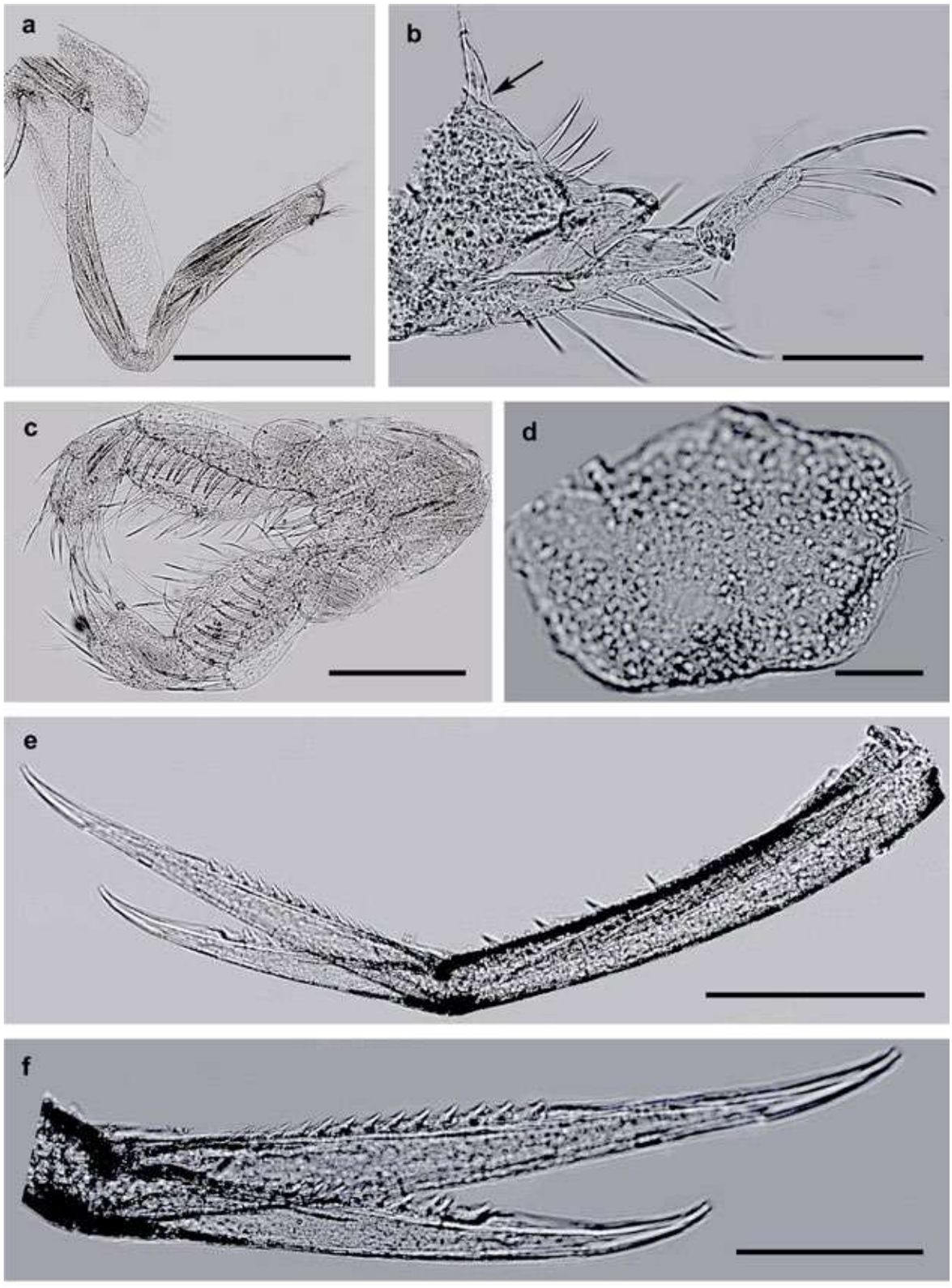

Plate 146. *Perioculodes* sp. 3 cf. *serra*, Al-Bida'a. Female: a – gnathopod 2; b – mandible, molar (arrow); c – maxilliped; d – telson; e – uropod 1; f – uropod 1, rami. Scale lines: a – 0.5 mm; c and e – 0.2 mm; b and f – 0.1 mm; d – 0.05 mm.

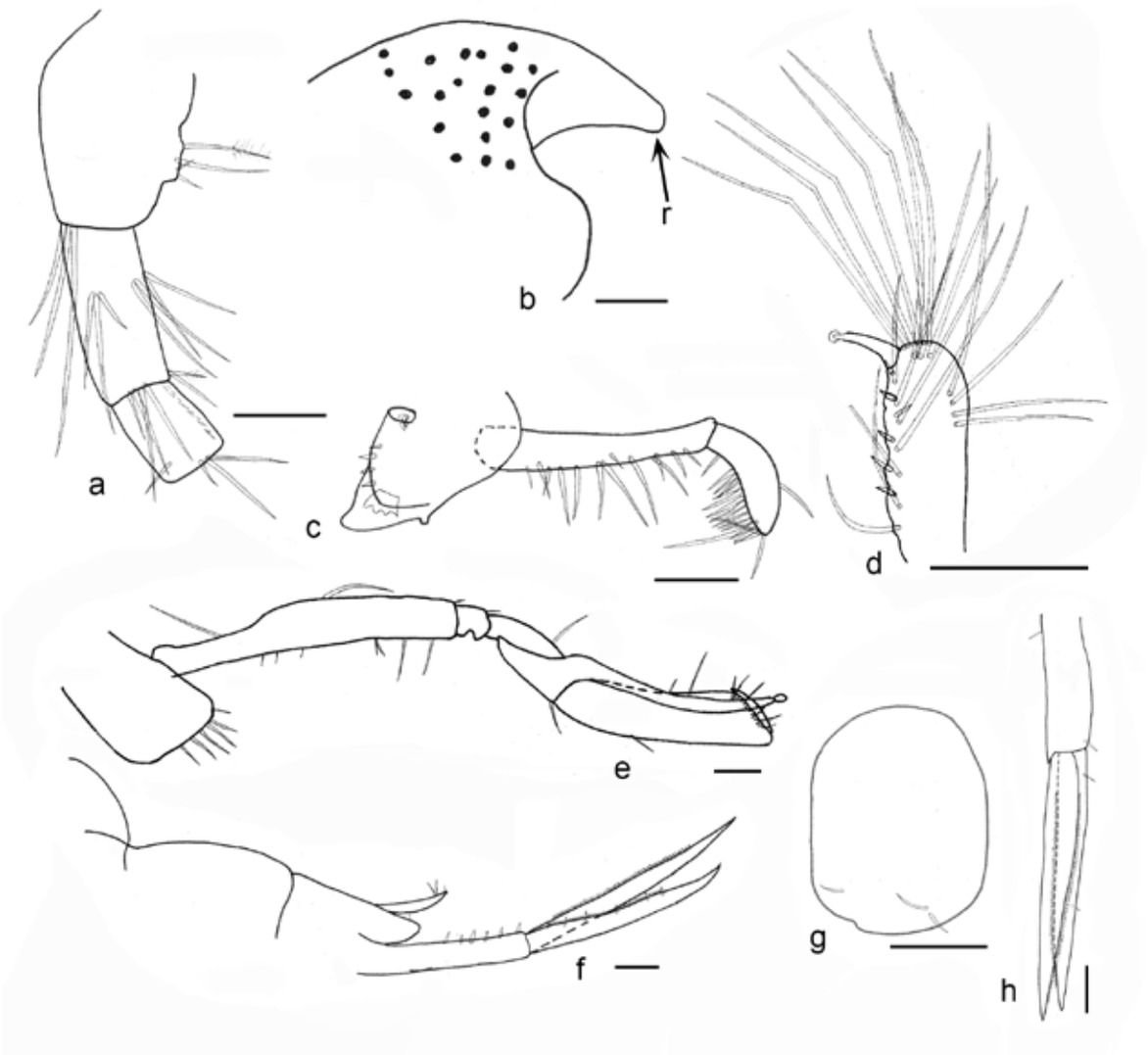

Fig. ZP-48. *Perioculodes* sp. 3 cf. *serra*, Kuwait Bay. Male: a – antenna 1, peduncle; b – head; c – mandible; d – pereopod 3, propodus+dactylus; e – gnathopod 1; f – urosome, uropod 3, telson; g – telson; h – uropod 1. Scale lines – 0.1 mm. Designations: r – rostrum.

Family Oedicerotidae
Genus *Pontocrates*

Pontocrates* sp. cf. *arenarius
Plates 147 – 150 and Fig. ZP-49.
Occurrence: Funaitees area, Qaruh Island area, Auha Island area, Kuwait Bay area, Al-Bida'a area, Al-Aushairij (East Doha area), and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, and sponges.

Description (after Ledoyer, 1993; modified). Female, 3.2 mm. Rostrum distinctly deflected **not reaching** the end of peduncular article 1 of Al. A1 peduncular article **1 slightly shorter than article 2 but longer than article 3**. Md molar not triturative. Coxl nearly quadrangular; Cox1 and Cox2 spinous posteriorly and bearing a brush of long setae on the posterodistal edge. Cox2 – Cox4 with spines on the posterodistal edge. Cox3 emarginate on its distal edge. Gnl subchelate, propodus **slightly longer than broader**, palmar margin **not rounded**, carpus lobate, narrow, guarding the whole margin of the propodus and bearing a spine distally, merus **with two setae posterodistally**. Gn2 basis with setae anteriorly and posteriorly; carpus not completely coalesced with propodus and extending in the front of the apex of the chela. P3 and P4 dactylus reduced; merus distinctly longer than carpus or propodus, the propodus adorned with short spiniform setae on its posterior edge. U1 peduncle longer than rami with spines lateroproximally and dorsally; outer ramus minutely shorter than inner with spines dorsally; inner ramus without spines. U2 peduncle slightly longer than rami with spines lateroproximally and dorsally; outer ramus minutely shorter than inner with spines dorsally; inner ramus without spines. U3 peduncle as long as the outer ramus with spines lateroproximally and distodorsally; outer ramus slightly longer than inner, **both without spines**. T **emarginate**, longer than broad.
Male, 3.4 mm. Similar to female but A1 much longer, flagellum 30 articles.
Taxonomic characters for distinguishing *Pontocrates* sp. cf. *arenarius* from *Pontocrates arenarius* (Ledoyer, 1993), are expressed in **bold** text.

Plate 147. *Pontocrates* sp. cf. *arenarius*, Funaitees: male habitus. Scale line – 1 mm.

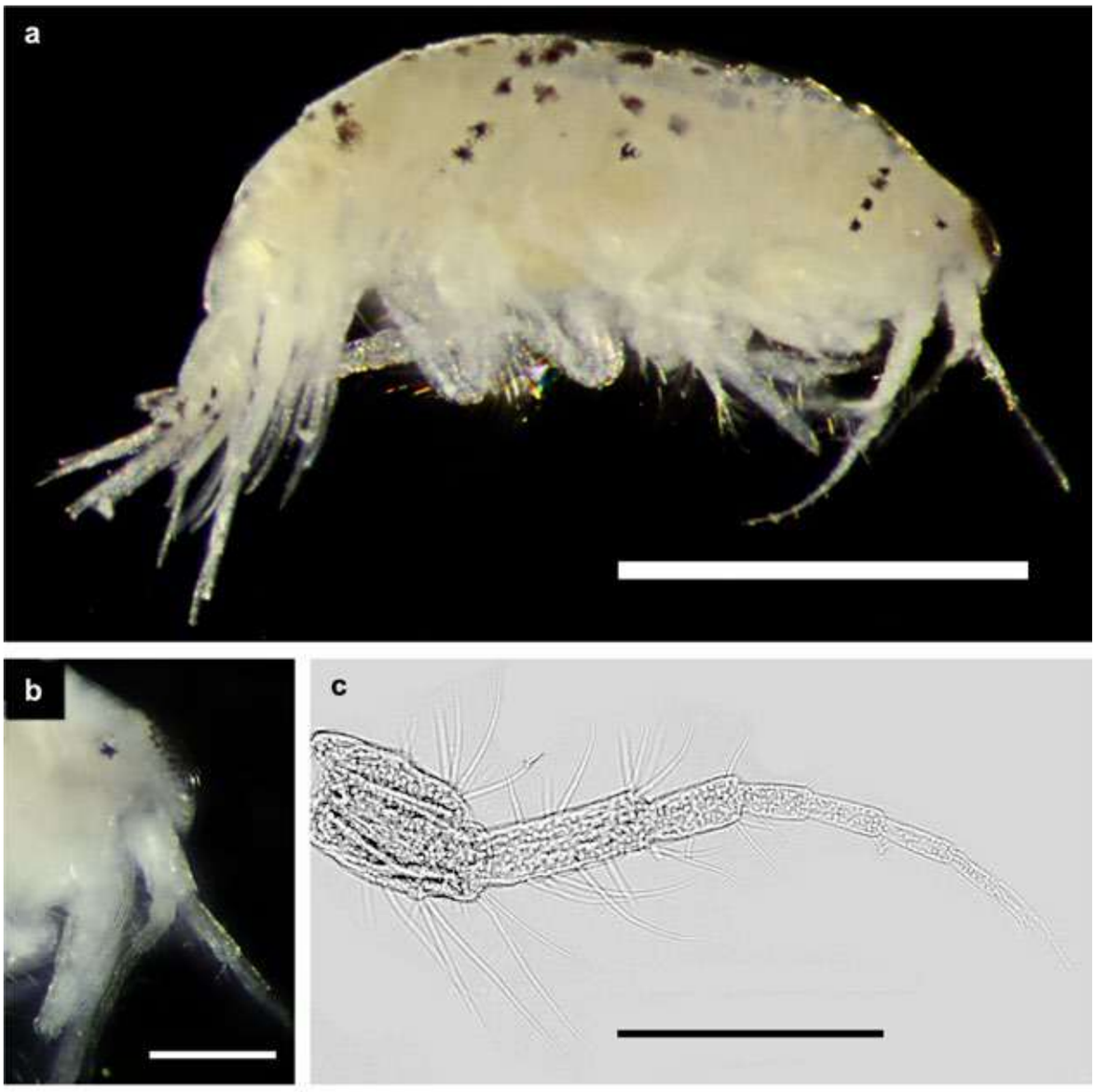

Plate 148. *Pontocrates* sp. cf. *arenarius*, Funaitees. Female: a – habitus; b – head. c – antenna 1. Scale lines: a – 1 mm; b and c – 0.2 mm.

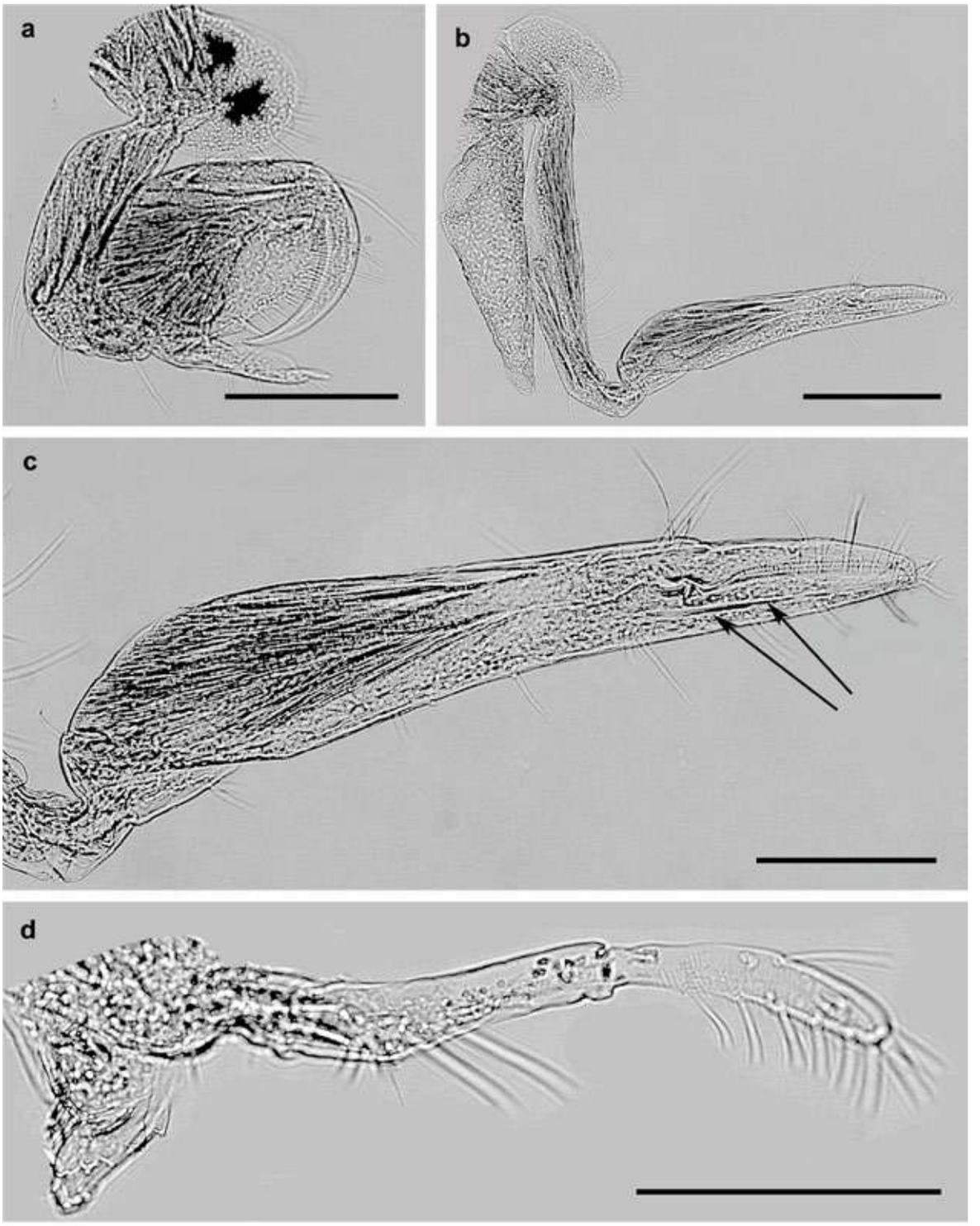

Plate 149. *Pontocrates* sp. cf. *arenarius*, Funaitees. Female: a – gnathopod 1; b – gnathopod 2; c – gnathopod 2, carpus, propodus, dactylus, channel between carpus and propodus (arrows); d – mandible. Scale lines: a and b – 0.2 mm; c and d – 0.1 mm.

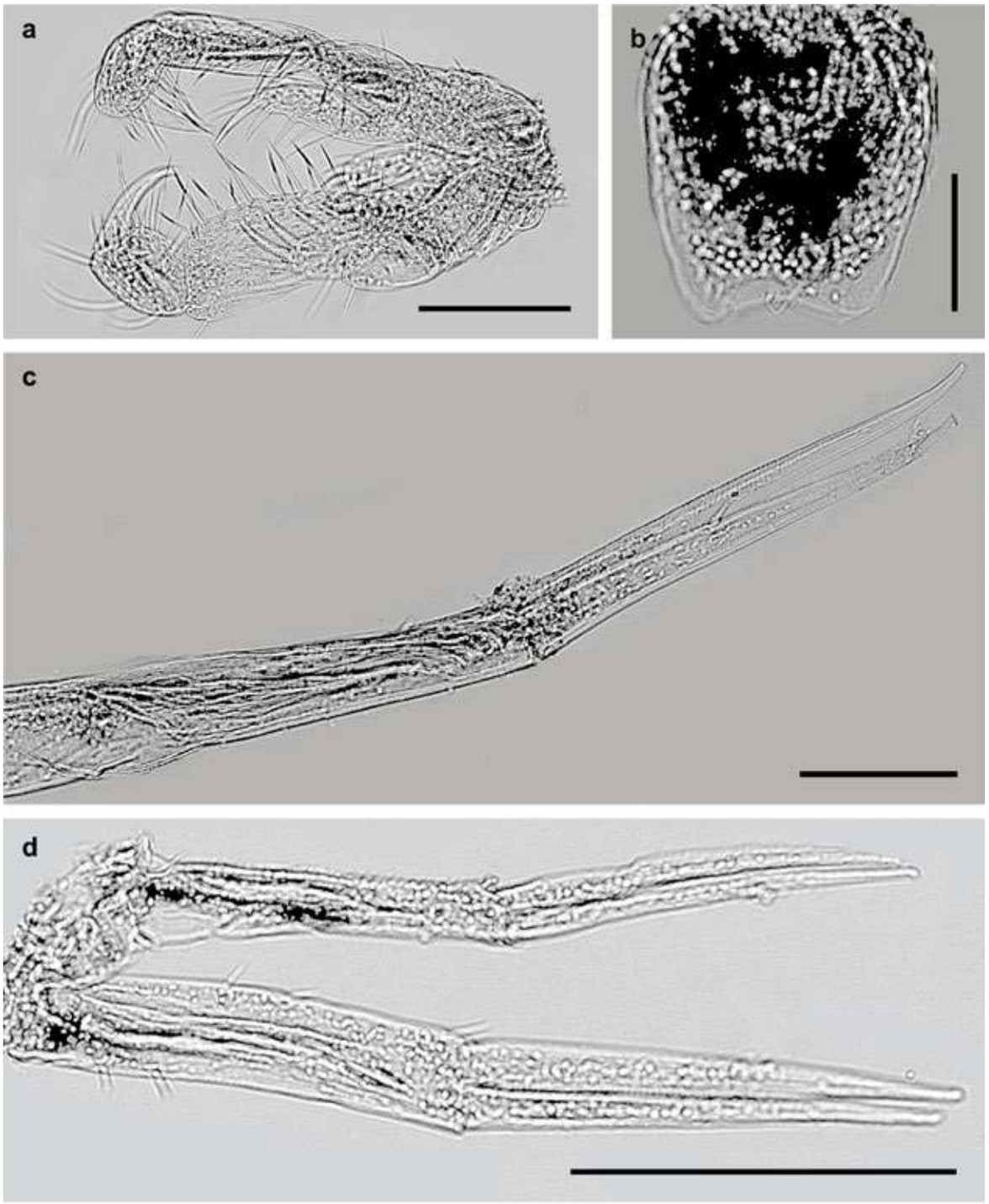

Plate 150. *Pontocrates* sp. cf. *arenarius*, Funaitees. Female: a – maxilliped; b – telson. Male: c – uropod 1; d – uropod 2, uropod 3. Scale lines: d – 0.2 mm; a, b, and c – 0.1 mm.

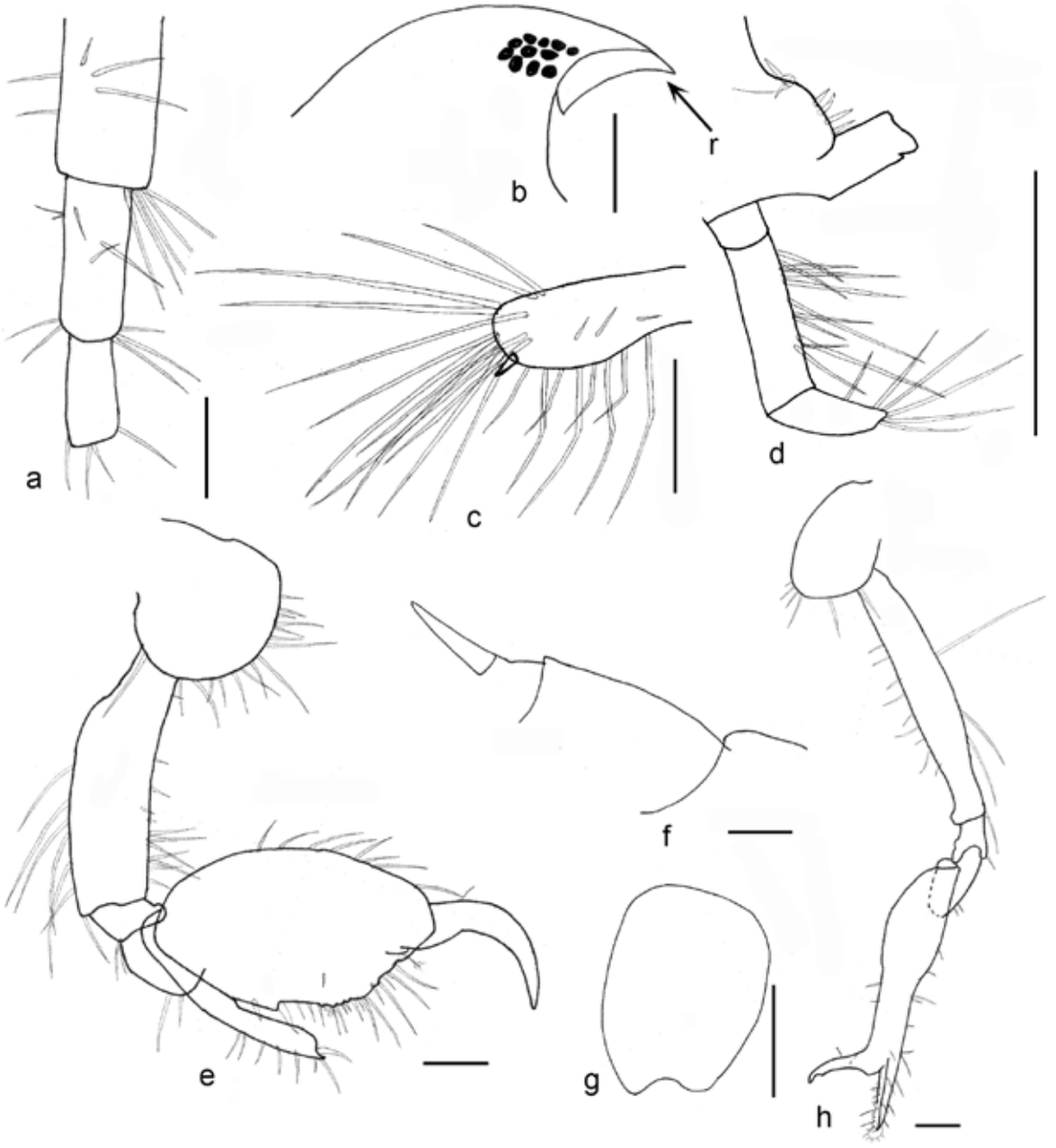

Fig. ZP-49. *Pontocrates* sp. cf. *arenarius,* Al-Bida'a. Male: a – antenna 1, peduncle; b – head; c – pereopod 3, propodus+dactylus; d – mandible ; e – gnathopod 1; f – urosome+telson; g – telson; h – gnathopod 2. Scale lines – 0.1 mm. Designations: r – rostrum.

Family Photidae
Genus *Latigammaropsis*

Latigammaropsis pseudojassa Myers & Nithyanandan, 2016
Plates 151 and 152.
Occurrence: Rescue Center Marina area, KISR Marina area, Al-Khiran area, Al-Nuwaiseeb area, Kubbar Island area, Qaruh Island area, Umm Al-Maradim Island area, Masfat Al-Ahmadi area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, and Auha Island area.
Intertidal and Subtidal Zones.
Habitats: biofouling areas, pebbles, cobble, dead corals, rocks, sand, shells, ropes (as artificial habitat), macroalgae, and sponges.

Description (after Myers & Nithyanandan, 2016; modified). Male, 4.3 mm. Head elongated, lateral cephalic lobes strongly produced, rounded; eye lageniform. Md palp article 3 shorter than 2, spatulate with long distal setae. Mx1 inner plate with setae along the entire margin. Mx2 with oblique setal row. L mandibular projections acute. Mxp palp elongated, second article extending beyond the distal end of outer plate. A1 about half of body length, peduncular article 2 a little longer than 1; primary flagellum subequal to peduncle, with 12 articles; accessory flagellum long with 5 articles. A2 of normal *Latigammaropsis* form. Gn1 coxa subsquare, weakly produced forward; basis enlarged, weakly excavated for the reception of carpus when folded; carpus moderate, longer than broad; propodus longer than carpus, subrectangular, palm excavate, with blunt posterodistal spine. Gn2 coxa subrectangular; basis stout, excavated for the reception of carpus when folded, strongly setose on the anterior margin; carpus very short, cup-shaped; propodus grossly enlarged widening distally, with one strong posterodistal spine and one strong medial spine, anterior margin strongly setose; dactylus enlarged, overlapping palm. P3 – P4 of normal *Latigammaropsis* form, dactylus short, much less than half the length of propodus. P5 basis moderately expanded. P6 and P7 of normal *Latigammaropsis* form. U1 peduncle with long, distal, interramal spine, half the length of peduncle; inner ramus subequal to peduncle, outer ramus shorter than inner. U2 lacking interramal spine, peduncle shorter than rami, inner ramus a little longer than outer. U3 peduncle longer than broad; rami subequal, shorter than peduncle. Telson with each dorsolateral crest bearing a pair of robust setae.
Female (sexually dimorphic characters). Gn1 propodus longer than carpus, subovoid, palm oblique; dactylus fitting palm. Gn2 basis relatively slender; carpus short, cup-shaped; propodus subround with small posterodistal spine, palm evenly rounded; dactylus fitting palm.

Plate 151. *Latigammaropsis pseudojassa*, Al-Khiran: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

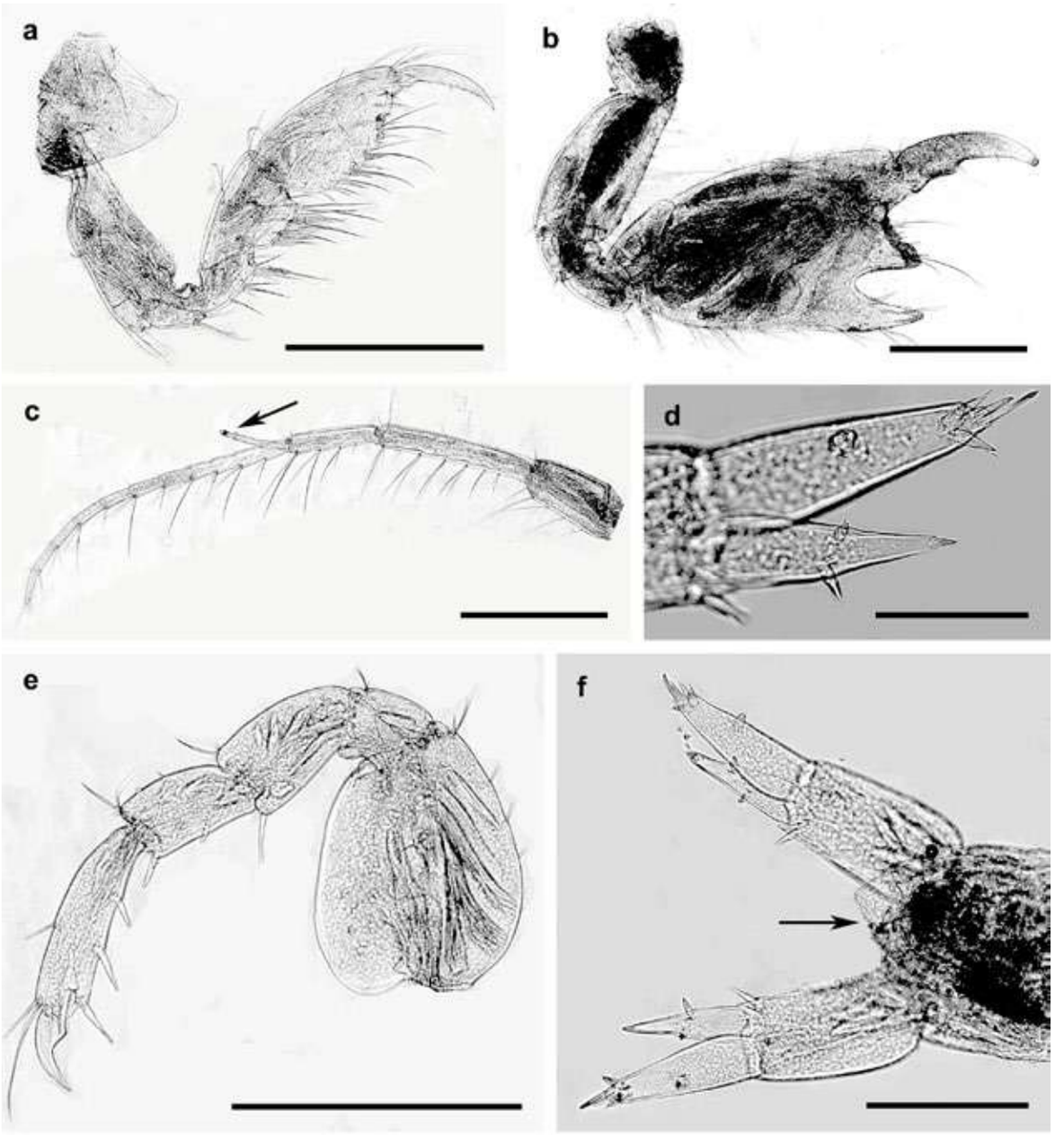

Plate 152. *Latigammaropsis pseudojassa*, Al-Khiran. Male: a – gnathopod 1; b – gnathopod 2; c – antenna 1, accessory flagellum (arrow); d – uropod 3, outer ramus, inner ramus; e – pereopod 5; f – uropod 3, telson (arrow). Scale lines: a, b, c, and e – 0.5 mm; f – 0.2 mm; d – 0.1 mm.

Family Photidae
Genus *Latigammaropsis*

***Latigammaropsis* sp. 1**
Plates 153 and 154.
Occurrence: Auha Island area, Al-Messilah beach area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: *Sargassum* spp. (macroalgae), rocks, pebbles, sponges, ropes (as artificial habitat), shells, and sand.

Description. Male, 5.3 mm. Lateral cephalic lobes projecting strongly, eyes oval. A1 article 1 equal to article 3, article 2 longer than either; flagellum 11-articles, acc.fl. 4-articles. Cox1 tapering anteriorly. Cox2 bigger than Cox1 tapering anteriorly. Gn1 basis widened distally with setae posterodistally; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus equal with propodus in length with setae anteriorly and posteriorly; propodus with setae posteriorly and anterodistally, palm well defined by spine, edge minute serrations; dactylus with crenulations on the inner edge. Gn2 basis widened distally with lobe anterodistally; ischium with short setae posterodistally; merus with lobe posterodistally bearing minute seta apically; carpus short without lobe and 1 seta anterodistally; propodus much more than carpus with small setae anteriorly and posteriorly, palm well defined strong finger without serration along edge; dactylus curved. P3 and P4 are similar. P5 – P7, basis narrow distally; merus – propodus with spine dorsoproximally and proximally. Us1 with 2 groups of setae, dorsodistally with 2-3 setae on each; Us2 with 2 setae dorsodistally. U1 interramal tooth strong about ½ the length of inner ramus. U1 and U2 similar, peduncle with spines medially and distally, outer ramus shorter than inner, with spines medially and apically, inner rami with spines medially and apically. U3 peduncle with 3 spines distally and with 2 rami; outer ramus longer than inner with 2 articles, first article with 1 spine medially, 2 spines subapically, 1 spine apically, second article minute with 2 strong setae apically; inner ramus with 2 spines medially and 1 spine apically. T tapering distally with 2 spines and setae distally.

Female, 4.7 mm. Gn2, basis with setae posteriorly, posterodistally, and anterodistally; ischium with setae posterodistally; merus with setae posterodistally; carpus with setae posteriorly, laterally, and anterodistally; propodus longer than carpus with setae anteriorly, posteriorly, and laterally, palm well defined by spine; dactylus with teeth on the inner side.

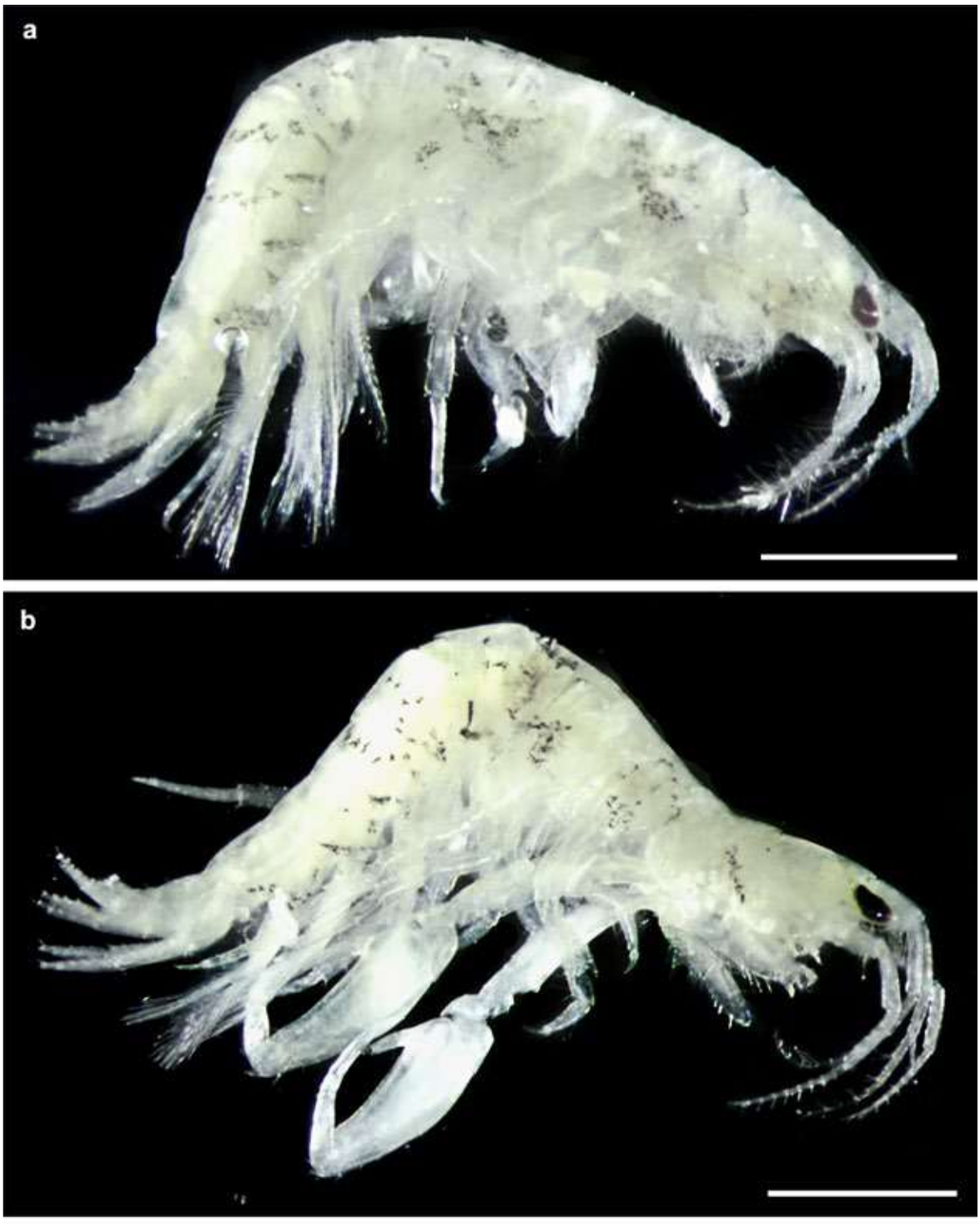

Plate 153. *Latigammaropsis* sp. 1, Auha Island: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

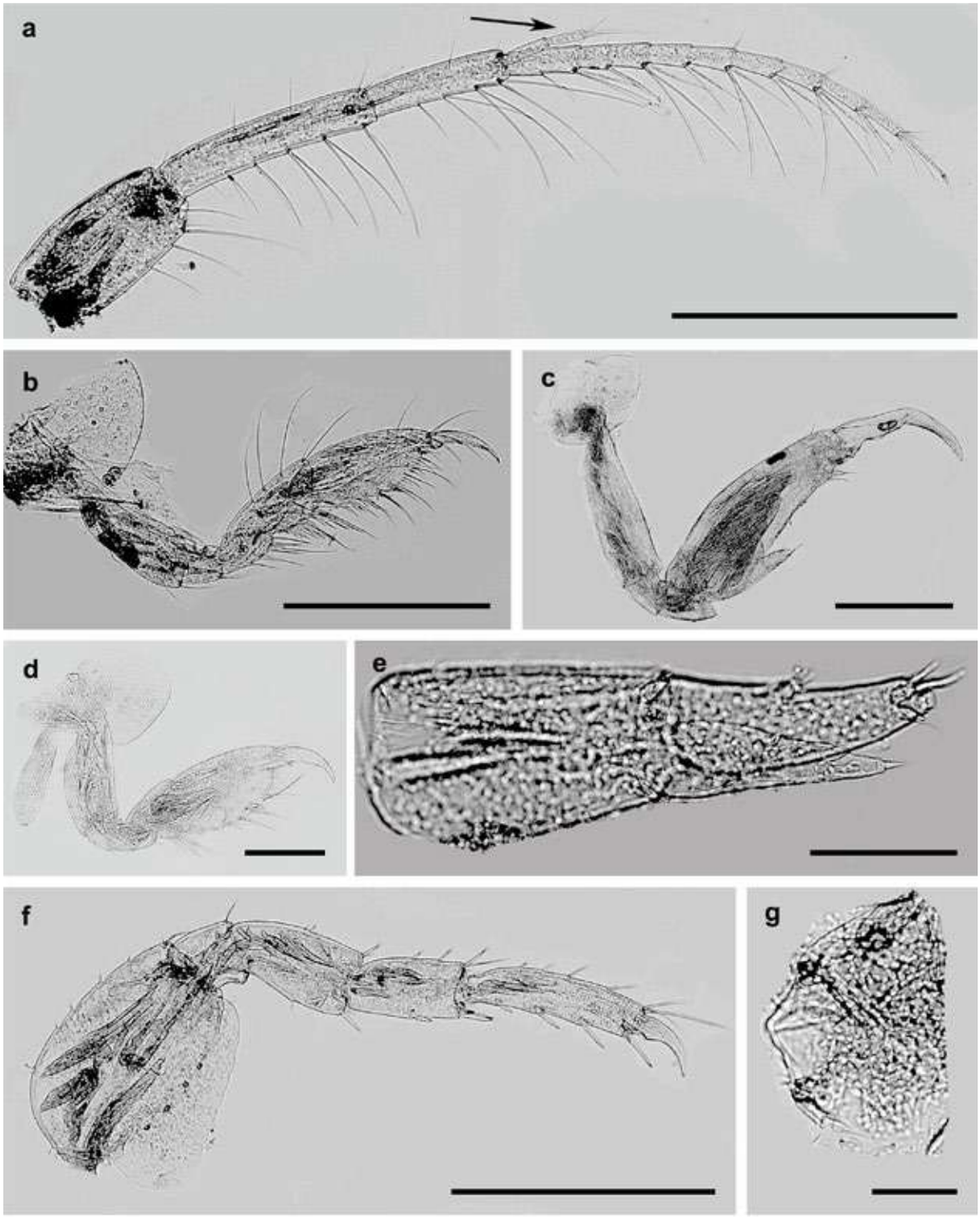

Plate 154. *Latigammaropsis* sp. 1, Auha Island. Male: a – antenna 1, accessory flagellum (arrow); b – gnathopod 1; c – gnathopod 2; e – uropod 3; f – pereopod 5; g – telson. Female: d – gnathopod 2. Scale lines: a, b, c, and f – 0.5 mm; d – 0.2 mm; e – 0.1 mm; g – 0.05 mm.

Family Photidae
Genus *Latigammaropsis*

Latigammaropsis sp. 2 cf. *atlantica*

Plates 155 and 156.

Occurrence: Al-Nuwaiseeb area, Funaitees area, Qaruh Island area, Al-Bida'a area, and Auha Island area.

Intertidal and Subtidal Zones.

Habitats: pebbles, rocks, shells, and coral rubble.

Description. Male, 7.5 mm. Lateral cephalic lobes projecting strongly, coniform, ommatidia proliferating in dorsoposterior direction toward the forehead and eye becoming lageniform. A1 article 1 equal to article 3, article 2 longer than either; flagellum 14-articles, acc.fl. 7-articles. Cox1 near triangular with minute setae. Cox2 slightly bigger than Cox1 with minute setae. Gn1 basis widened distally with setae posterodistally; ischium with setae posterodistally; merus with setae posteriorly and posterodistally, with tooth posterodistally; carpus equal to propodus in length with setae posteriorly and small lobe posterodistally; propodus ovate with setae posteriorly and anterodistally, palm poorly defined; dactylus with crenulations on the inner edge. Gn2 basis widened distally with setae anteriorly and posteriorly; ischium with short setae posterodistally; merus with setae and small lobe posterodistally, with setae laterally; carpus short with setae posterodistally and distolaterally; propodus much more than carpus with setae anteriorly and posteriorly, palm well defined by tooth, slightly concave with 3 serration bulges along the edge; dactylus curve proximally, cover near all length of palm. P3 and P4 similar. P5, basis ovate; merus-propodus with spine dorsoproximally and proximally. P6 and P7 basis narrow distally, merus-propodus with spine dorsoproximally and proximally. Us1 with 1 seta dorsodistally. U1 interramal tooth strong about 1/2 the length of inner ramus. U1 and U2 similar, peduncle with spines medially and distally, outer ramus shorter than inner with spines medially and apically, inner rami with spines medially and apically. U3 peduncle with spines distally, with 2 rami; outer ramus longer than inner and with 2 articles, first article with 1 spine medially, 2 spines subapically, 1 spine apically, second article minute with 2 setae apically; inner ramus with 3 spines medially and 1 spine apically. T tapering distally with 2 spines and setae distally.

Female, 5 mm. Gn2, basis with setae posteriorly and posterodistally; ischium with setae posterodistally; merus with setae posterodistally; carpus with setae posteriorly, laterally, posterodistally, and anterodistally; propodus longer than carpus with setae anteriorly, posteriorly, and laterally, palm with serration and small teeth and well defined by spines; dactylus covered palm.

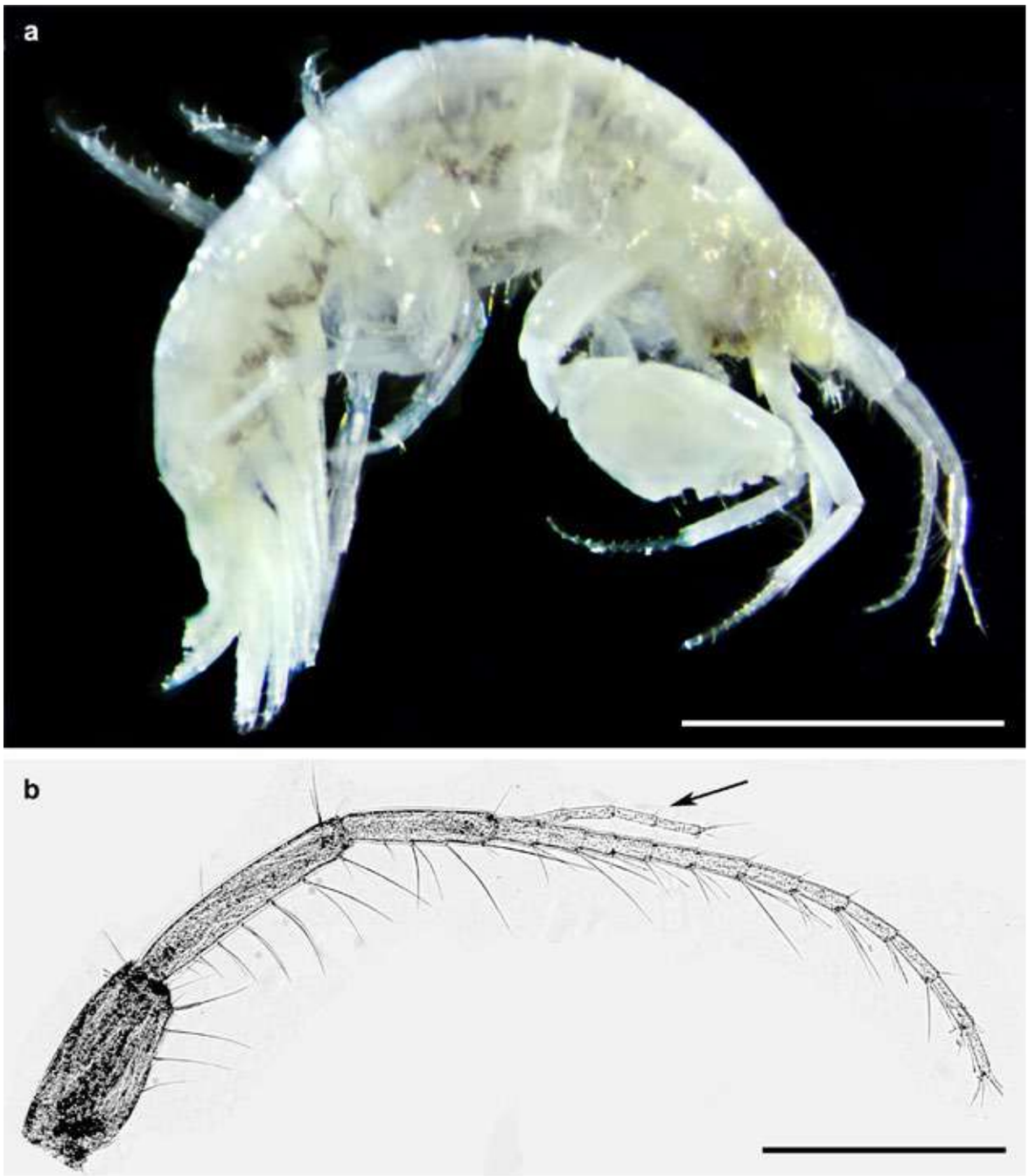

Plate 155. *Latigammaropsis* sp. 2 cf. *atlantica*, Qaruh Island. Male: a – habitus; b – antenna 1, accessory flagellum (arrow). Scale lines: a – 2 mm; b – 0.5 mm.

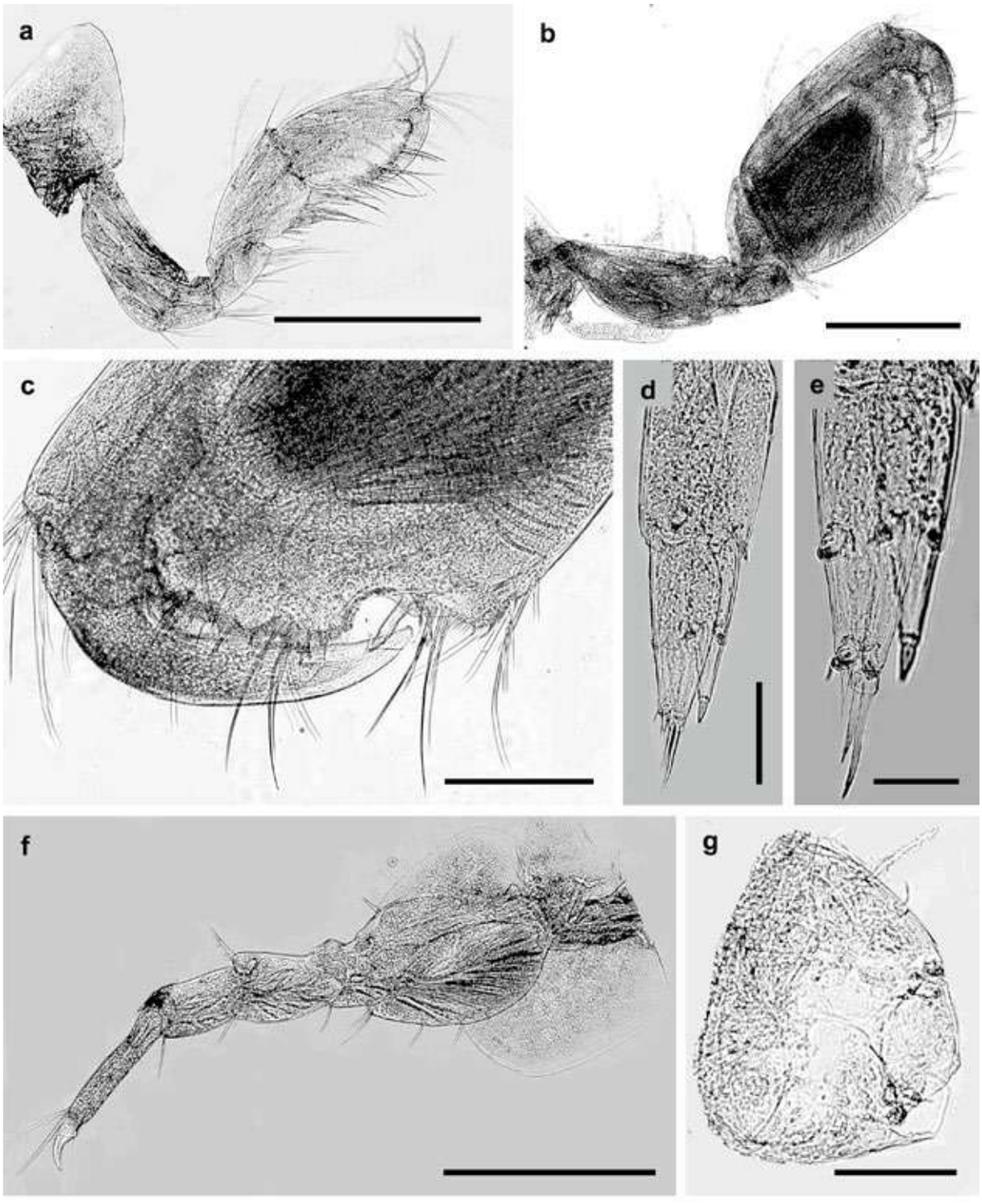

Plate 156. *Latigammaropsis* sp. 2 cf. *atlantica*, Qaruh Island. Male: a – gnathopod 1; b – gnathopod 2; c – gnathopod 2, palm, dactylus; d – uropod 3; e – uropod 3, outer ramus, inner ramus; f – pereopod 5; g – telson. Scale lines: a, b, and f – 0.5 mm; c and g – 0.2 mm; d – 0.1 mm; e – 0.05 mm.

Family Photidae
Genus *Photis*

Photis hawaiensis J.L. Barnard, 1955
Plates 157 – 160.
Occurrence: Al-Nuwaiseeb area, Al-Bida'a area, Auha Island area, Kubbar Island area, Al-Shumaimah (Khor Al-Sabiyah area), Failaka Island area, Al-Khiran area, Ras Al-Zour area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, muddy sand, shells, rocks, sea grass, sand, sponges, aggregations of polychaete tubes, ropes (as artificial habitat), and pebbles.

Description (after Barnard, 1955; modified). Male, 2.6 mm. Head with medium-sized ocular lobes, **eyes subtriangular.** A1 article 1 peduncle equal to article 3, article 2 scarcely longer than 1 and 3. Coxae weakly rounded ventrally. Cox1 elongate-rectangular with 3 setae anterodistally. Cox2 and Cox3 broader than 1 and thus relatively less elongated. Cox3 and Cox4 **with stridulating ridges**. Gn1 with carpus and propodus equal to each other in length. Carpus and propodus with groups of setae ventrally. Propodus broadly ovate, palm slightly convex, undefined, bearing 1 medial spine in the middle, dactylus long, fitting palm theoretically with small tooth and crenulations on the inner edge. Gn2 very large, basis with immense anterodistal mammiliform hump armed with stridulating ridges, ischium quadrate, **merus with 2 setae anteroventrally**, carpus very broad with posterolateral lobe, bearing 5 setae and anterior rounded setose keel, propodus broad but tapering distally, palm tapering **almost** full posterior margin and defined by medioproximal tooth, palm distally with **3** sinuses and **1** cusp, dactylus shorter than propodus, inner edge smooth except weak distal tooth and seta **and 1 proximal seta**. P3 and P4 merus especially turgid anterodistally. P5 dactylus with 1 sharp accessory cusp. P6 similar to P5 but basis narrower. P7 dactylus with minute accessory cusp. Ep1 – Ep3 rounded. U1 and U2 with very small sharp leaf like ventrodistal tooth between rami, inner ramus lacking marginal spines, otherwise rami of U1 and U2 with 1 marginal spine each. U3 outer ramus longer than peduncle, article 1 with 1 seta distally, article 2 with 2 long setae apically; inner ramus very short about 20 percent as long as the outer ramus. T triangular bearing anterolateral notch on each side and 2 small setae distally.
Female similar to male. Gn2 similar to Gn2 male but palm shorter concerning the length of propodus; dactylus with some small spines on the inner side.
Taxonomic characters for distinguishing *Photis hawaiensis* from *Photis hawaiensis* (J. L. Barnard, 1955), are expressed in **bold** text.

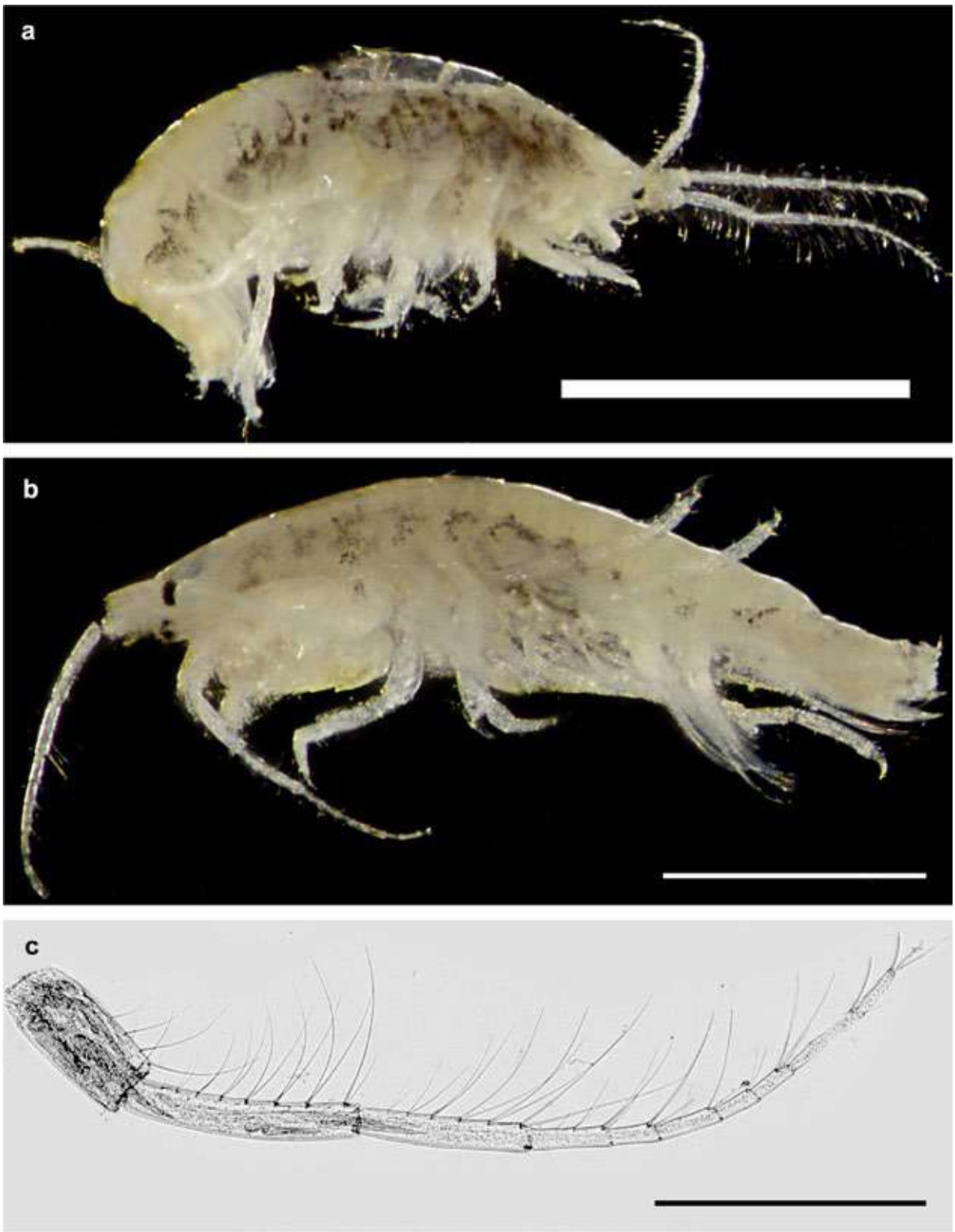

Plate 157. *Photis hawaiensis*, Al-Bida'a. Male: b – habitus; c – antenna 1. Female: a – habitus. Scale lines: a – 2 mm; b – 1 mm; c – 0.5 mm.

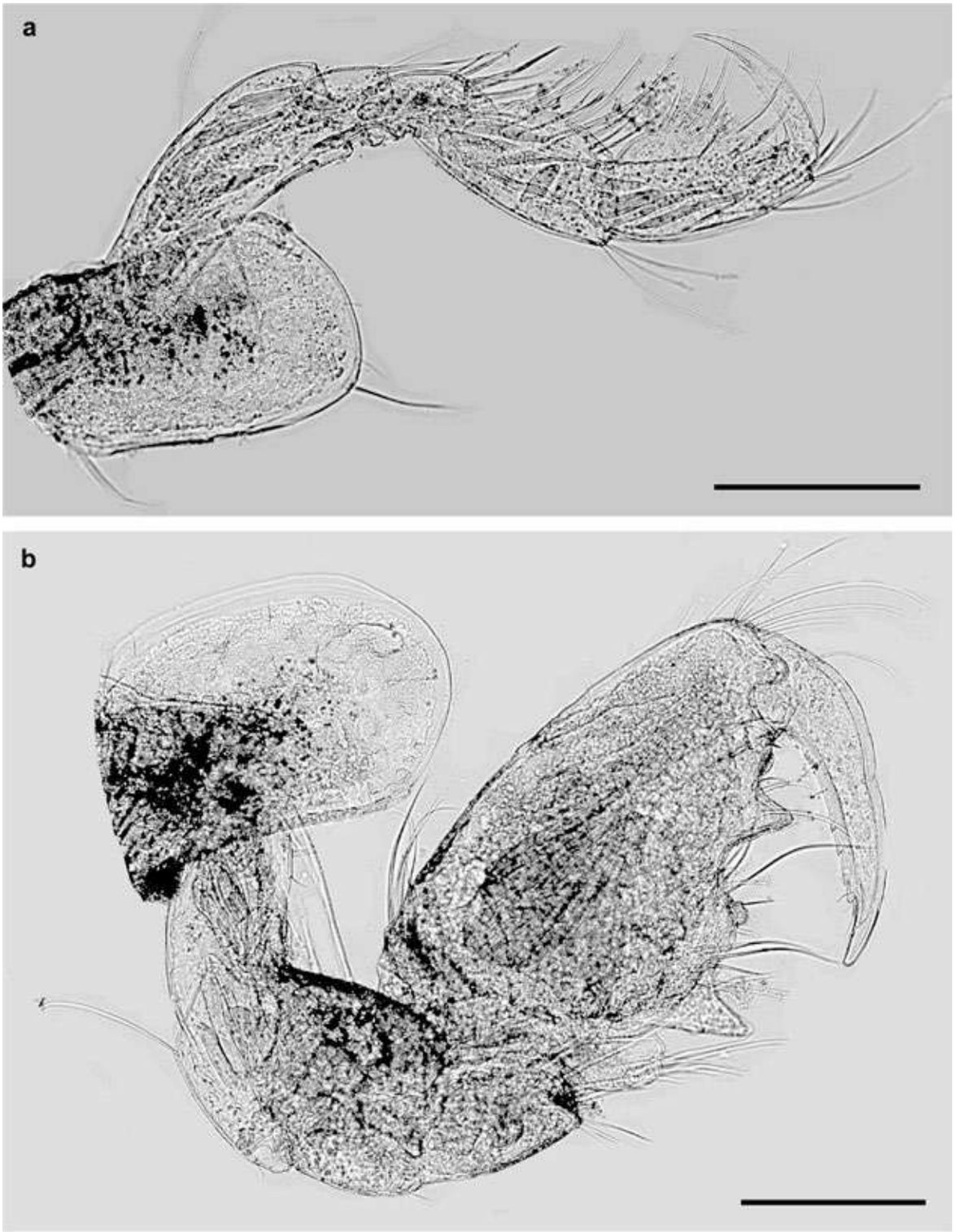

Plate 158. *Photis hawaiensis*, Al-Bida'a. Male: a – gnathopod 1; b – gnathopod 2. Scale lines: a and b – 0.2 mm.

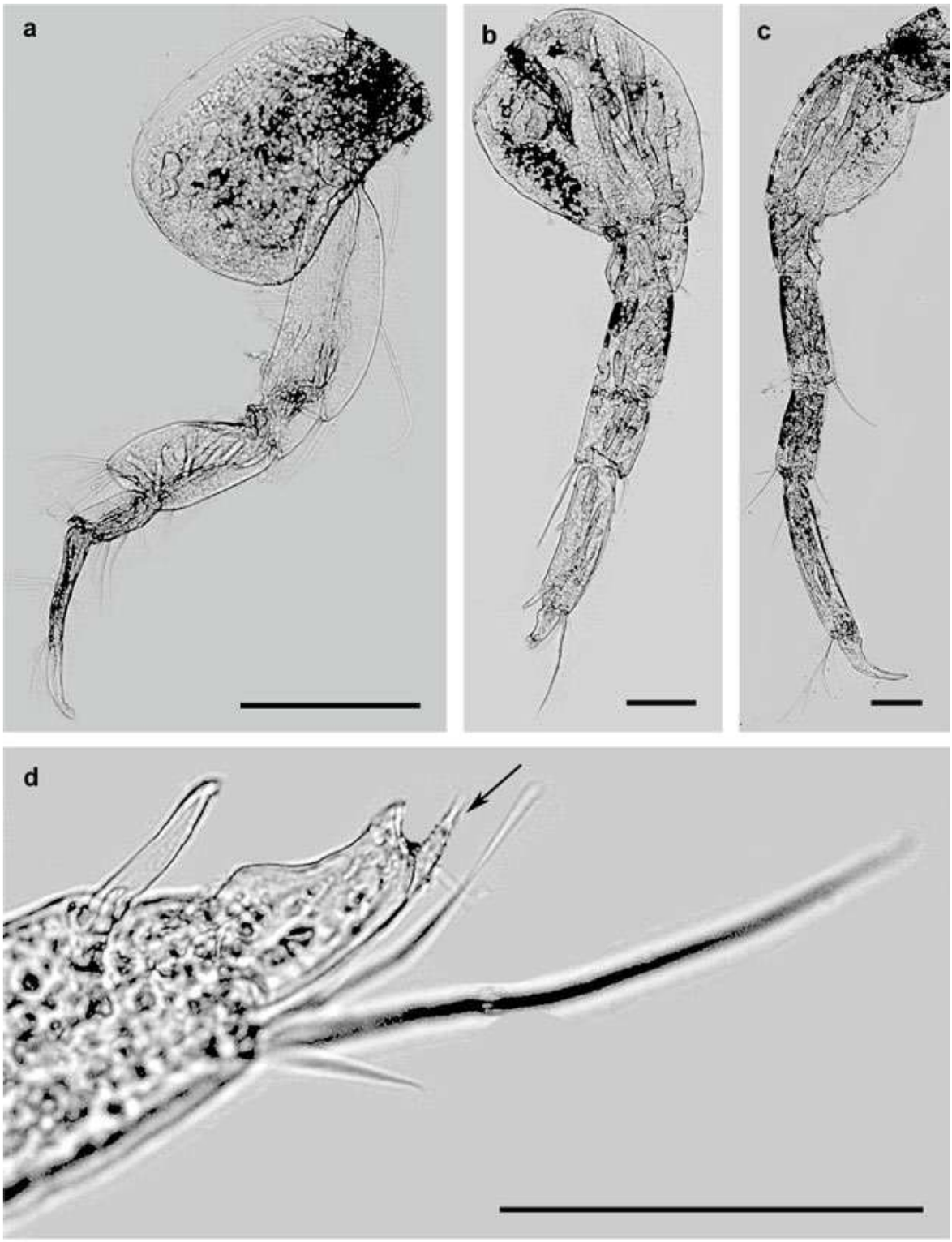

Plate 159. *Photis hawaiensis*, Al-Bida'a. Male: a – pereopod 3; b – pereopod 5; c – pereopod 7; d – pereopod 5, dactylus, tooth (arrow). Scale lines: a – 0.25 mm; b and c – 0.2 mm; d – 0.1 mm.

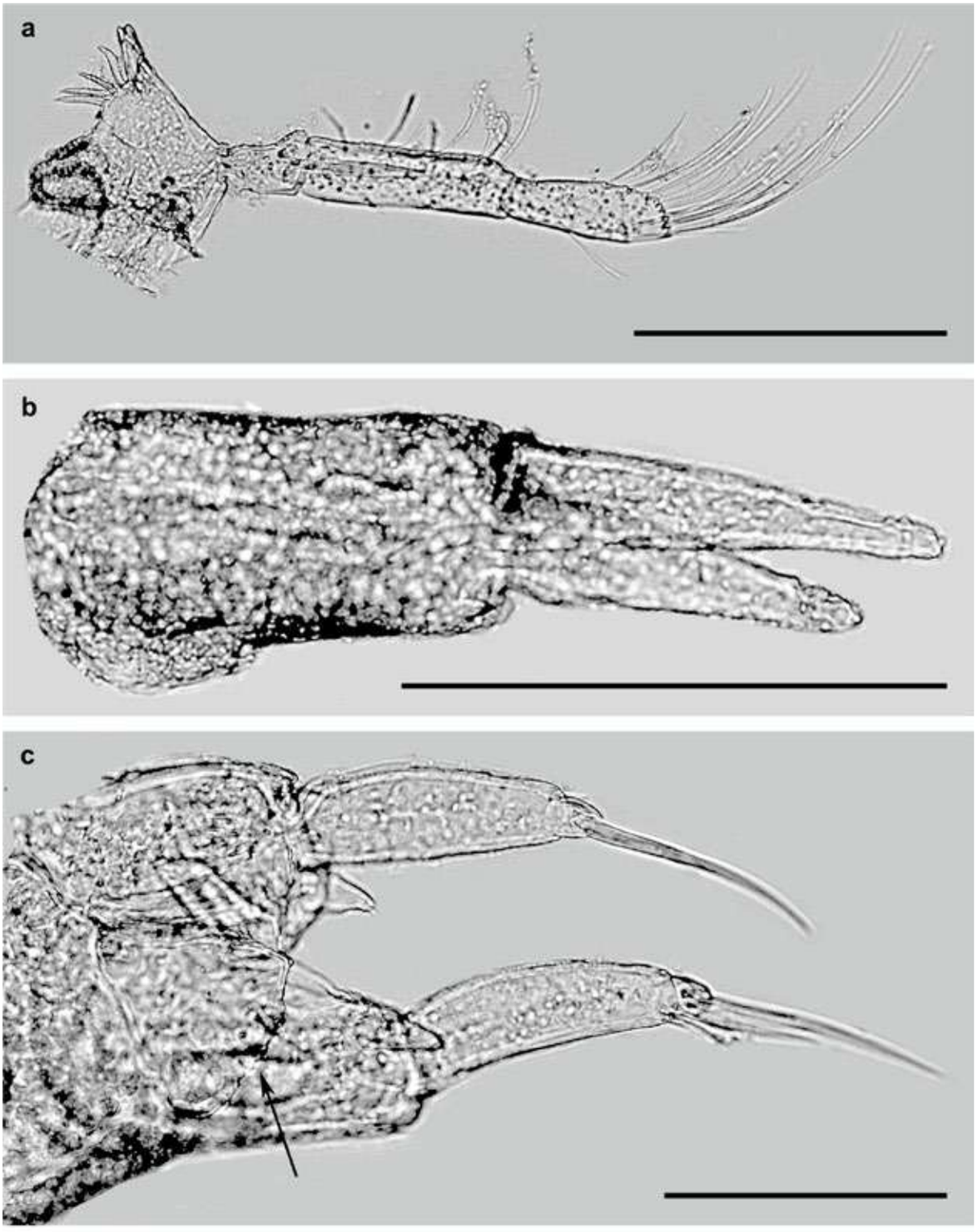

Plate 160. *Photis hawaiensis*, Al-Bida'a. Male: a – mandible, palp; b – pereopod 5; c – uropod 1; d – uropod 3, telson (arrow). Scale lines: a and b – 0.2 mm; c – 0.1 mm.

Family Photidae
Genus *Photis*

***Photis* sp. 1**
Plates 161 – 163.
Occurrence: Funaitees area, Qaruh area, Al-Bida'a area, Auha Island area, and Kuwait Bay area.
Subtidal Zone.
Habitats: muddy sand, shells, and sand.

Description. Male, 3.5 mm. Head with small ocular lobes, eyes horizontally ovate. A1 article 1 equal to article 3, article 2 scarcely longer than either. Cox1 elongated rectangular slightly widened distally with setae anteromedially. Cox2-Cox4 broader than 1, elongated rectangular with setae medially. Gn1 carpus and propodus equal to each other in length, propodus near rectangular, palm defined spine, concave, dactylus long, fitting palm, with teeth and crenulations on the inner edge. Gn2 basis with hump armed minute setae along the distal edge; ischium with 2 setae on the ventral edge; merus with setae on the ventral edge and dorsolateral lobe bearing setae; carpus with posterior lobe armed setae and dorsolateral lobe with setae; propodus much more longer than carpus with a group of setae anteriorly, palm well defined about 2/3 the length of propodus with 3 big teeth, bigger proximal tooth, smaller mediolateral tooth and distal tooth, proximal tooth with spine and setae, distal tooth with setae; dactylus curved with crenulations on the inner edge. P3 and P4 similar, P3 bigger than P4, merus slightly turgid anterodistally. P5, dactylus with 1 sharp accessory cusp. P6 with basis trapezoidal form with lobe aneroproximally, dactylus with 1 accessory minute cusp. P7 dactylus with 1 accessory cusp. U1 and U2 similar, peduncle with 2 little spines distally, outer ramus shorter than inner with little spines medially (two for U1 and one for U2), inner ramus without spines. U3 peduncle with 1 seta distally, outer ramus longer than peduncle with 2 articles, first article with 2 setae distomedially and 1 seta apically, second article with 2 setae apically; inner ramus short about ¼ the length of outer ramus with 1 apical seta. T triangular with 2 little setae distodorsally.

Female is similar to male but Gn2 basis, ischium and merus are without lobe; carpus is with lobe posteriorly; propodus is without tooth, palm is well defined with crenulated edge; dactylus is short with crenulated inner side. P6 basis is not trapezoidal in shape.

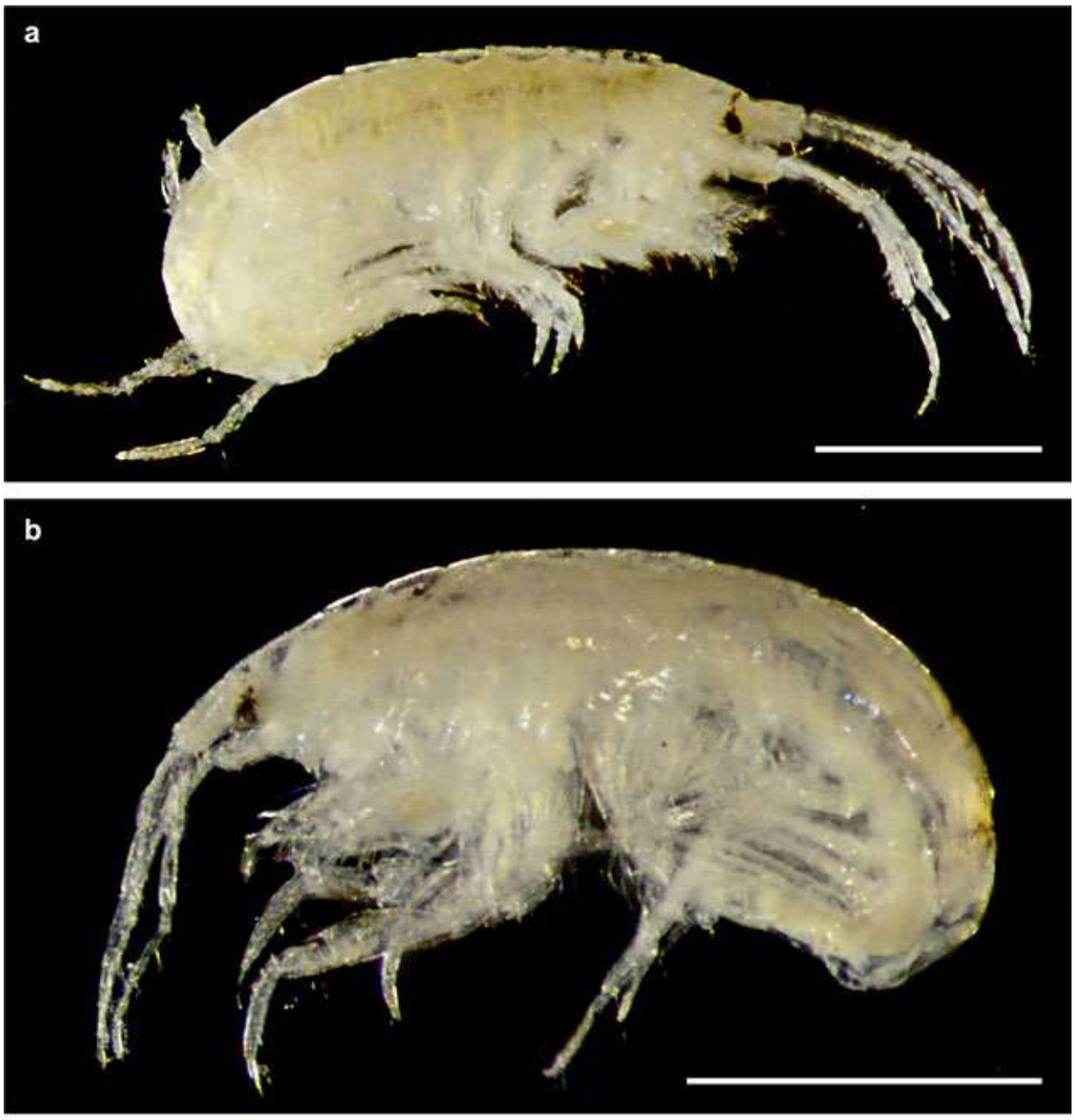

Plate 161. *Photis* sp. 1, Kuwait Bay: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

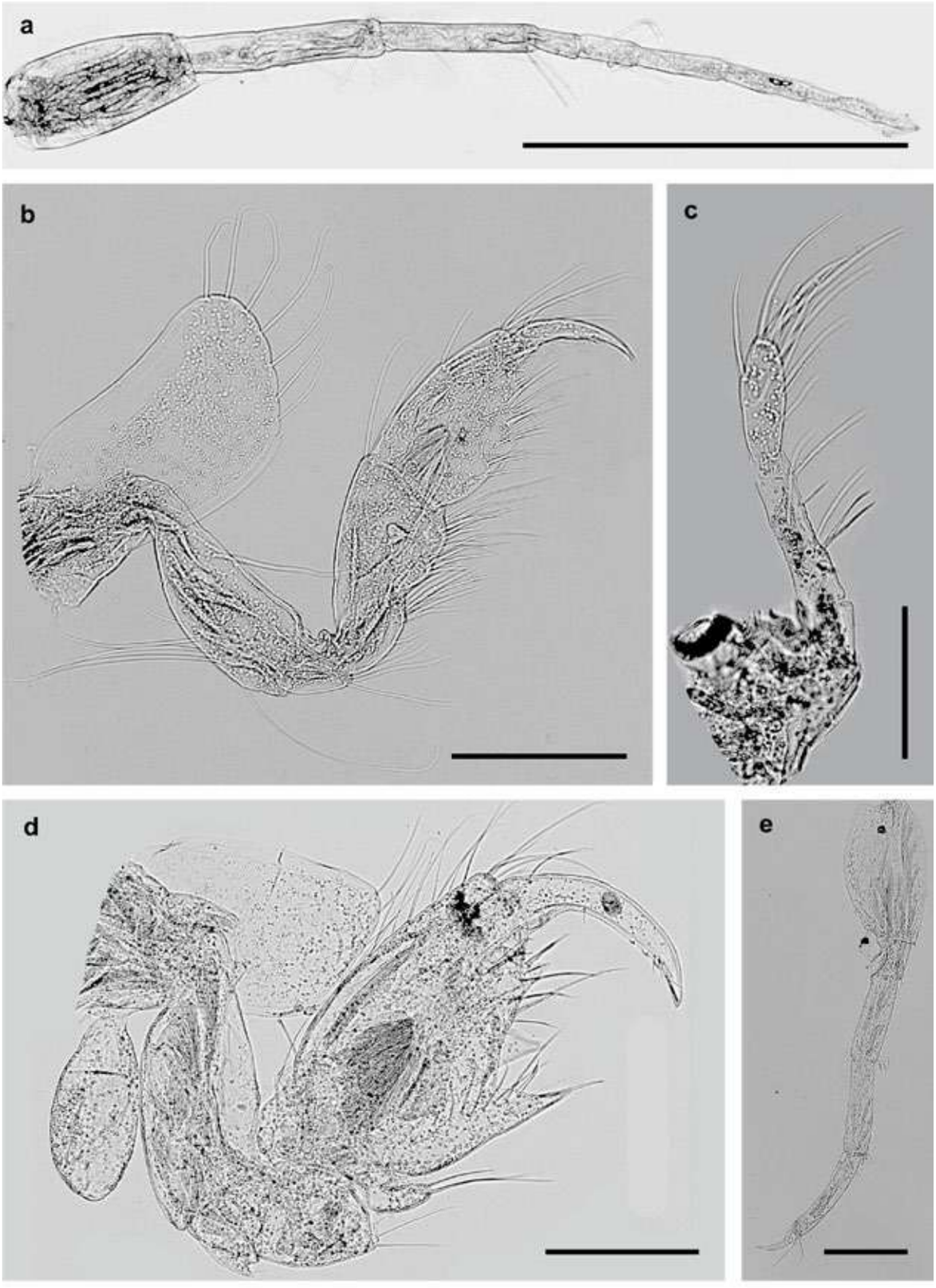

Plate 162. *Photis* sp. 1, Kuwait Bay. Male: a – antenna 1; b – gnathopod 1; c – mandible; d – gnathopod 2; e – pereopod 7. Scale lines: a – 0.5 mm; b, d, and e – 0.2 mm; c – 0.1 mm.

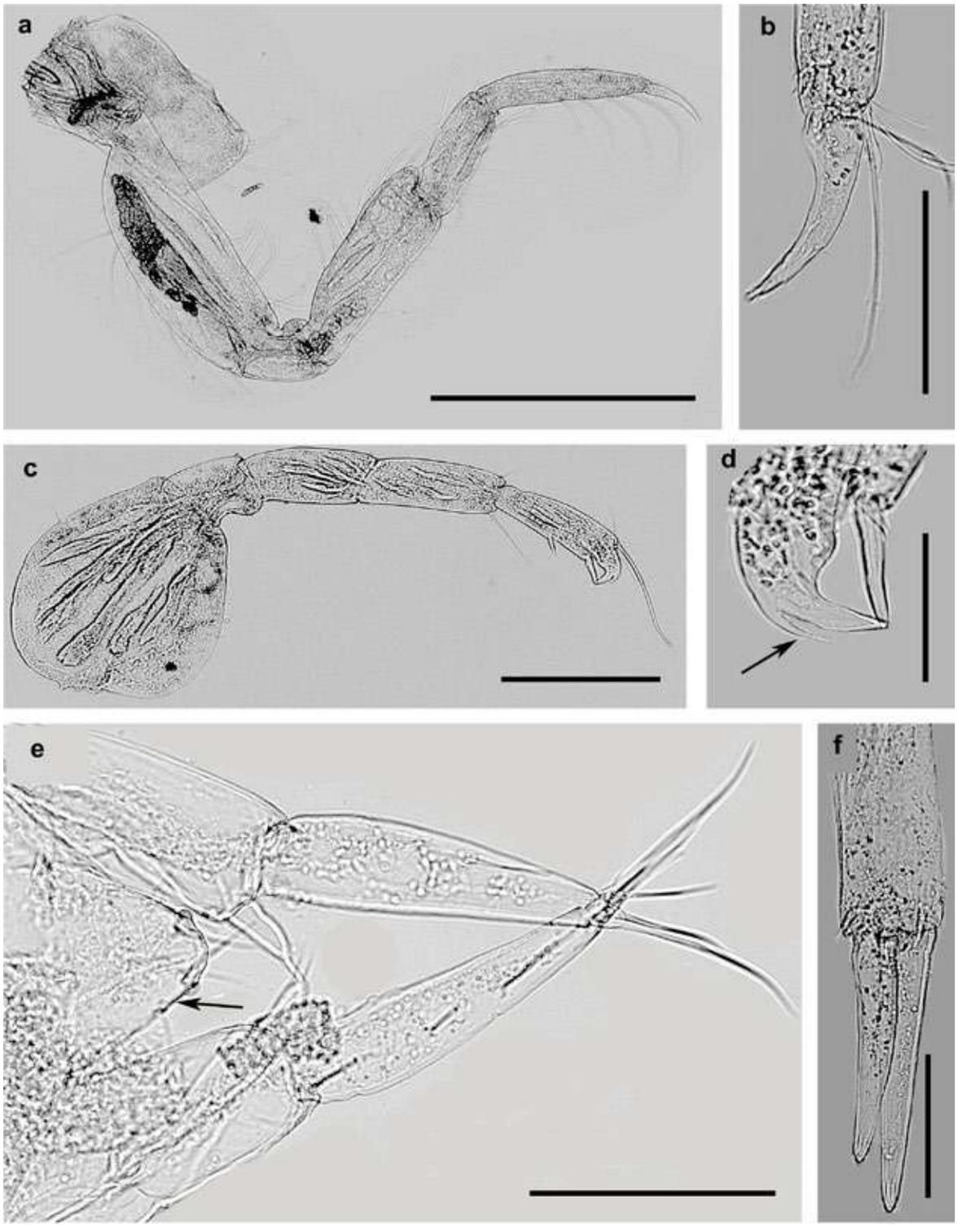

Plate 163. *Photis* sp. 1, Kuwait Bay. Male: a – pereopod 3; b – pereopod 7, dactylus; c – pereopod 5; d – pereopod 5, dactylus, tooth (arrow); e – uropod 3, telson (arrow); f – uropod 2. Scale lines: a – 0.5 mm; c – 0.2 mm; b, e, and f – 0.1 mm; d – 0.05 mm.

Family Photidae
Genus *Photis*

Photis* sp. 2 cf. *bifurcata
Plates 164 – 166.
Occurrence: Al-Nuwaiseeb area, Al-Bida'a area, Auha Island area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: aggregations of polychaete tubes, sponges, and *Sargassum* spp. (macroalgae).

Diagnosis (after Barnard, 1962; modified). Male, 2.5 mm. Cox1 and Cox2 not shorter than Cox3 – Cox5. Cox2 longer than wide; palm of Gn1 excavate well defined by a spine; Gn2 bearing a bifid process at the lower corner of the palm projecting slightly beyond the theoretical limit of a transverse palm, this process separated from the rest of the hand by an invagination in the middle of the palm; dactylus overlapping palm slightly, its inner margin with a proximal hump and slight distal hump and constriction, basis Gn2 produced strongly anterodistally, its lateral face **without stridulation ridges**, and the lower edge of coxa **without stridulation ridges**.
Female. Palm Gn2 slightly excavate, defined by a small spine, ventral edge of propodus relatively long.
Taxonomic characters for distinguishing *Photis* sp. 2 cf. *bifurcata* from *Photis bifurcata* (J.L. Barnard, 1962) are expressed in **bold** text.

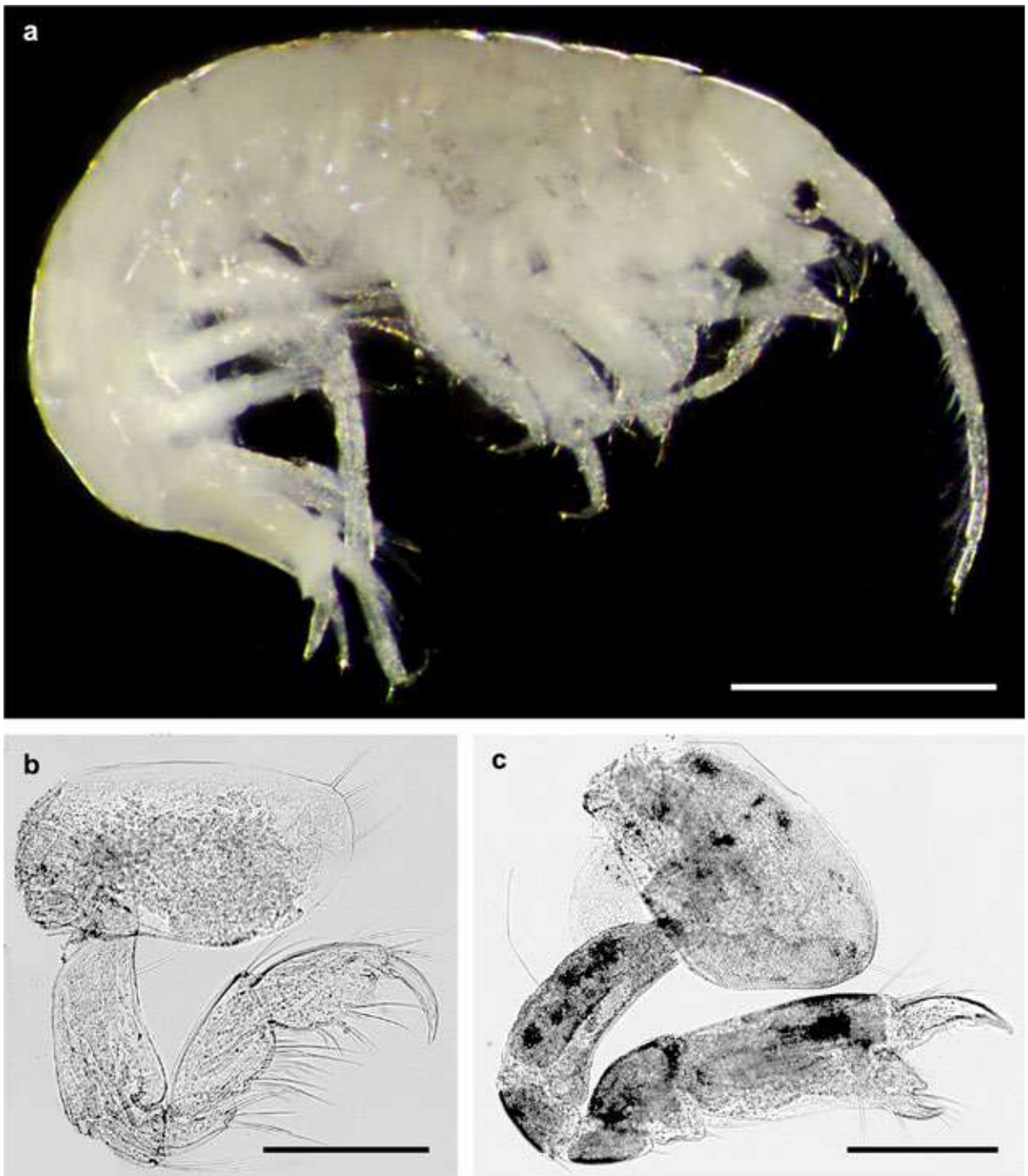

Plate 164. *Photis* sp. 2 cf. *bifurcata*, Auha Island: a – female habitus; b – male, gnathopod 1; c – male, gnathopod 2. Scale lines: a – 1 mm; b and c – 0.2 mm.

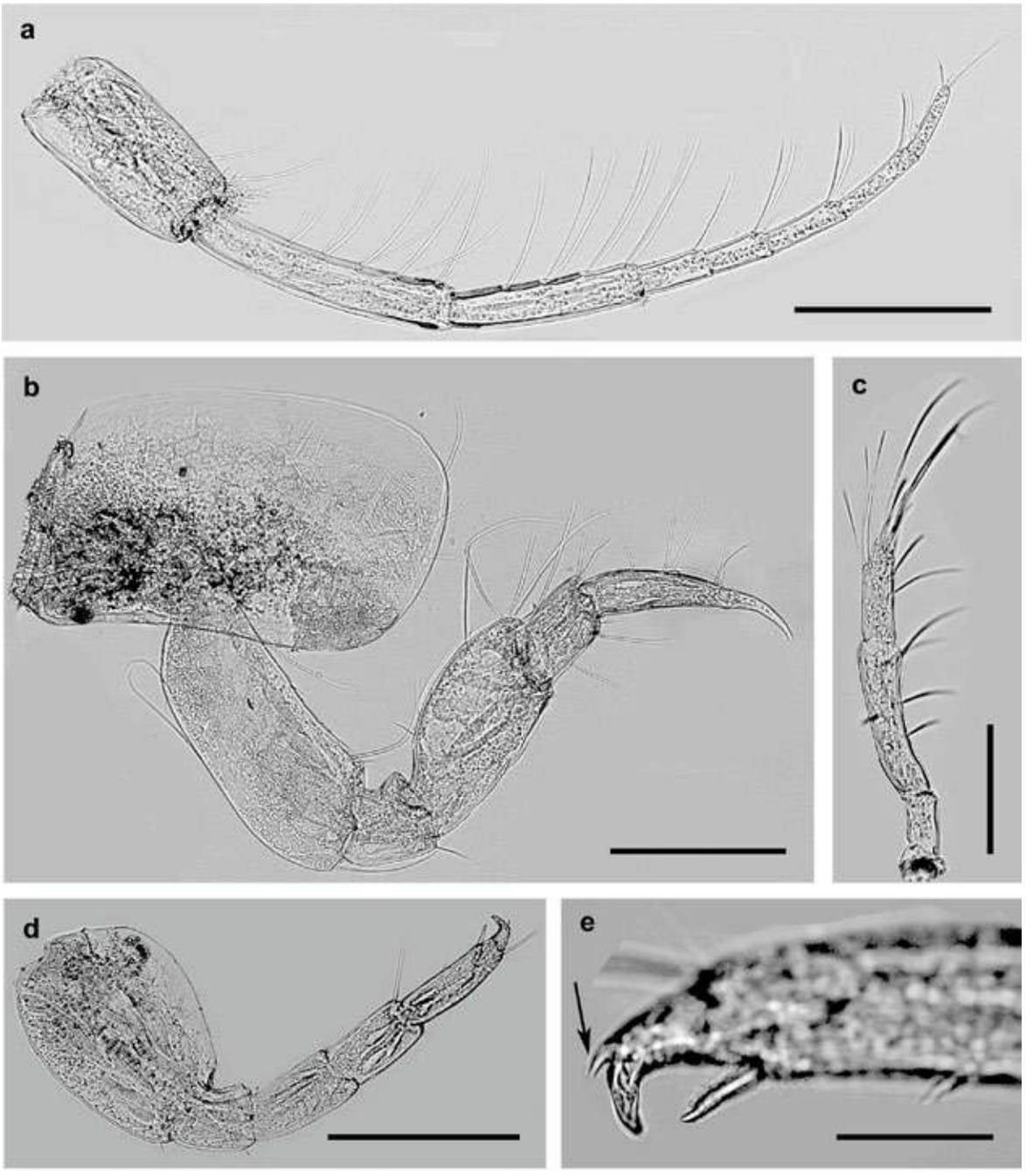

Plate 165. *Photis* sp. 2 cf. *bifurcata*, Auha Island. Male, specimen 2: a – antenna 1; b – pereopod 3; c – palp of mandible; d – pereopod 5; e – pereopod 5, dactylus, tooth (arrow). Scale lines: a, b and d – 0.2 mm; c – 0.1 mm; e – 0.05 mm.

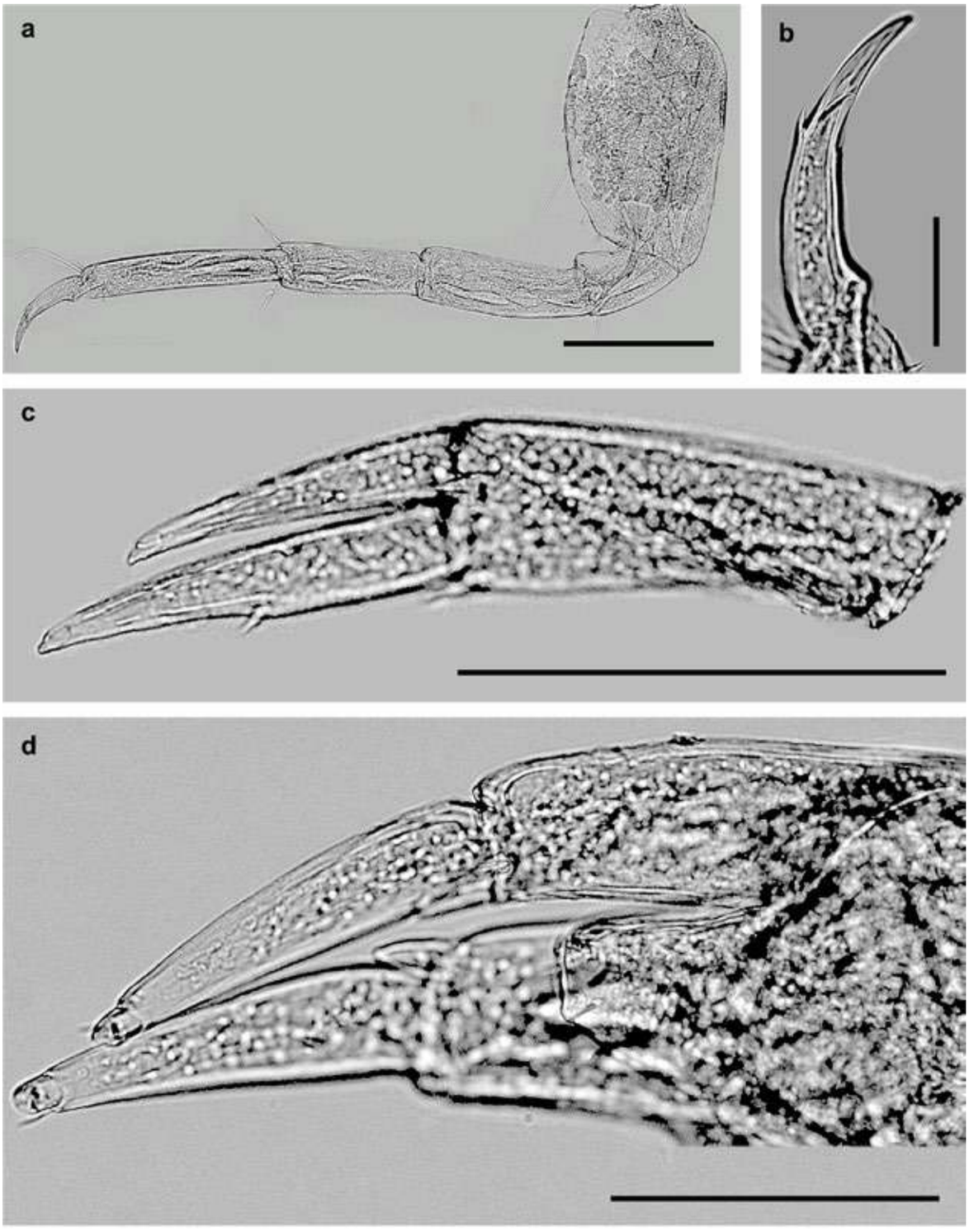

Plate 166. *Photis* sp. 2 cf. *bifurcata*, Auha Island. Male, specimen 2: a – pereopod 7; b – pereopod 7, dactylus; c – uropod 2; d – uropod 3 and telson Scale lines: a and c – 0.2 mm; d – 0.1 mm; b – 0.05 mm.

Family Photidae
Genus *Photis*

Photis sp. 3 cf. *viuda*

Plates 167 – 169.
Occurrence: Salmiya town beach, Al-Bida'a area, Auha Island area, and Kuwait Bay area.
Subtidal Zone.
Habitats: muddy sand, shells, and sand.

Description (after J.L. Barnard, 1962; modified). Male, 2.6 mm. Head with small ocular lobes. A1 article 1 slightly shorter than 3, article 2 longer than either. Cox1 elongated rectangular **equal to Cox2** in length with 3 setae ventrally. Cox2 elongate rectangular with 4 setae medially. Cox3 and Cox4 broader than Cox1 and Cox2 with setae medially. Cox3 slightly widened medially with ridges. Gn1 carpus and propodus equal to each other in length, propodus near rectangular, palm defined spine, concave, dactylus long, fitting palm, with teeth and crenulations on the inner edge. Gn2 basis with lobe distally, with ridges anterodistally; ischium with 1 seta on the ventral edge; merus with setae on the ventral edge; carpus with posterior lobe armed setae; propodus longer than carpus with a group of setae anteriorly, palm well defined by 2 teeth near finger hind, with a medial palmar tooth, about 1/2 the length of propodus; dactylus with crenulations on the inner edge. P3 and P4 similar. P5, dactylus with 1 sharp accessory cusp and 1 minute seta. P6 with basis near oval form, dactylus with 1 accessory cusp. P7 dactylus with 1 minute accessory cusp. U1 and U2 similar, peduncle with 2 little spines distally, outer ramus slightly shorter than inner without spines medially, inner rami without spines. U3 peduncle with 1 seta distally, outer ramus longer than peduncle with 2 articles, first article with 1 seta distomedially and 1 seta apically, second article with 2 setae apically; inner ramus minute without setae. T triangular with minute setae.

Female, 2.1 mm. Gn2, basis with 1 seta midanteriorly and seta near midposteriorly; ischium with seta posterodistally; merus with setae posterodistally; carpus with a small lobe posterodistally and with setae posterodistally; propodus longer than carpus with setae anteriorly and posteriorly, palm poorly defined; dactylus strong with a spine and setae on inner side distally.

Taxonomic characters for distinguishing *Photis* sp. 3 cf. *viuda* from *Photis viuda* by J. L. Barnard 1962, are expressed in **bold** text.

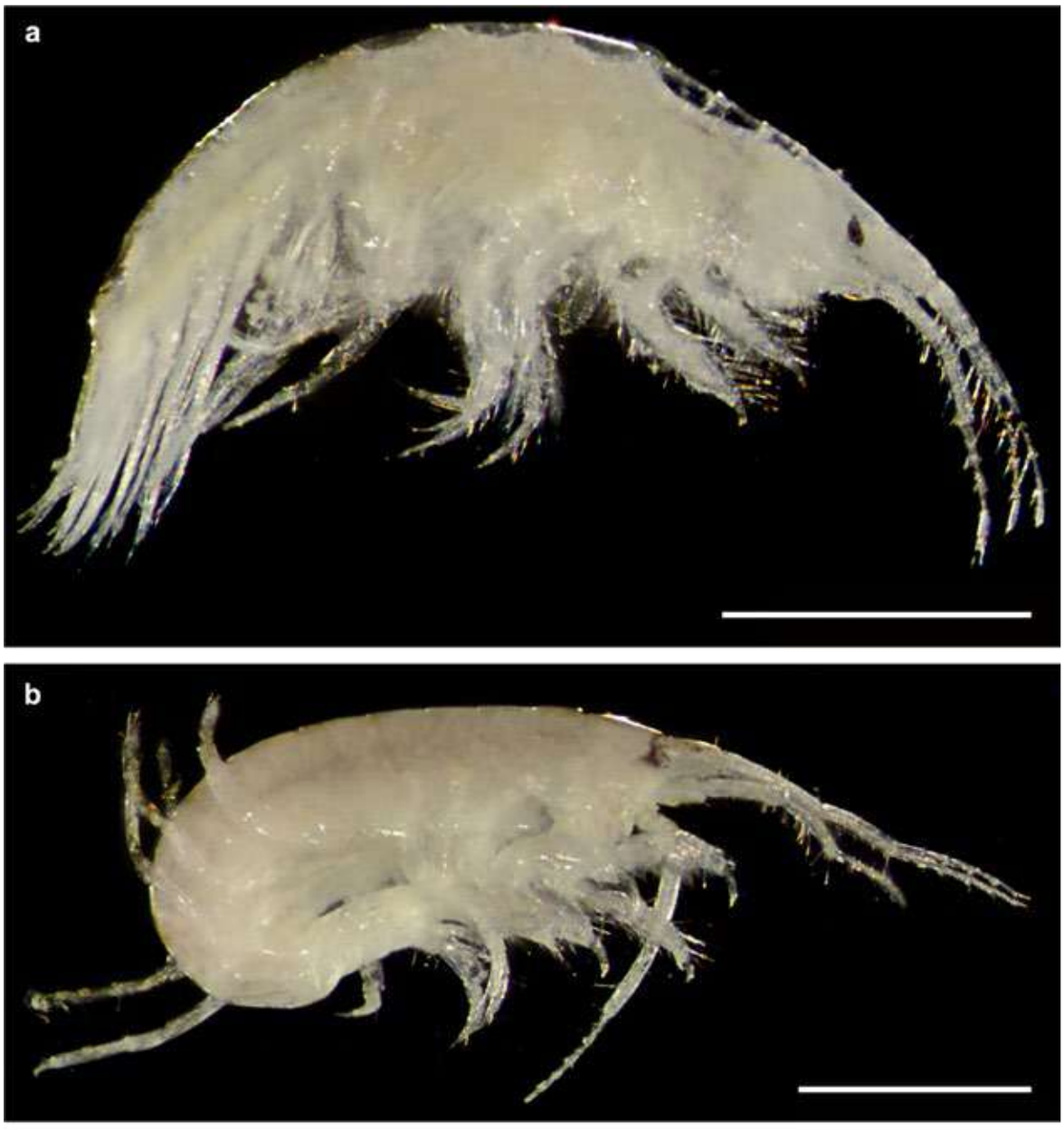

Plate 167. *Photis* sp. 3 cf. *viuda*, Al-Bida'a: a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

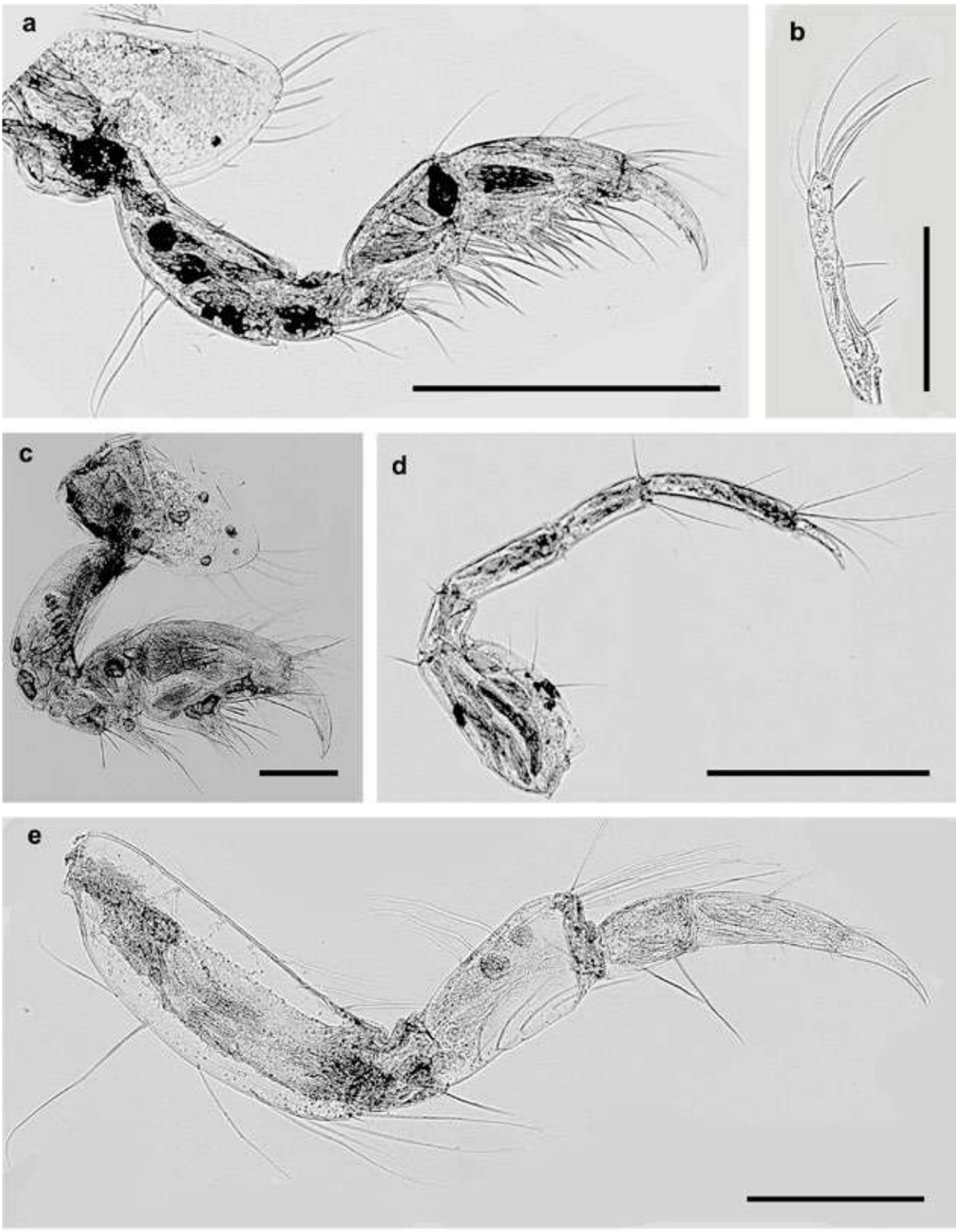

Plate 168. *Photis* sp. 3 cf. *viuda*, Al-Bida'a. Male: a – gnathopod 1; b – palp of mandible; c – gnathopod 2; d – pereopod 7; e – pereopod 3. Scale lines: a and d – 0.5 mm; c and e – 0.2 mm; b – 0.1 mm.

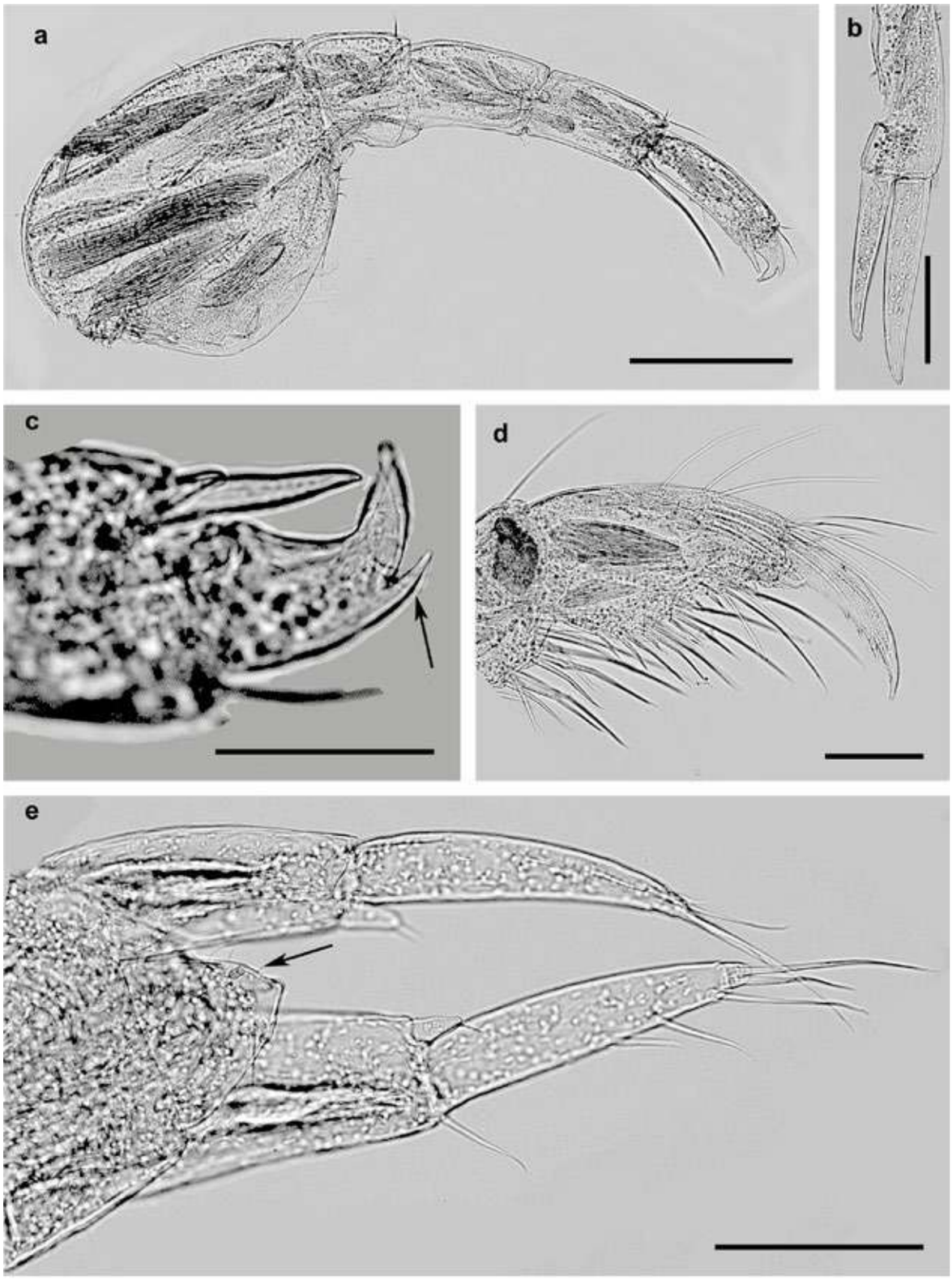

Plate 169. *Photis* sp. 3 cf. *viuda*, Al-Bida'a. Male: a – pereopod 5; c – pereopod 5, dactylus, tooth (arrow); d – gnathopod 1, propodus, dactylus. Female: b – uropod 2; e – uropod 3, telson (arrow). Scale lines: a – 0.2 mm; b, d, and e – 0.1 mm; c – 0.05 mm.

Family Phoxocephalidae
Genus *Brolgus*

Brolgus sp. cf. *mamak*

Plates 170 – 172.

Occurrence: Kuwait Bay area, Auha Island area, Salmiya Town beach area, Qaruh Island area, Al-Maghasel (Khor Al-Sabiyah area), Al-Shumaimah (Khor Al-Sabiyah area), Failaka Island area, Ras Adjuza (Kuwait Bay area), Al-Nuwaiseeb area, and Miskan Island area.

Intertidal and Subtidal Zones.

Habitats: shells, sand, dead corals, aggregations of oyster shells, muddy sand, rocks, and sponges.

Diagnosis for genus (Barnard & Karaman, 1997), with specification for *B. mamak* from Barnard and Drummond, 1978 (**bold** text). Rostrum unconstricted. Eyes present. Article 2 of A1 short, ventral setae either widely spread or almost confined apically. Article 1 of A2 not ensiform, article 3 with 1-2 facial setules, facial spines on article 4 in 2+ rows, some spines thick and some spines thin, article 5 very short. Right Md incisor with 3 teeth, right lacinia mobilis bifid, molar not triturative, with 3 basally fused spines; palpar hump small, apex of palp article 3 oblique. Inner plate of Mx1 with 0-2 setae, palp 2-articulate. Mxp ordinary, apex of palp article 3 not strongly protuberant, dactylus elongate, apical nail distinct. Gnathopods dissimilar, Gn2 moderately to strongly enlarged, article 5 of Gn1 of ordinary length, of Gn2 very short, cryptic, palms oblique, propodus of gnathopod 1 ordinary, thin, ovatoreclangular, elongated, of Gn2 broadened, both poorly setose anteriorly. Article 5 of P3- 4 with posteroproximal setae, article 6 with thin and thick armaments. Article 2 of P5 of a broad form, articles 4-5 of P5 and P6 narrow; P7 ordinary, article 3 ordinary, dactylus ordinary. Ep1 and Ep2 without long posterior setae, Ep3 of rounded classification, bearing 3 or fewer long setae. Us3 without dorsal hook. Peduncle of U1 without interramal spike, with major displaced spine apicomedially, rami of U1 and U2 not continuously spinose to apex, without subapical spines or nails, inner ramus of U1 with 1 row of marginal spines. Inner ramus of U2 ordinary. **Rami of uropods 1 – 2 lacking apical scale, setules on telsonic lobes medial to spine**. U3 ordinary, bearing article 2 on outer ramus, with 1 apical seta. T ordinary with **short lateral spine plus 2 setules**.

Plate 170. *Brolgus* sp. cf. *mamak*, Kuwait Bay*:* a – female habitus; b – male habitus. Scale lines: a and b – 1 mm.

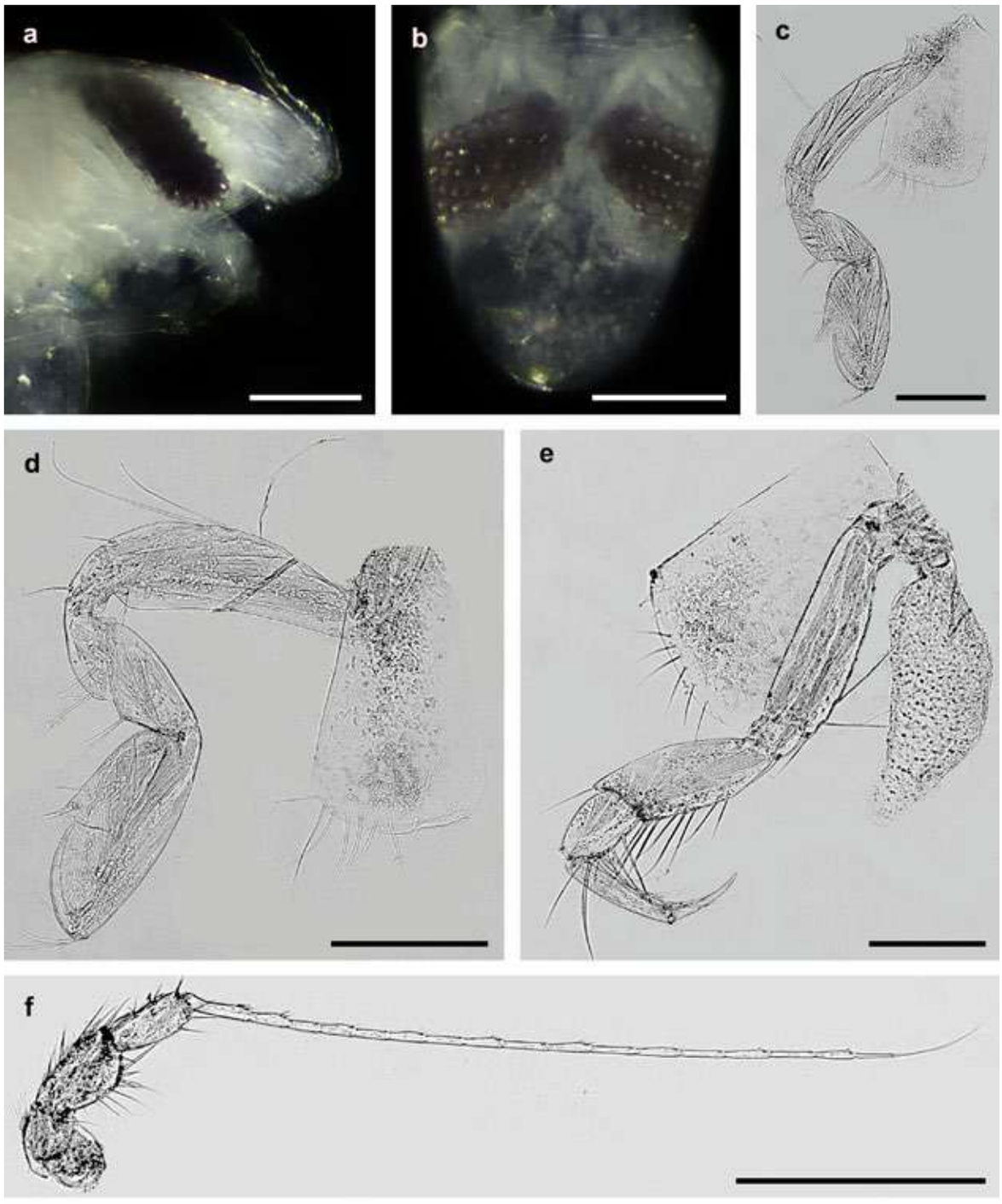

Plate 171. *Brolgus* sp. cf. *mamak*, Kuwait Bay. Male: a – head, lateral view; b – head, dorsal view; c – gnathopod 2; d – gnathopod 1; e – pereopod 4; f – antenna 2. Scale lines: f – 0.5 mm; a, b, c, d, and e – 0.2 mm.

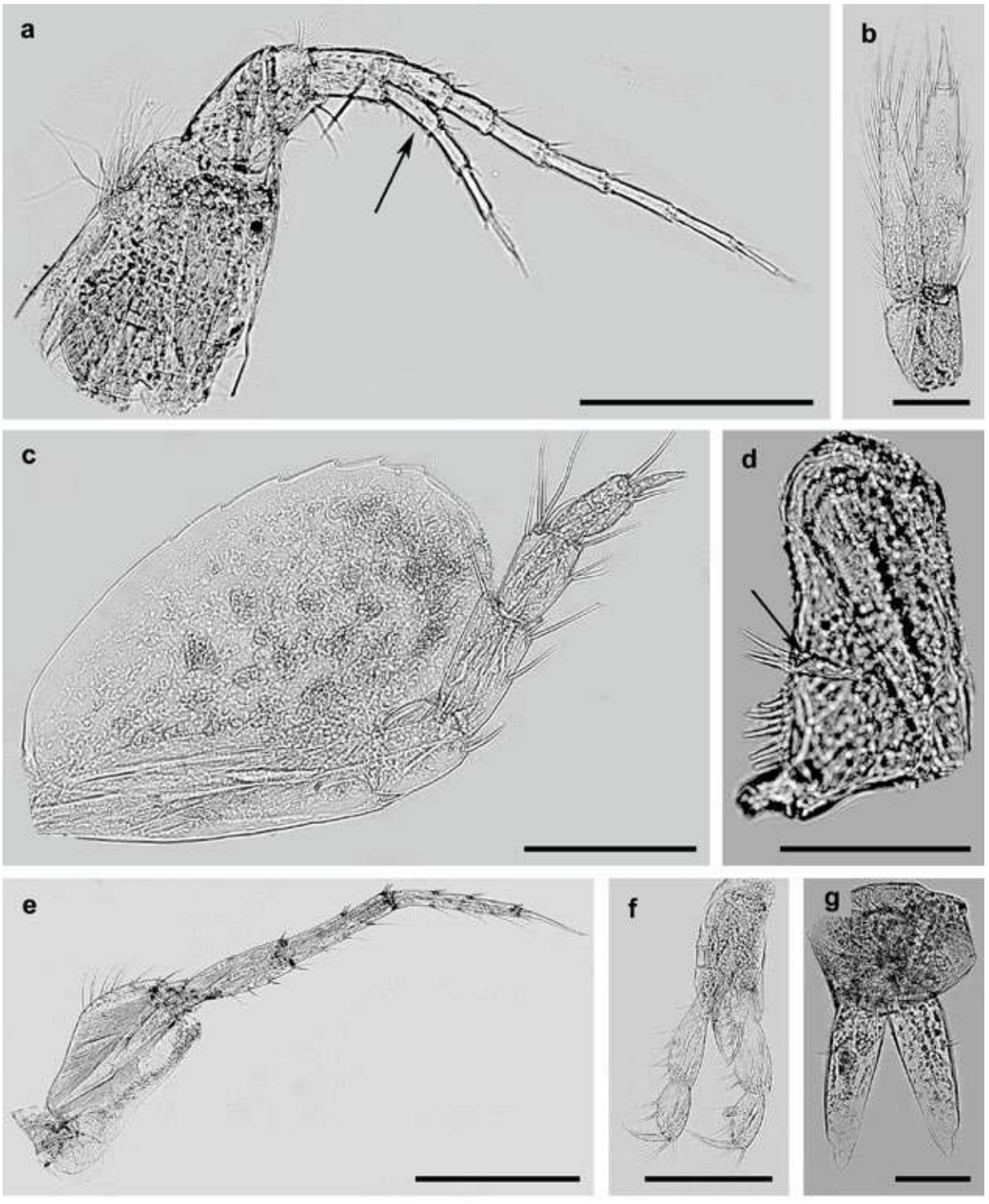

Plate 172. *Brolgus* sp. cf. *mamak*, Kuwait Bay. Male: a – antenna 1, accessory flagellum (arrow); b – uropod 3; c – pereopod 7; d – mandible, molar (arrow); e – pereopod 6; f – maxilliped; g – telson. Scale lines: e – 0.5 mm; a, c, and f – 0.2 mm; b, d, and g – 0.1 mm.

Family Platyischnopidae
Genus *Indischnopus*

Indischnopus herdmani (Walker, 1904)
Plates 173 and 174, and Fig. ZP-50.
Occurrence: Al-Bida'a area, Salmiya town beach area, Auha Island area, Al-Khiran area, and Failaka Island area.
Intertidal and Subtidal Zones.
Habitats: sand and shells.

Description. Female, 5.3 mm. Head rostrum apically constricted, narrow, elongated, bearing subapical downturned blunt process flush with ventral cephalic tangent. Eyes absent. A1 short, much shorter than body, article 1 over twice as wide as article 2, article 2 slightly longer than article 3; flagellum 7-articles; acc.fl. - 2-articles. A2 longer than A1; article of peduncle 3 short, article 4 of peduncle longer than articles 5; flagellum 8-articles. Md with strong molar toothed incisor and 3-articles, article 2 as long as article 3, article 3 with setae subapically and apically. Mx1 inner plate small, subovate; outer plate with 9 spines, palp uniarticulate with 1 seta apically. Mx2 with narrow inner and broad outer plate. Mxp with 1 spine and 1 seta apically; outer plate longer than inner with medial spines; palp 4-articles, article 3 subovoid shape, article 4 with articulate spine. Cox1 – Cox7 overlapping extended anteroventrally. Gn1 and Gn2 similar, basis strongly widened distally, ischium elongated, carpus longer than propodus, propodus slightly chelate, near triangular (Gn1) or narrowly ovate (Gn2), palmar humps serrate, palm protruding as hyaline lobe, dactylus with setae on the inner side. P3 and P4 similar. P7 much longer than P5, P6 basis near rectangular with strong excavation distoproximally with 2 cusps and spines along the anterior edge; ischium short subquadrate with spines anterodistally; merus near rectangular with spines anteriorly and posteriorly; carpus thinner than merus but longer with spines anteriorly and spines and setae posteriorly; propodus longer than carpus with spines anteriorly and posteriorly; dactylus slightly shorter than propodus, straight. Pleon segment 3 with teeth dorsally. Ep2 and Ep3 with sharp medium upturned tooth posteroventrally. U1 peduncle slightly shorter than rami with spines dorsally and strong spines dorsodistally; outer ramus slightly longer than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U2 peduncle slightly shorter than outer ramus with spines dorsally and strong spines dorsodistally; outer ramus slightly longer than inner with spines dorsally and apically; inner ramus with spines dorsally and apically. U3 peduncle shorter than outer ramus with spines medially and distally; outer ramus long with 2 articles, first article longer than second without spines only with 2 setae distally, second article slightly curved without spines and setae. T deeply cleft, each lobe with 2 strong teeth distally and 3 strong spines.
Male, 4.2 mm. Similar to female. A2 as long as body.

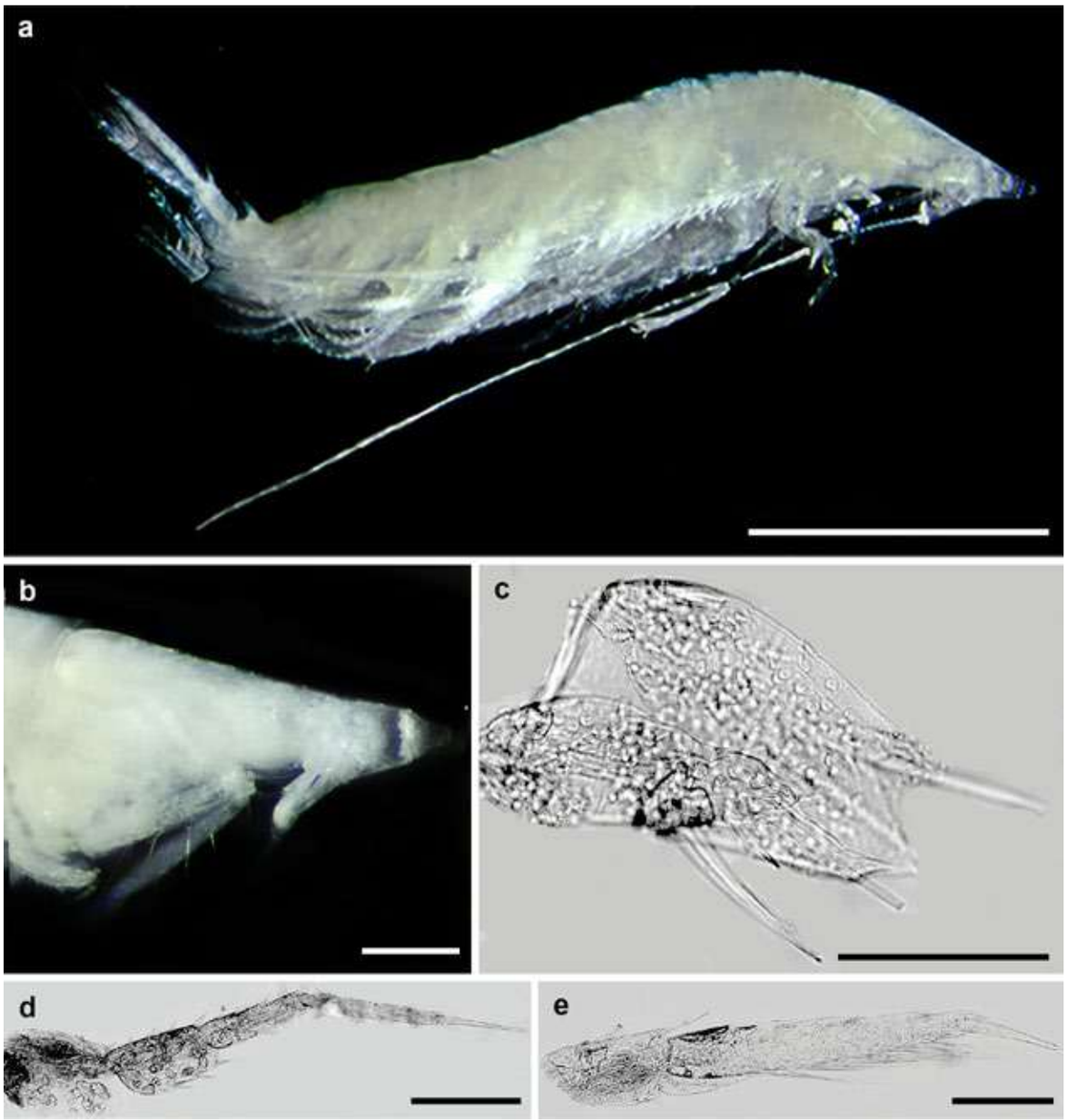

Plate 173. *Indischnopus herdmani*, Al-Bida'a. Male: a – habitus; b – head, lateral view; c – telson; d – pereopod 7; e – uropod 3. Scale lines: a – 2 mm; d – 0.5 mm; b and e – 0.2 mm; c – 0.1 mm.

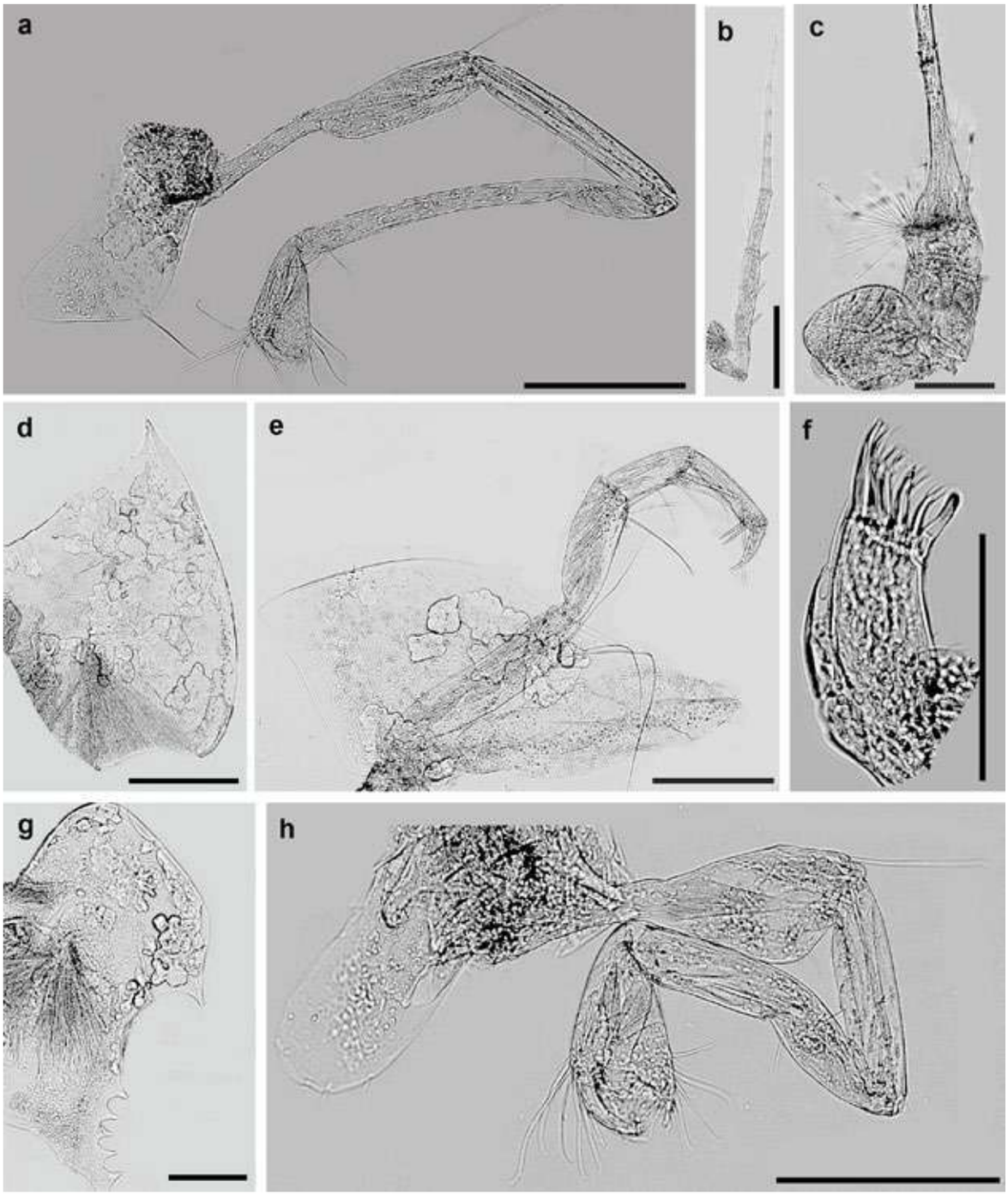

Plate 174. *Indischnopus herdmani*, Al-Bida'a. Male: a – gnathopod 2; b – antenna 2; c – antenna 2, peduncle; d – epimer 2; e – pereopod 4; f – maxilla 1; g – epimer 3; h – gnathopod 1. Scale lines: b – 0.5 mm; a, d, e, g, and h – 0.2 mm; c and f – 0.1 mm.

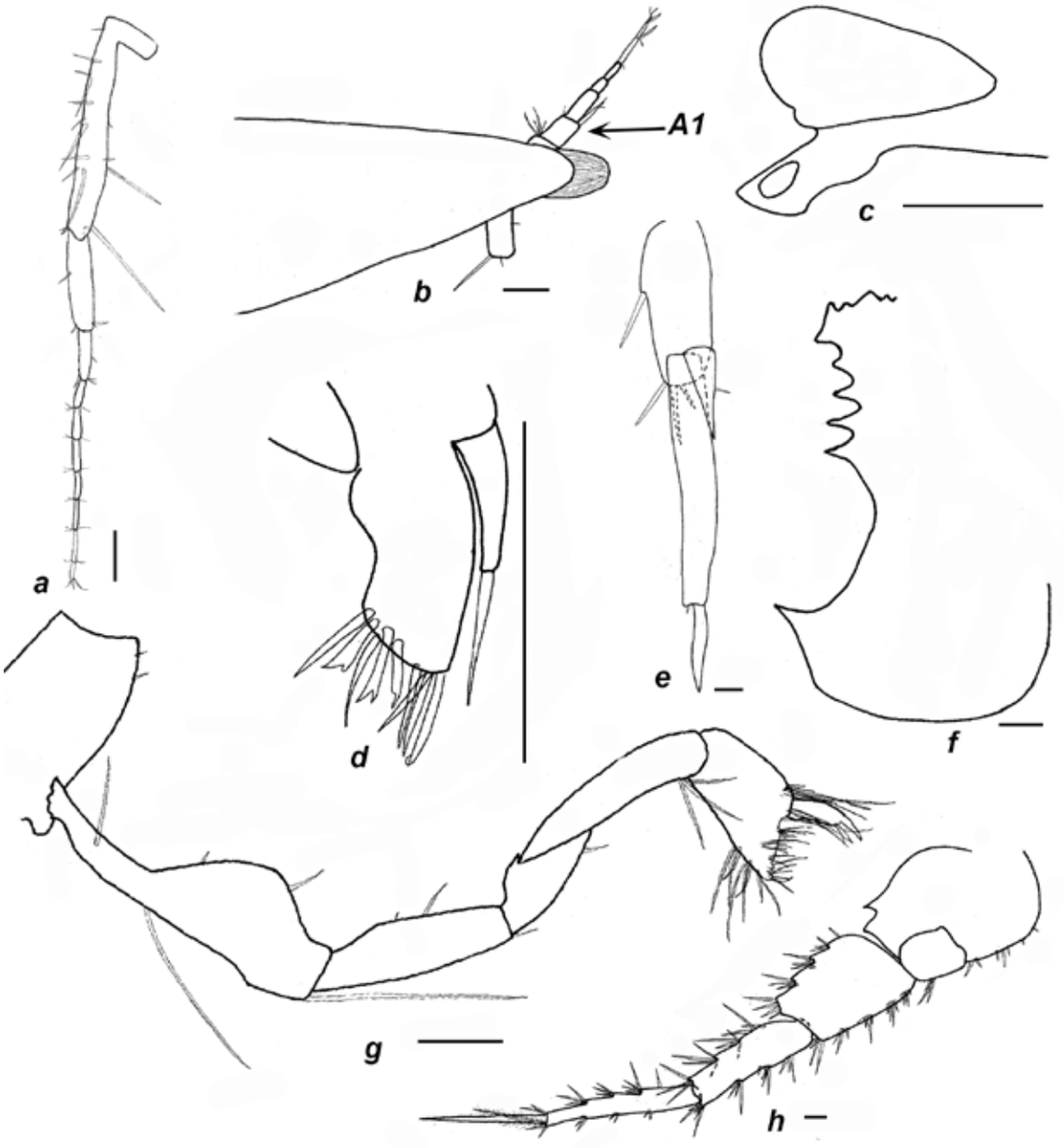

Fig. ZP-50. *Indischnopus herdmani*. Al-Bida'a. Female: a – antenna 2; b – head and antenna 1; c – mandible; d – maxilla 1; e – uropod 3; f – epimer 3; g – gnathopod 1; h – pereopod 7. Scale lines – 0.1 mm. Designations: A1 – antenna 1.

Family Podoceridae
Genus *Laetmatophilus*

***Laetmatophilus* sp.**
Plates 175 – 178.
Occurrence: Auha Island area, Al-Bida'a area, Al-Shumaimah (Khor Al-Sabiyah area), Failaka Island area, Ras Ajuza (Kuwait Bay area), and Ras Al-Zour area.
Intertidal and Subtidal Zones.
Habitats: sand, pebbles, shells, rocks, *Sargassum* spp. (macroalgae), sponges, polychaete tubes aggregation, and ropes (as artificial habitat).

Description. Male, 3.7 mm. Eyes big, distinctly posterior to anterolateral cephalic lobe, eyes forming lateral bulge. Anterodistal cephalic lobes, small sharply produced. A1 shorter than A2. A1 article 1 shortest, article 2 longer than article 3; flagellum 2-articles, acc.fl. small 1-articulate. A2 article 5 slightly longer then article 4; flagellum 2-articless, article 1-2 with curved spines dorsally, article 2 small. Palp Md article 3 shorter than article 2 with longer setae. Cox1 broad extended forward; Cox2 widened. Gn1 basis with small setae distally; ischium with small setae distoposteriorly; merus with setae posteriorly; carpus shorter than propodus with setae posteriorly; propodus with setae anteriorly and posteriorly, palm poorly defined; dactylus as long as propodus, inner edge with small setae. Gn2 basis with small setae distolaterally and with anterodistal lobes; ischium with setae distoposteriorly; merus armed setae posteriorly with strong sharp distoposterior lobe; propodus elongated, tumid, semioval, palm not defined with numerous long pectinate setae and 2 teeth anteriorly, anterior side of propodus with group setae; dactylus shorter than propodus. Pl1 – Pl3 without dorsal humps. U1 with spines dorsally and distally, with 2 rami; outer ramus shorter than inner and armed dorsally and apically with spines; inner ramus armed dorsally and apically with spines. U2 vestigial, concealed under telson. U3 absent. T subhemispheric.
Female, 2.3 mm. Gn2, basis widened distally; ischium with setae posterodistally; merus with strong sharp lobe posterodistally and bearing setae posteriorly and posterodistally; carpus small with setae posteriorly; propodus big near oval with well-defined palm by triangular projection and spine, a few setae anteriorly and posteriorly; dactylus curved proximally.

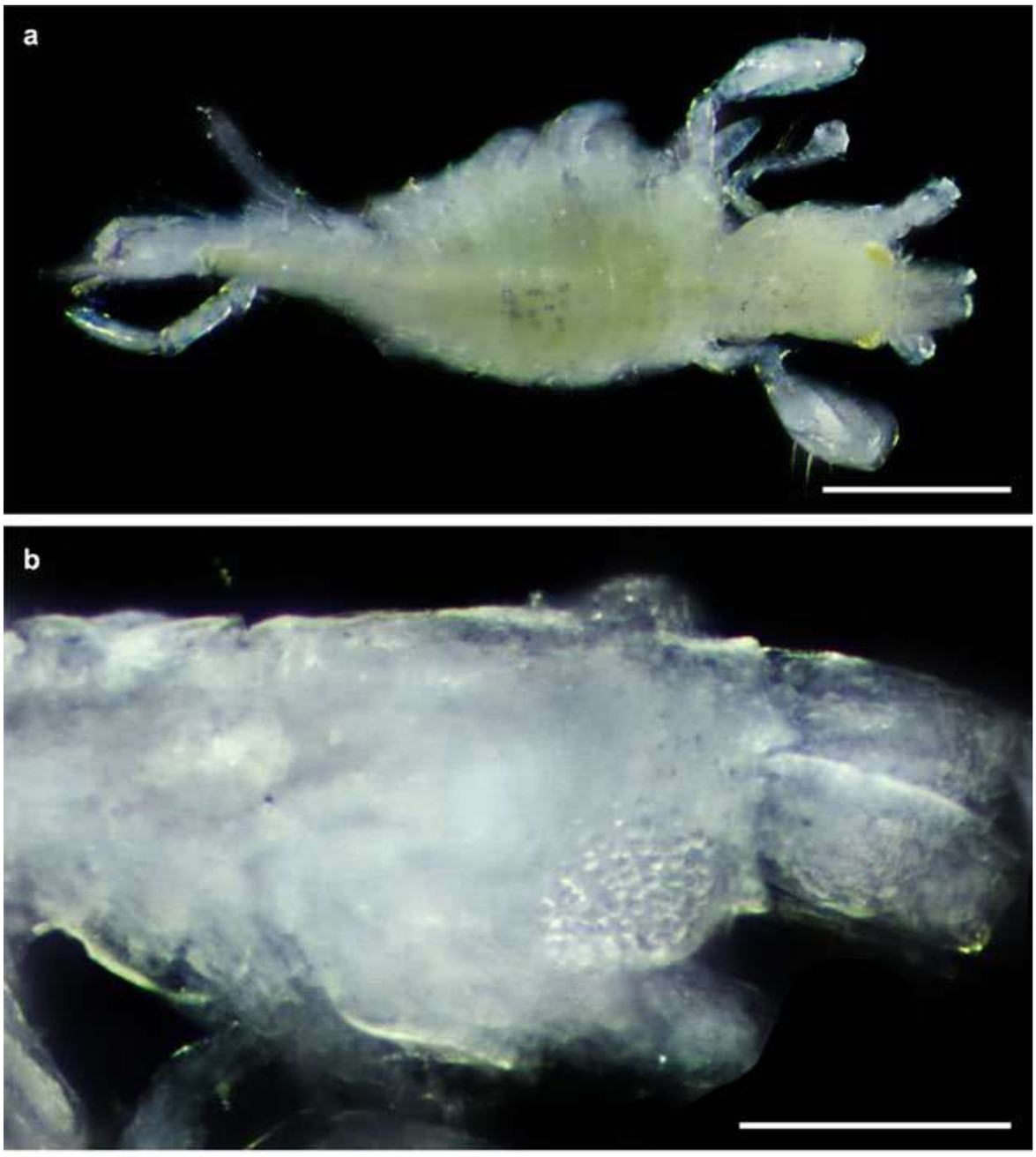

Plate 175. *Laetmatophilus* sp., Auha Island. Male: a – habitus; b – head, dorso-lateral view. Scale lines: a – 0.5 mm; b – 0.2 mm.

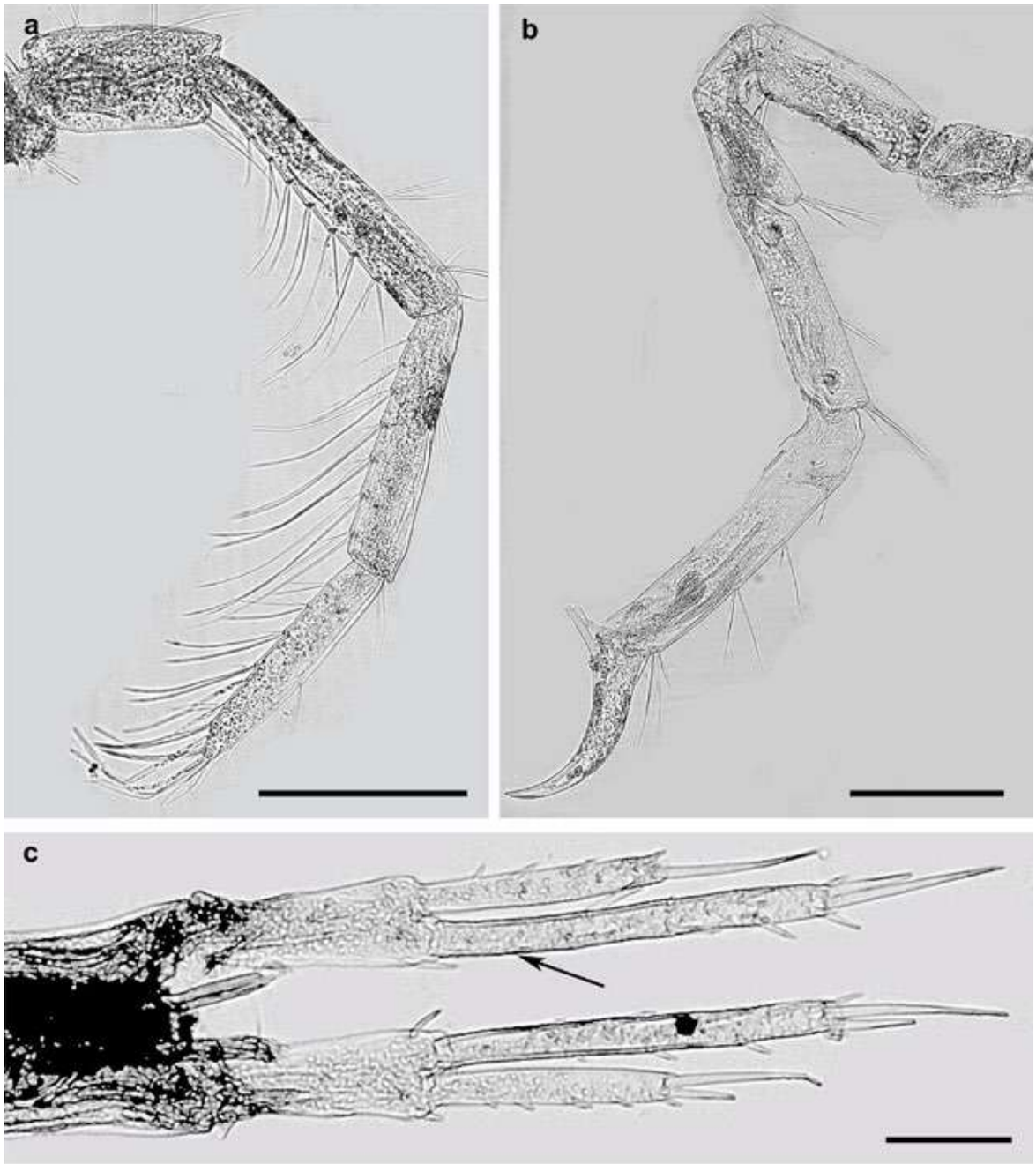

Plate 176. *Laetmatophilus* sp., Auha Island. Male: c – urosome, uropod 1 (arrow). Female: a – antenna 1; b – pereopod 7. Scale lines: a and b – 0.2 mm; c – 0.1 mm.

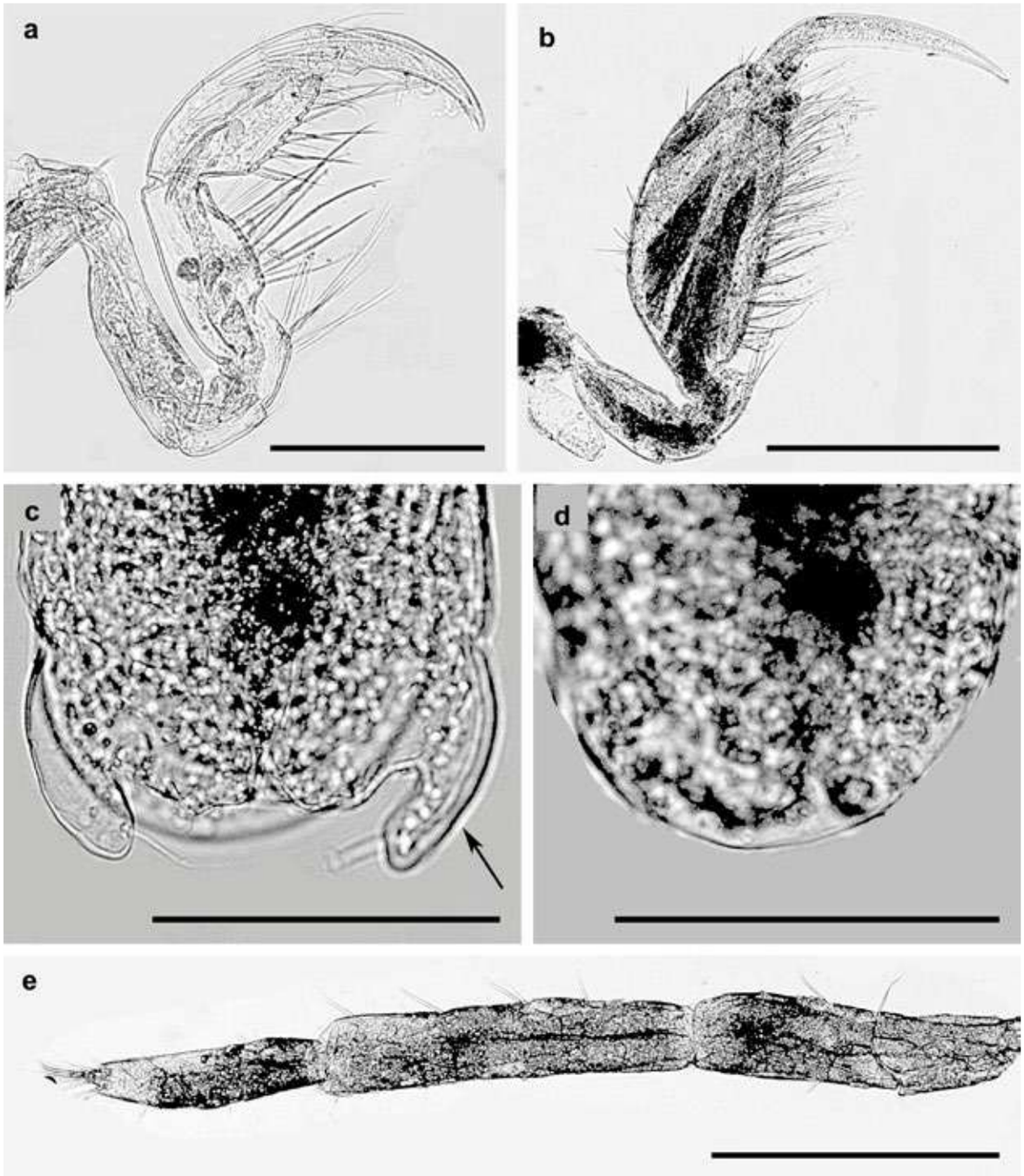

Plate 177. *Laetmatophilus* sp., Auha Island. Male: a – gnathopod 1; b – gnathopod 2; c – uropod 2 (arrow); d – telson; e – antenna 2. Scale lines: b and e – 0.5 mm; a – 0.2 mm; c and d – 0.1 mm.

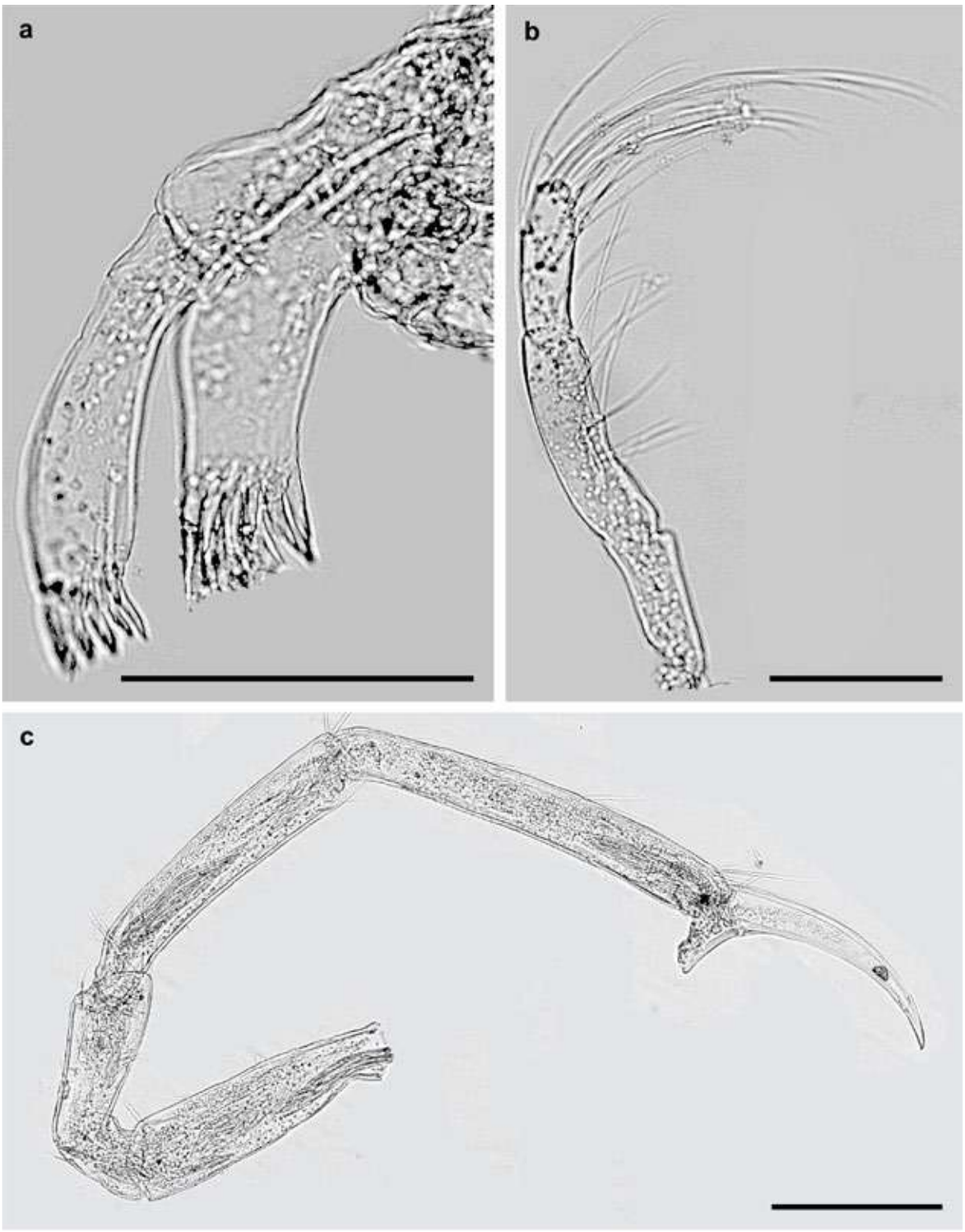

Plate 178. *Laetmatophilus* sp., Auha Island. Male: a – maxilla 1; b – palp of mandible; c – pereopod 3. Scale lines: c – 0.2 mm; a and b – 0.1 mm.

Family Podoceridae
Genus *Podocerus*

Podocerus mamlahensis Myers & Nithyanandan, 2016
Plates 179 – 181.
Occurrence: Al-Nuwaiseeb area, Funaitees area, Auha Island area, Qaruh Island area, Salmiya area, Al-Bida'a area, Al-Shumaimah (Khor Al-Sabiyah) area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: macroalgae, sand, pebbles, shells, rocks, hydroid-bryozoan associations, sponges, aggregations of polychaete tubes, and ropes (as artificial habitat).

Description (after Myers & Nithyanandan, 2016; modified). Male, 3.5 mm. Head. Eyes large, subovoid. A1 about two thirds of body length; peduncular article 1 short; article 2 long, more than twice the length of article 1; article 3 shorter than article 2; flagellum subequal in length with peduncular article 3, with 5 articles. A2 longer than antenna 1 and almost as long as body; peduncular articles 4 and 5 greatly elongated and stout; 5 a little longer than 4; flagellum article 1 elongated; article 2 long but much shorter than article 1; articles 3–4 telescoped. Md palp with three articles; article 3 shorter than 2, parallel-sided with dense distal setae and a few scattered setae on the posterior and anterior margins. Pereon. Segments 1–6 without dorsal spines or carinated. Segment 7 with small dorsal spine. Gn1 coxa weakly produced forward, subacute; basis slender; propodus a little longer than carpus, subovoid, palm convex, almost obsolete; dactylus greatly overlapping reduced palm, almost as long as propodus. Gn2 coxa subquadrangular; basis swollen, less than twice as long as broad; merus posterodistal corner weakly produced; carpus fused with propodus; propodus greatly enlarged, subovoid, palm convex, short, followed by two blunt spines on the posterodistal margin and one smaller blunt spine medially, posterior margin and inner lateral face clothed in long setae; dactylus curved, greatly overlapping palm, opposable to medial spine on the posterior margin of propodus. P3 – P7 basis short, subrectangular; dactylus stout. Pleon. Segments 1–2 with dorsal rounded spines that are folded back over the segment behind. Ep1 – Ep3 small, rounded. Us1 elongated, longer than Us2 and Us3 combined. U1 peduncle and rami with many robust setae, inner ramus longer than outer and longer than peduncle. U2 peduncle short, inner ramus longer than outer. U3 reduced with a small reduced ramus.
Female (sexually dimorphic characters). Gn2 coxa deeper than broad; basis stout, anterior margin concave; merus expanded, protruding distally; carpus short, cup-shaped; propodus subovoid, palm and posterior margin weakly crenulate, posterior proximal margin with strong, triangular blunt spine bearing two robust setae; dactylus elongated, curved, opposable to the proximal spine of propodus.

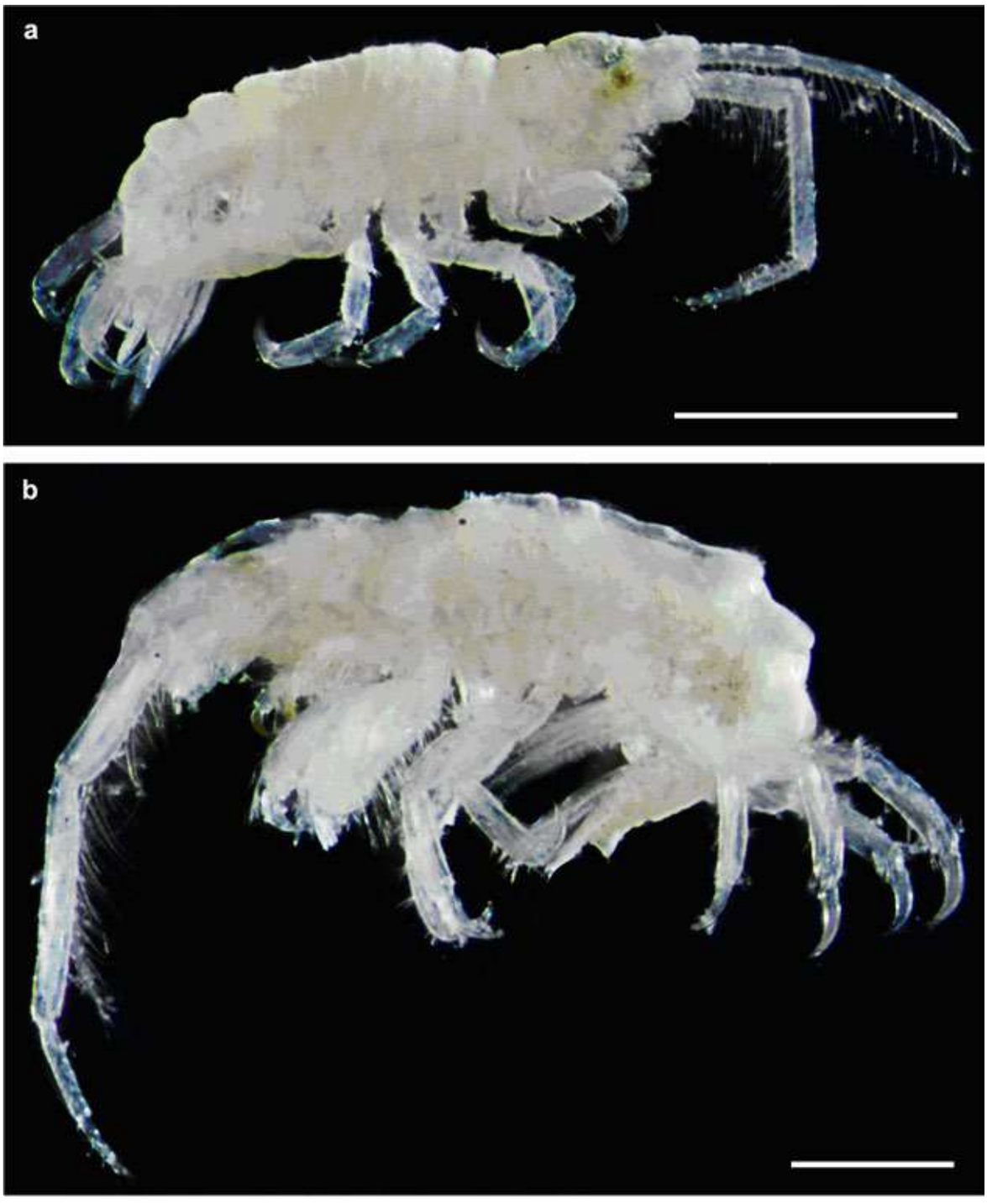

Plate 179. P*odocerus mamlahensis*, Al-Nuwaiseeb: a – female habitus, lateral view; b – male habitus, lateral view. Scale lines: a and b – 1 mm.

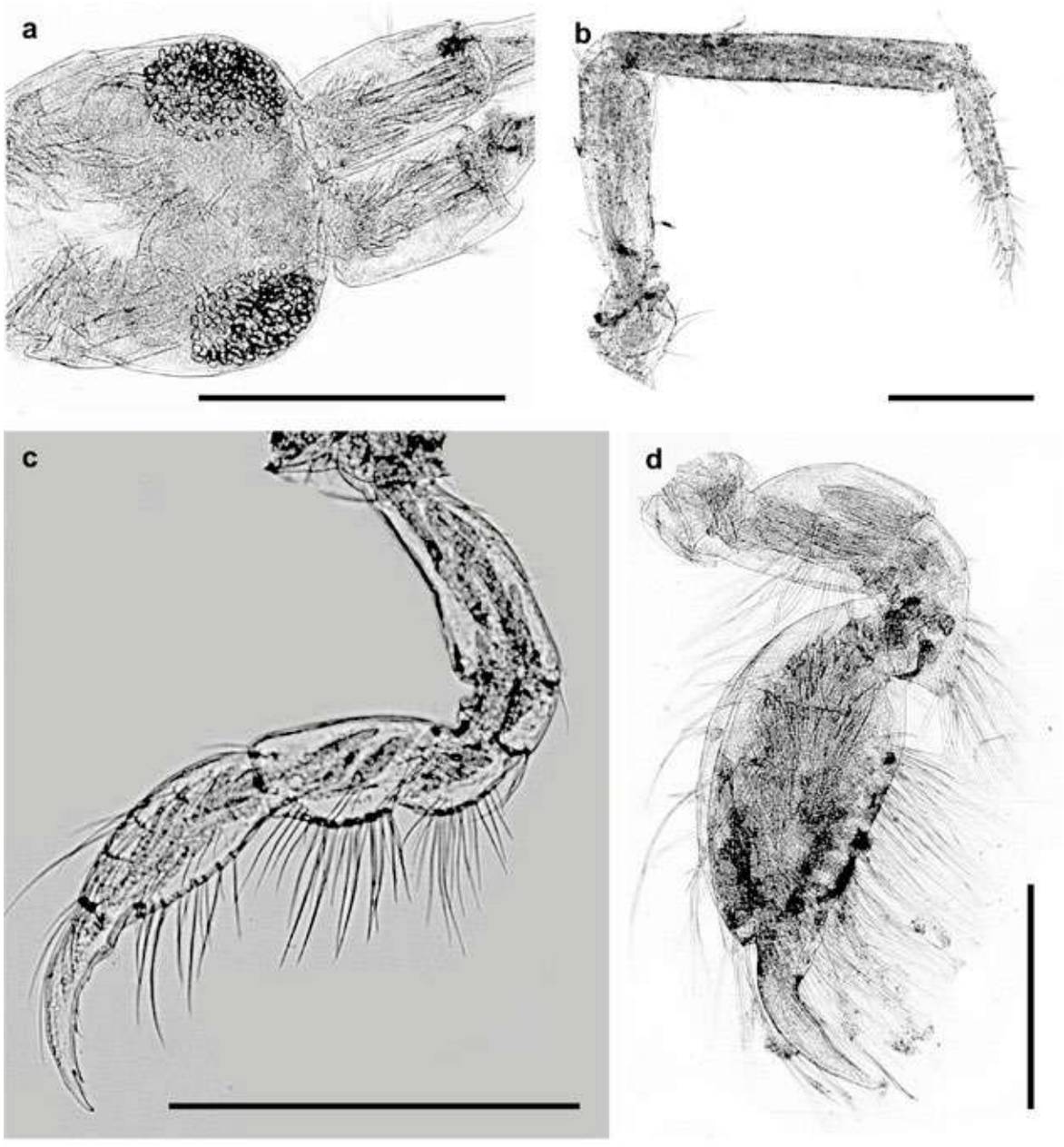

Plate 180. P*odocerus mamlahensis*, Al-Nuwaiseeb. Male: a – head, dorsal view; b – antenna 2; c – gnathopod 1; d – gnathopod 2. Scale lines: a, b, c, and d – 0.5 mm.

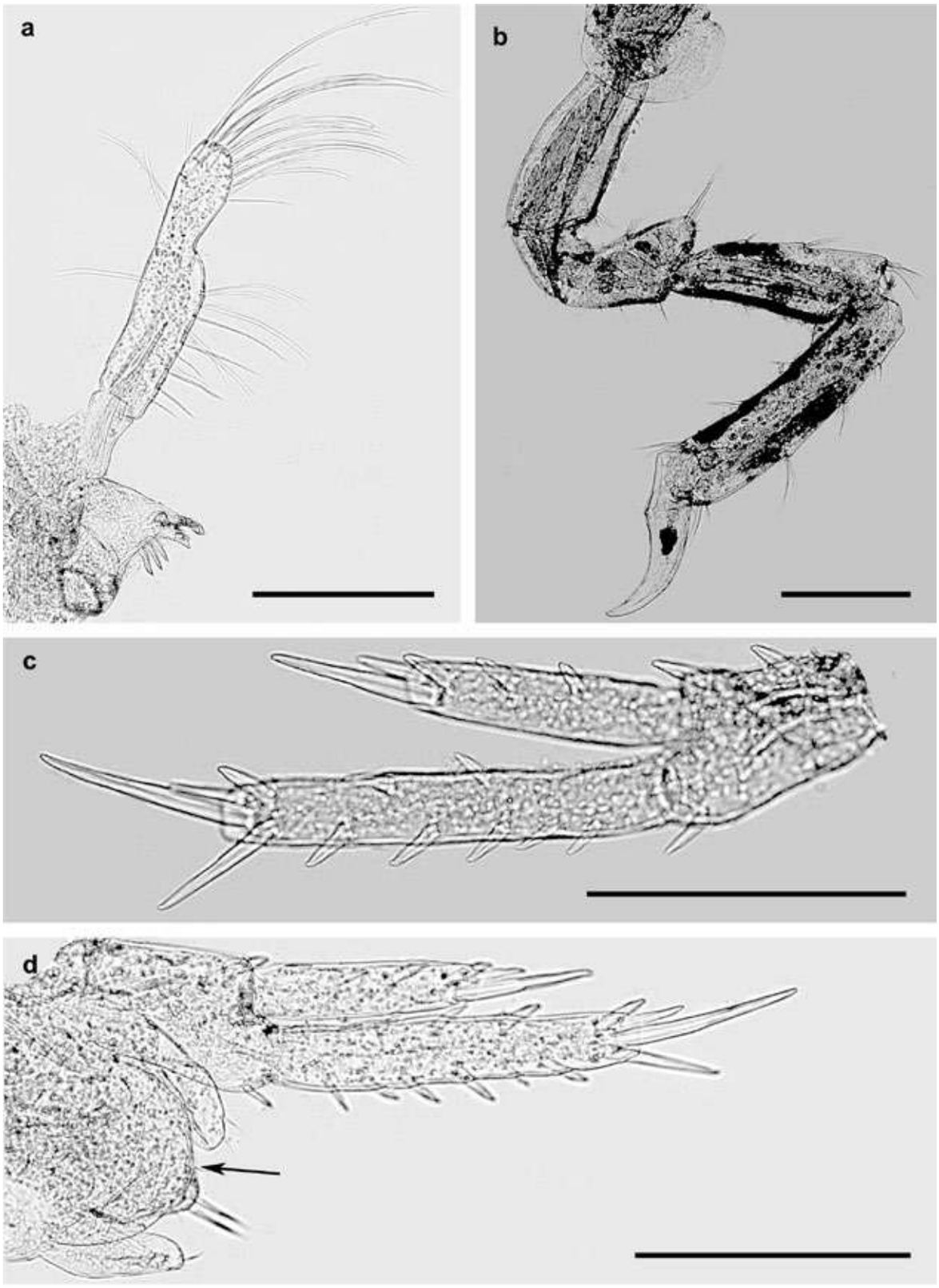

Plate 181. P*odocerus mamlahensis*, Al-Nuwaiseeb. Male: a – mandible; b – pereopod 3; c – uropod 2; d – uropod 3, telson (arrow). Scale lines: b – 0.25 mm; a, c, and d – 0.2 mm.

Family Pontogeneiidae
Genus *Abdia*

Abdia latipalpus (Walker & Scott, 1903)
Plates 182 – 184 and Fig. ZP-51.
Occurrence: Al-Nuwaiseeb area, Kubbar Island area, Qaruh Island area, Al-Khiran area, Umm Al-Maradim Island area, Failaka Island area, Ras Al-Zour area, and Auha Island area.
Intertidal (mostly) and Subtidal Zones.
Habitats: pebbles, cobble, shells, rocks, dead corals, sand, macroalgae, and ropes (as artificial habitat).

Description (after Barnard & Karaman, 1991; modified). Female, 5.6 mm. Body ordinary, compressed, smooth. Rostrum about ½ the length of the first article of A1, lateral cephalic lobes rounded. Eyes ovate. A1 article 1 peduncle the longest, article 2 longer than article 3; flagellum 19-articles. A2 slightly longer than A1, article 3 shorter than articles 4-5; flagellum much longer than peduncle with 18-articles. L surrounded with setae distally. Md molar triturative, columnar, palp article 2 widened subdistally with setae subdistally, article 3 about 1/2 the length of article 2 with setae posteriorly and distally. Lbr inner lobes present. Mx1, inner plate with 2 apical and 1 subapical setae, palp article 1 with strong lobe distally, article 2 with tooth and spine. Mxp, inner plate relatively long; palp of 4 articles, 4 article slightly shorter than 3, 3 unlobed, 4 with setae on the inner side. Coxae ordinary, Cox1 not produced anteriorly slightly expanded ventrally, Cox4 with posterior lobe, excavate. Gn1 and Gn2 diverse, small, of similar size. Gn1, basis long, widened distally with setae anteriorly and posteriorly; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus widened distally with setae anterodistally and posteriorly; propodus as long as carpus with setae anteriorly and posteriorly, palm well defined by spines; dactylus covered palm. Gn2, basis long, widened distally with setae anteriorly and posteriorly; ischium with setae posterodistally; merus with setae posteriorly and posterodistally; carpus widened distally produced lobe posterodistally, with setae anterodistally and posteriorly; propodus as long as carpus with setae anteriorly and posteriorly, palm well defined by spines; dactylus covered palm. P3 – P7 ordinary, simple, dactyls simple, article 2 not anteriorly lobate. U1 peduncle longer than rami with spines marginally; outer ramus shorter than inner with spines marginally and apically; inner ramus with spines marginally and apically. U2 peduncle longer than rami with spines marginally; outer ramus shorter than inner with spines marginally and apically; inner ramus with spines marginally and apically. U3 peduncle shorter than rami; rami lanceolate, subequal in length, with spines and plumose setae marginally. T cleft, lobes without spines or setae.
Male looks like female.

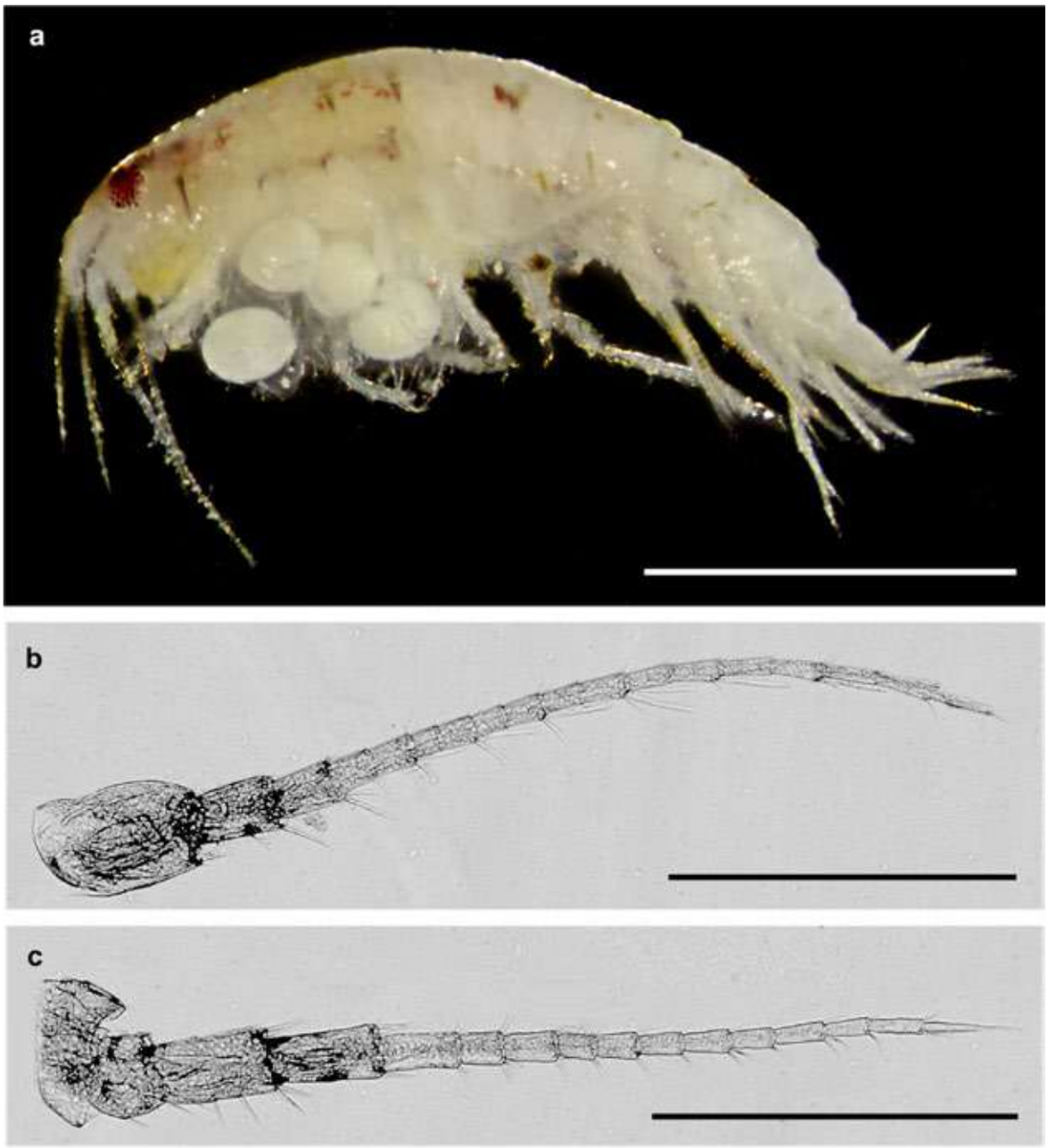

Plate 182. *Abdia latipalpus*, Kubbar Island. Female: a – habitus with eggs; b – antenna 1; c – antenna 2. Scale lines: a – 2 mm; b and c – 0.5 mm.

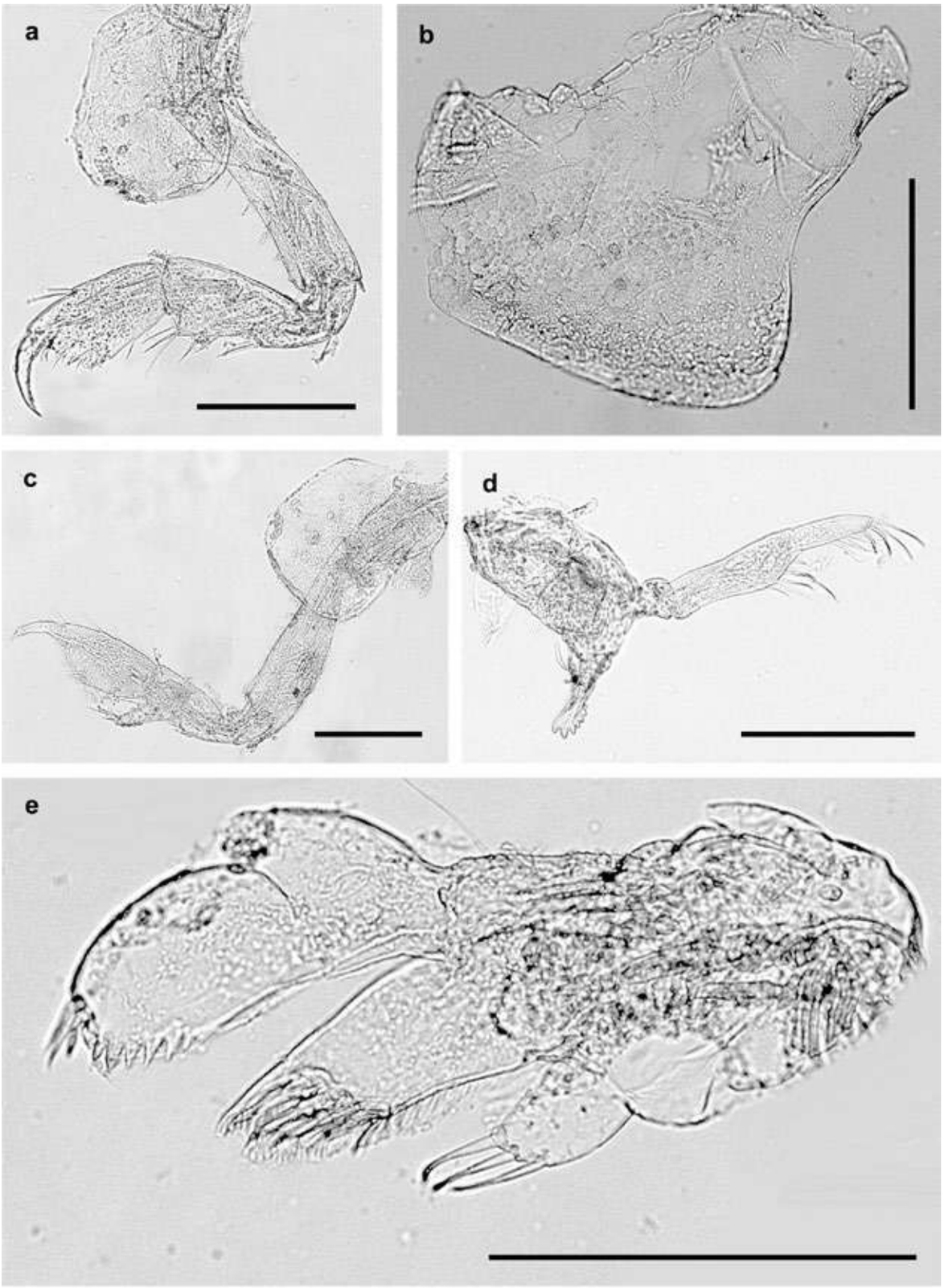

Plate 183. *Abdia latipalpus*, Kubbar Island. Female: a – gnathopod 1; b – epimer 3; c – gnathopod 2; d – mandible; e – maxilla 1. Scale lines: a, b, c, d, and e – 0.2 mm.

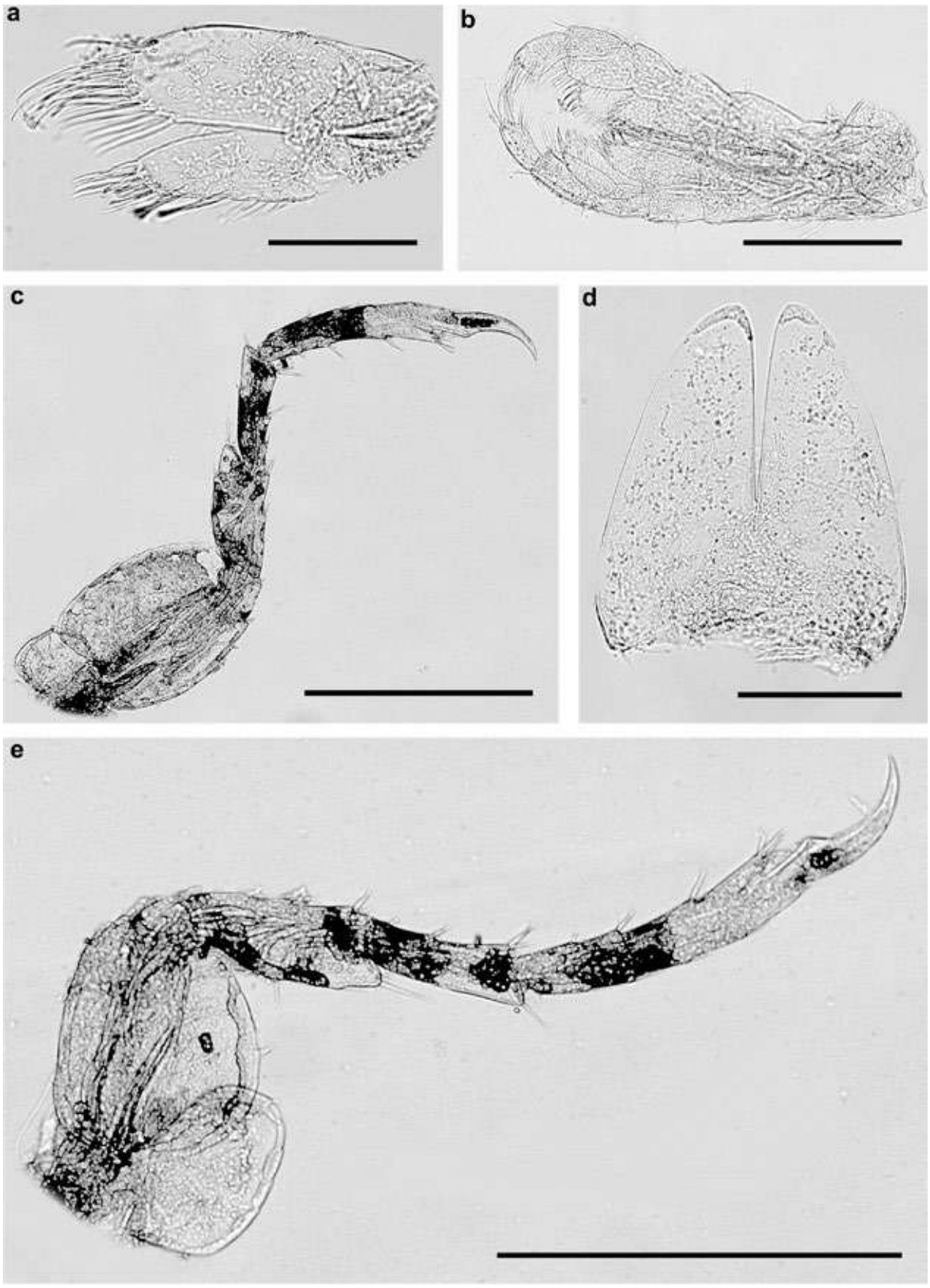

Plate 184. *Abdia latipalpus*, Kubbar Island. Female: a – maxilla 2; b – maxilliped; c – pereopod 6; d – telson; e – pereopod 7. Scale lines: c and e – 0.5 mm; a and b – 0.2 mm; d – 0.1 mm.

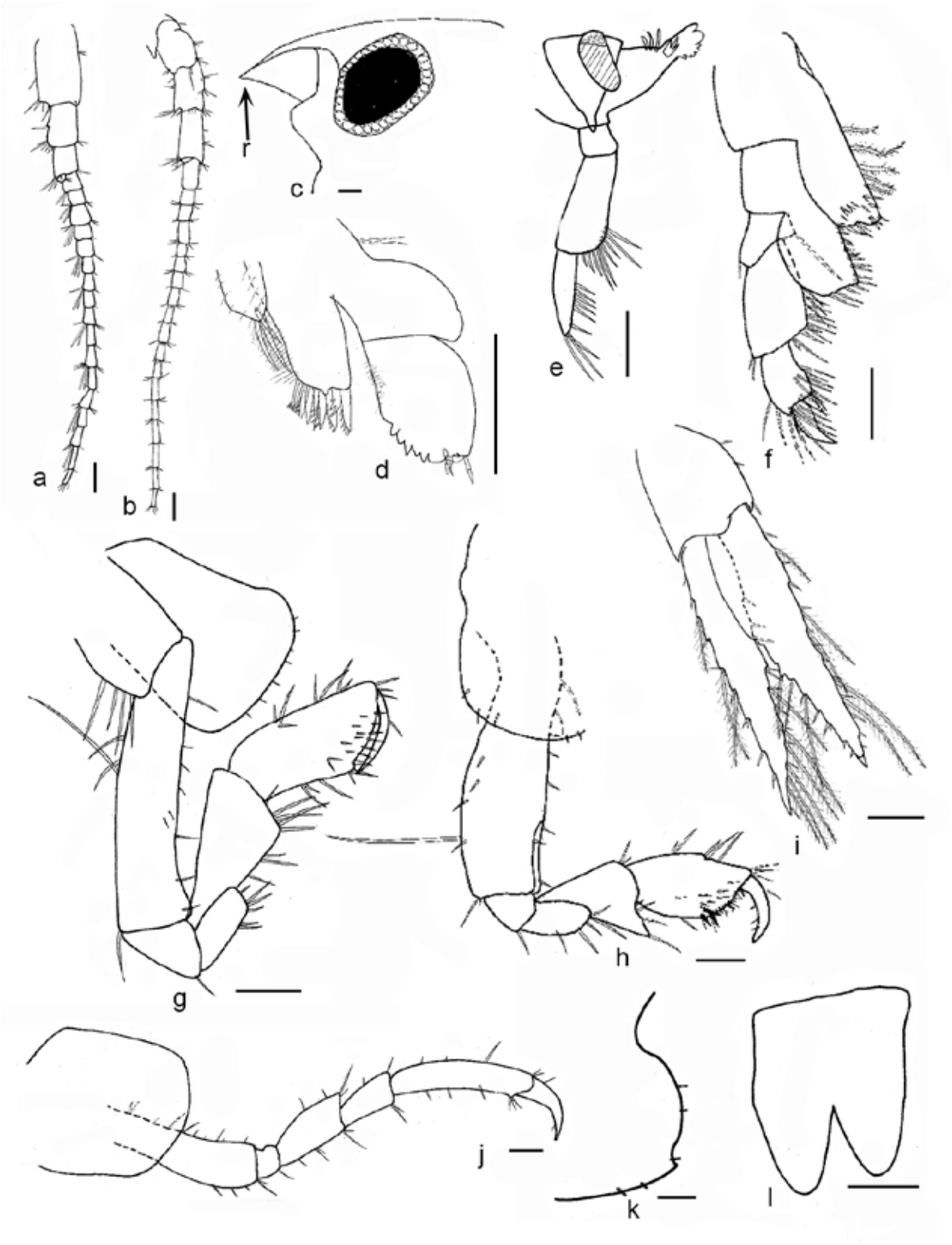

Fig. ZP-51. *Abdia latipalpus*. Kubbar Island. Female: a –antenna 2; b – antenna 1; c – head; d – maxilla 1; e – mandible; f – maxilliped; g – gnathopod 1; h – gnathopod 2; i – uropod 3; j – pereopod 3; k – epimer 3; l – telson. Scale lines – 0.1 mm. Designations: r – rostrum.

Family Tryphosidae
Genus *Orchomenella*

***Orchomenella* sp.**
Plates 185 – 188.
Occurrence: Funaitees area, Al-Nuwaiseeb area, and Al-Khiran area.
Intertidal and Subtidal Zones.
Habitats: sand, shells, pebbles, cobble, rocks, and sponges.

Description. Female, 2.3 mm. Head slightly longer than pereonite 1. Eyes medium, long oval. Us1 not concave. A1 peduncle slightly longer than flagellum; flagellum 7-articles, acc.fl. 4-articles. A2 slightly longer than A1, peduncle longer than flagellum; peduncular article 4 as long as article 5; flagellum 4-articles. Epistome minutely produced anterodistally. Md arising behind molar; article 3 shorter than article 2 with 4 setae apically; article 2 with posterodistal setae; molar long, densely pubescent. Mx1 inner plate with 2 setae; palp biarticulate, distal segment apically provided with 3 teeth-like spines and 1 seta. Mxp inner plate with 3 tooth and 3 setae distally; outer plate reaching half length of palp segment 3; segment 2 of palp the longest. Gn1. Cox1 slightly produced forward anteroventrally; basis with setae anteriorly and 1 seta posterodistally; ischium with setae distoposteriorly; merus as long as ischium with setae distoposteriorly; carpus with setae distoposteriorly and distoanteriorly; propodus as long as carpus, rectangular, slightly widened distally, palm slightly oblique forward defined by spine; dactylus with two setae on the inner side. Gn2, basis long widened distally without setae, ischium long with seta posterodistally; merus shorter than ischium with setae posterodistally, without bristly in rows; carpus as long as ischium bristly posteriorly and with setae anterodistally and posterodistally; propodus shorter than carpus with setae anteriorly and posteriorly and with some spines distoanteriorly, palm, posterodistal extension armed with 1 spine; dactylus short with 1 apical spine. P3 and P4 similar, merus produced anterodistally. P5-P7, basis widened, merus produced posterodistally. U1 peduncle longer than rami with small spines marginally; outer ramus minutely longer than inner, both without spines. U2 peduncle as long as the outer ramus with spine distally; outer ramus slightly longer than inner, both without spines. U3 peduncle slightly shorter than the outer ramus with spines distally; outer ramus biarticulate proximal segment only with spine distoventrally, distal segment without spines or setae about 1/2 the length of proximal segment; inner ramus shorter than outer without spines. T cleft about on the 1/2 length, each lobe armed with 1 spine dorsally and 1 spine apically.
Male. A2 peduncle extremely widened. Flagellum much longer than female, more than 1/2 the length of body.

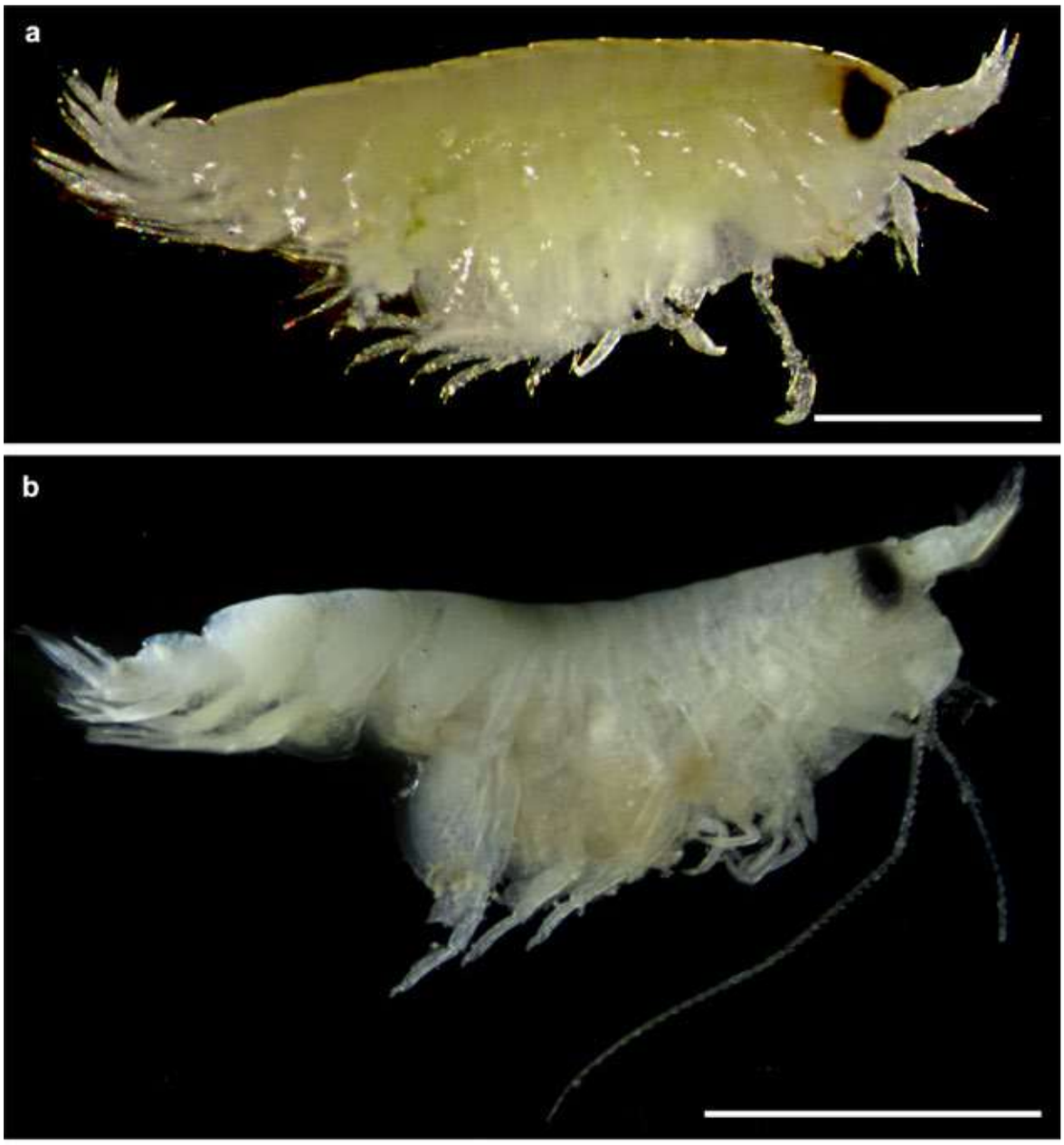

Plate 185. *Orchomenella* sp., Funaitees: a – female habitus; b – male habitus. Scale lines: a – 1 mm; b – 2 mm.

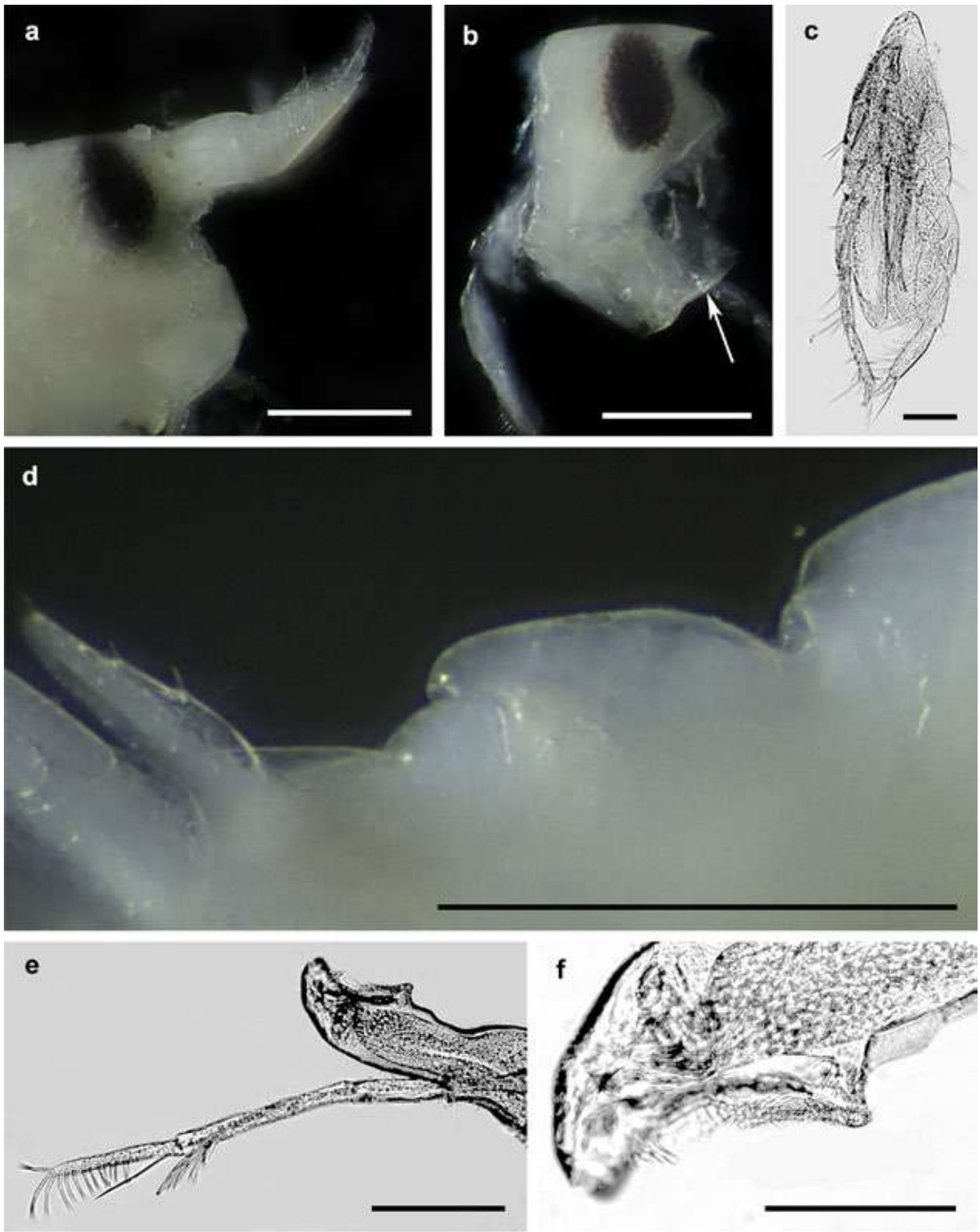

Plate 186. *Orchomenella* sp., Funaitees. Male: a – head with antennae; b – head without antennae, epistome (arrow); c – maxilliped; d – urosome; e – mandible; f – mandible, molar. Scale lines: a, b, and d – 0.5 mm; e – 0.2 mm; c and f – 0.1 mm.

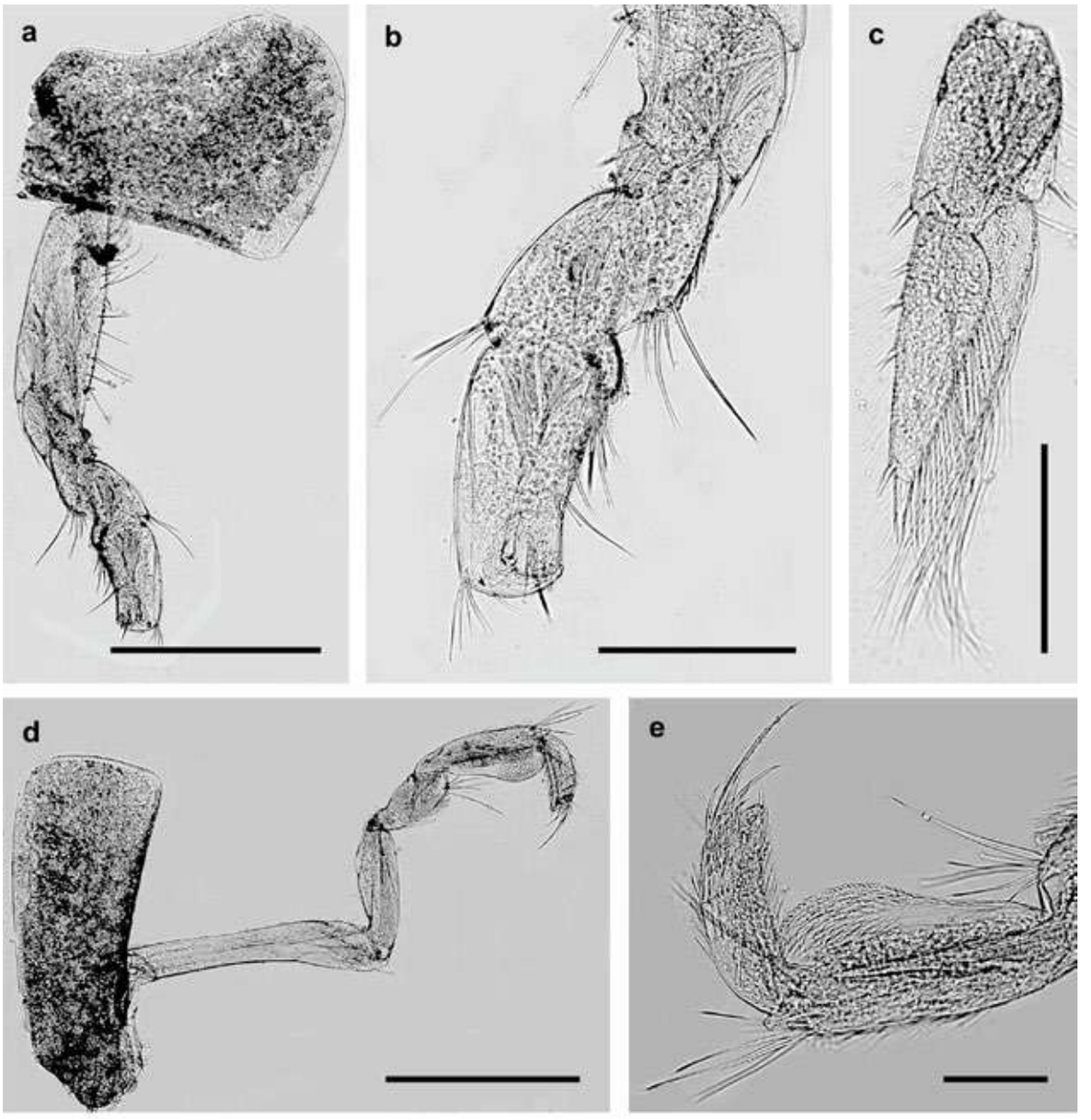

Plate 187. *Orchomenella* sp., Funaitees. Male: a – gnathopod 1; b – gnathopod 1, propodus; c – uropod 3; d – gnathopod 2; e – gnathopod 2, propodus. Scale lines: a and d – 0.5 mm; b and c – 0.2 mm; e – 0.1 mm.

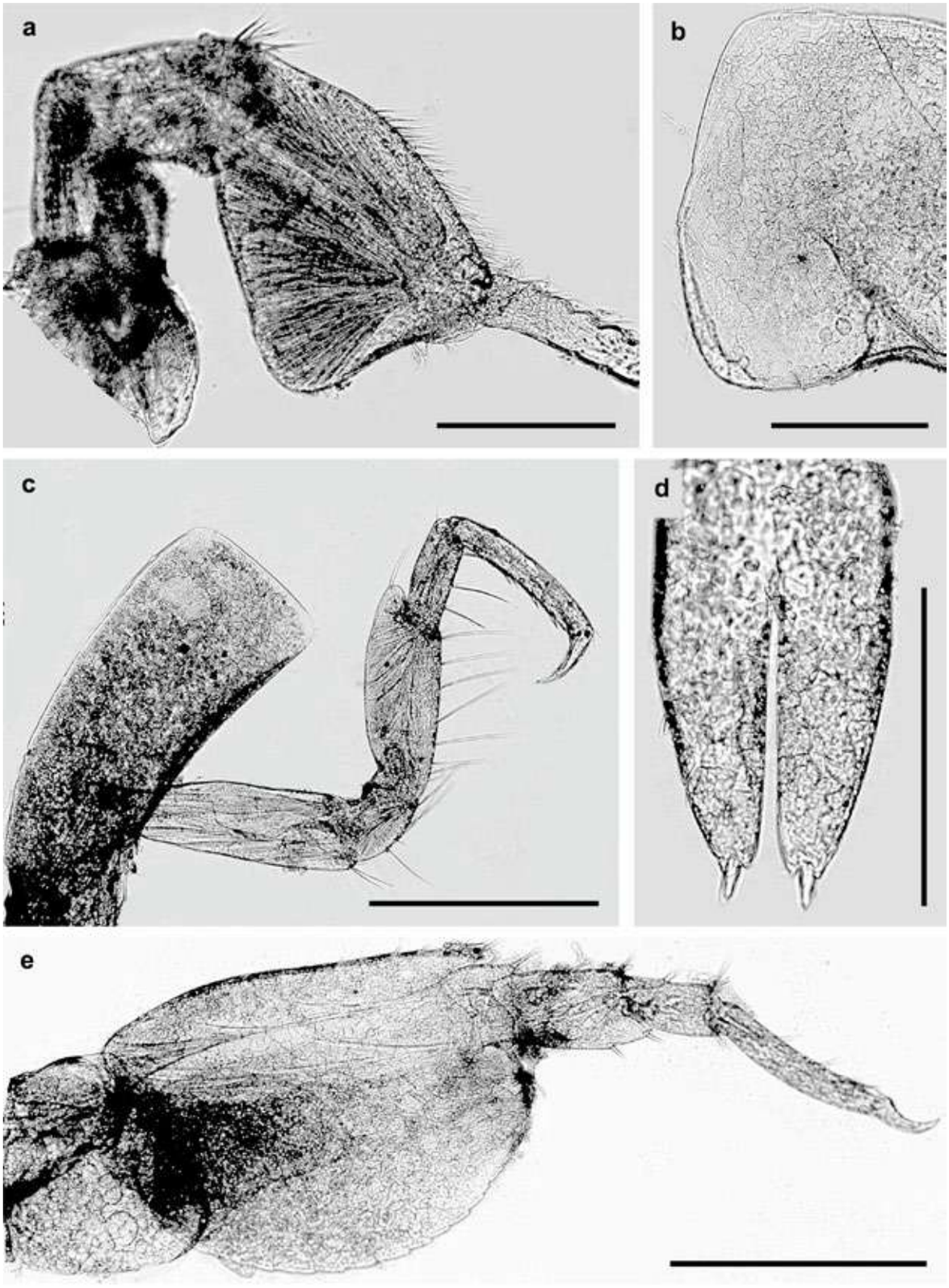

Plate 188. *Orchomenella* sp., Funaitees. Male: a – antenna 2, peduncle; b – epimer 3; c – pereopod 3; d – telson; e – pereopod 7. Scale lines: c and e – 0.5 mm; a, b, and d – 0.2 mm.

Family Stenothoidae
Genus *Stenothoe*

Stenothoe gallensis Walker, 1904
Plates 189 – 192 and Fig. ZP-52.
Occurrence: Al-Nuwaiseeb area, Al-Khiran area, Al-Bida'a area, Auha Island area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Ras Al-Zour area, Al-Judailiat (West Doha) area, Miskan Island area, and Umm Al-Namil Island area.
Intertidal and Subtidal Zones.
Habitats: shells, sand, macroalgae, rocks, sponges, ropes (as artificial habitat), and aggregations of polychaete tubes.

Description (after Krapp-Schickel, 2006; modified). Male, 3.5 mm. Head with small rostrum. Cox2 – Cox4 enlarged. Cox4 much shorter than breadth. Ep3 posterodistal corner pointed. Eyes round, small. A1 similar to A2. Md without palp. Mxp inner lobe very small. Gnl propodus with spines. Gn2 basis curved, distally widened, carpus very short, propodus, about 2× as long as broad, anterior margin convex, palm with many little setae and spines, convex, dactylus about 1/2 the length of propodus, regularly curved, with short setae on the inner margin. U3 peduncle bigger than ramus; article 2 ramus rugose surface. T twice long as broad, with 3 pairs of robust spines and some little ones distally.
Female, 2.7 mm. Similar to male. Gn1 propodus shorter and broader than that of male. Gn2 propodus slightly shorter than basis, palm regularly curved with spines and setae. U3 article 2 ramus without rugose surface.

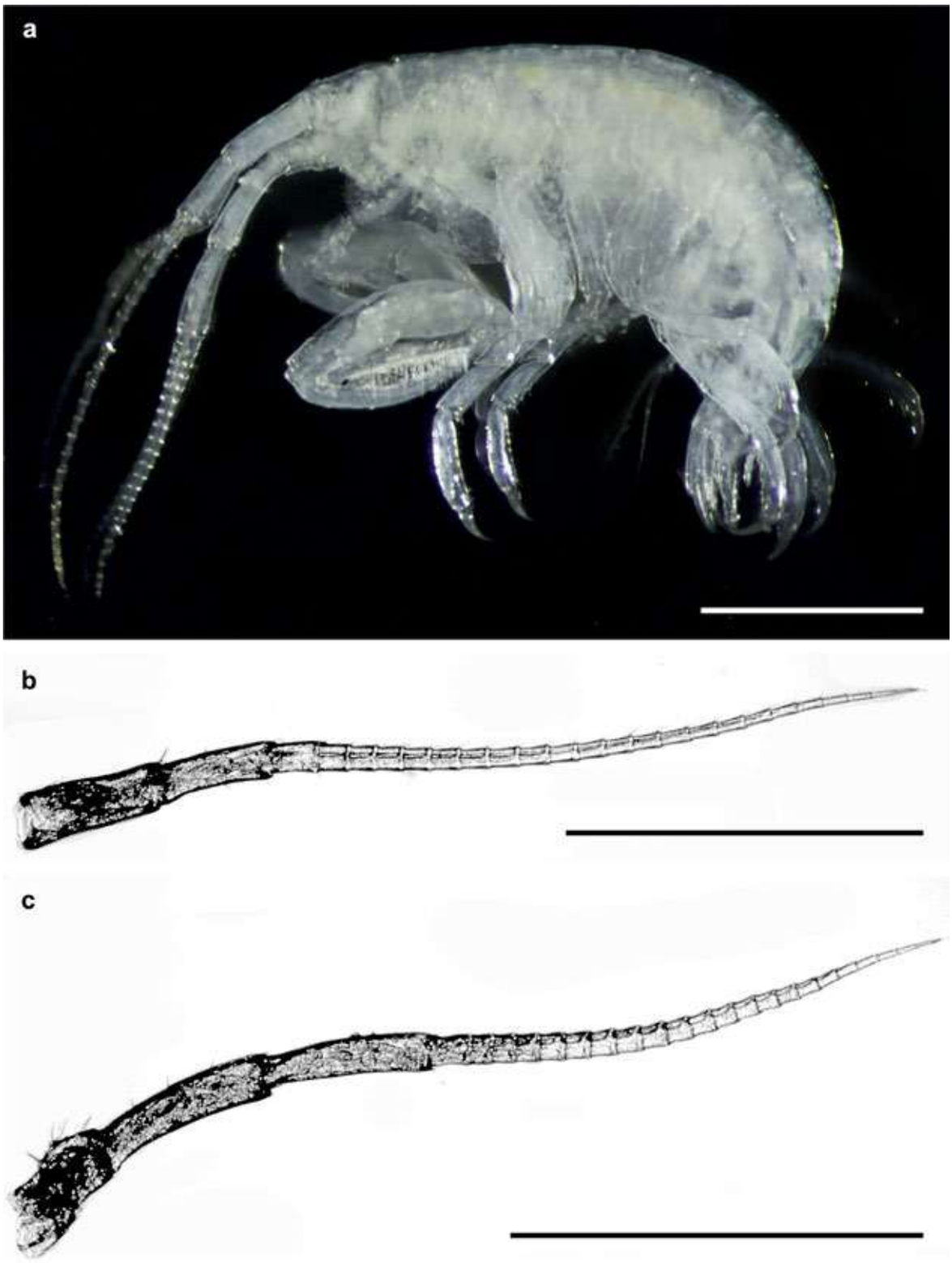

Plate 189. *Stenothoe gallensis*, Al-Bida'a. Male: a – habitus; b – antenna 1; c – antenna 2. Scale lines: a, b, and c – 1 mm.

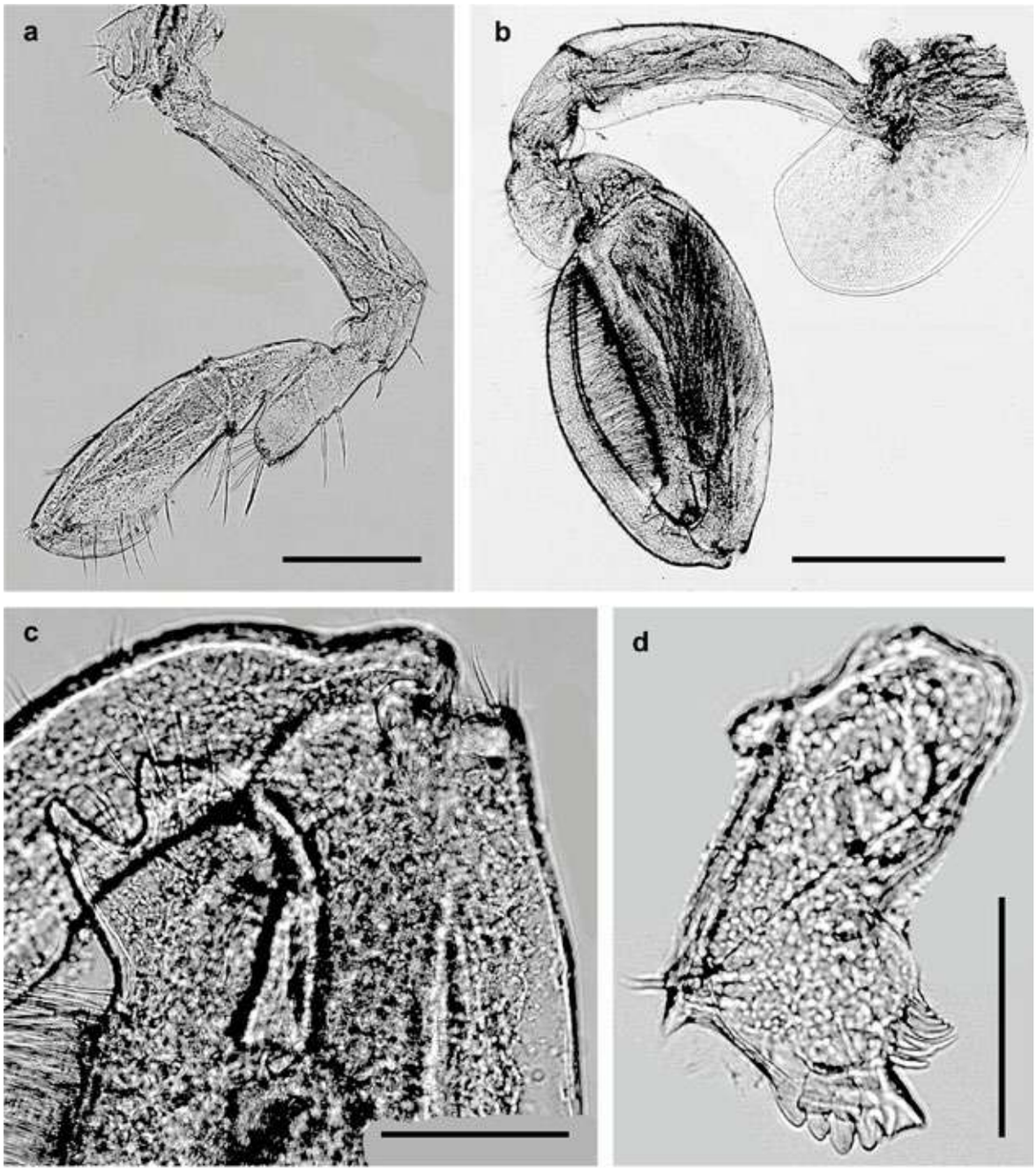

Plate 190. *Stenothoe gallensis*, Al-Bida'a. Male: a – gnathopod 1; b – gnathopod 2; c – gnathopod 2, palmar teeth; d – mandible. Scale lines: b – 0.5 mm; a – 0.2 mm; c and d – 0.1 mm.

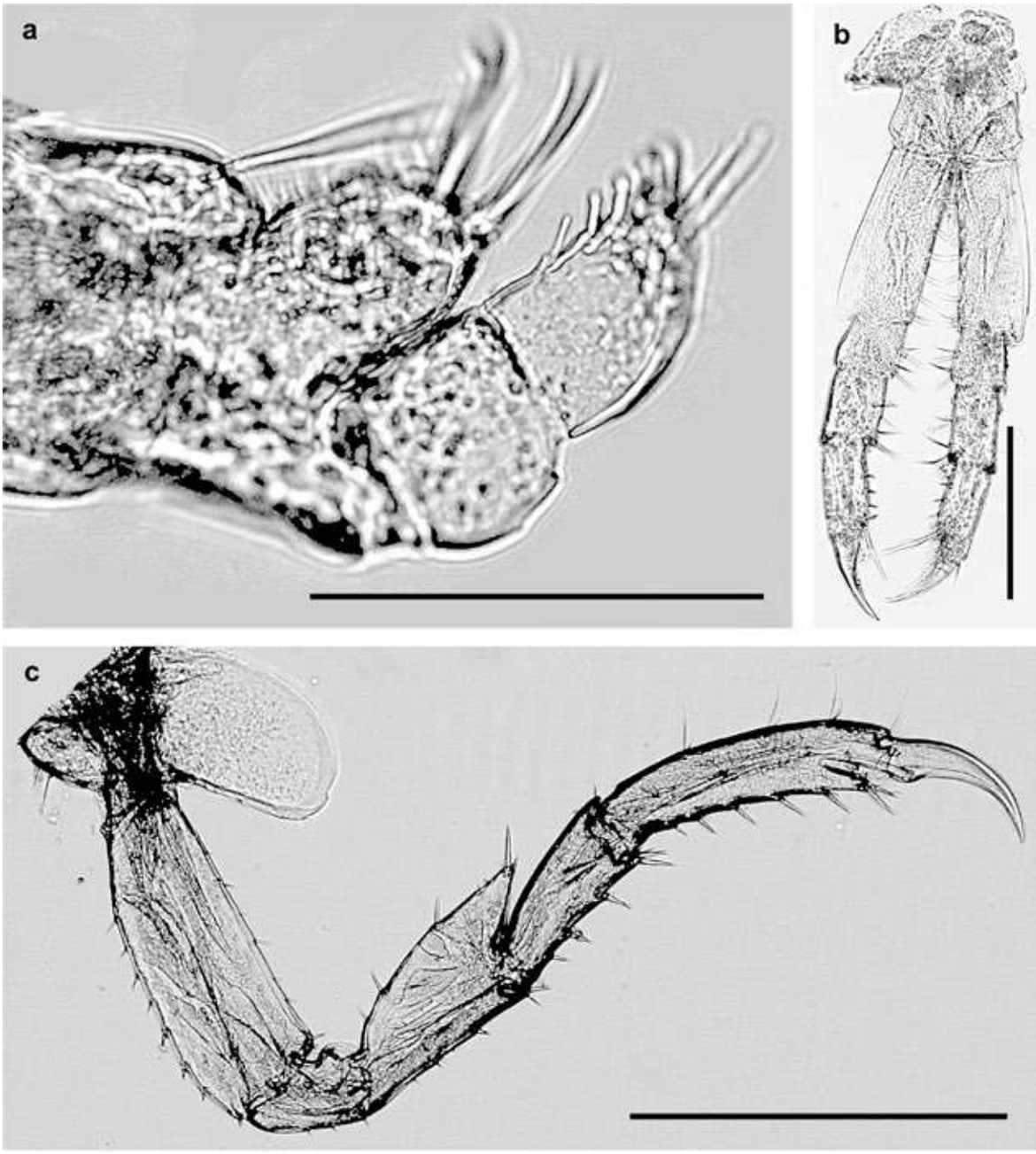

Plate 191. *Stenothoe gallensis*, Al-Bida'a. Male: a – maxilla 1; b – maxilliped; c – pereopod 5. Scale lines: c – 0.5 mm; b – 0.2 mm; a – 0.1 mm.

Plate 192. *Stenothoe gallensis*, Al-Bida'a. Male: a – pereopod 7; b – telson; c – uropod 2; d – uropod 3, tubercle (arrow). Scale lines: a – 0.5 mm; c and d – 0.1 mm; b – 0.05 mm.

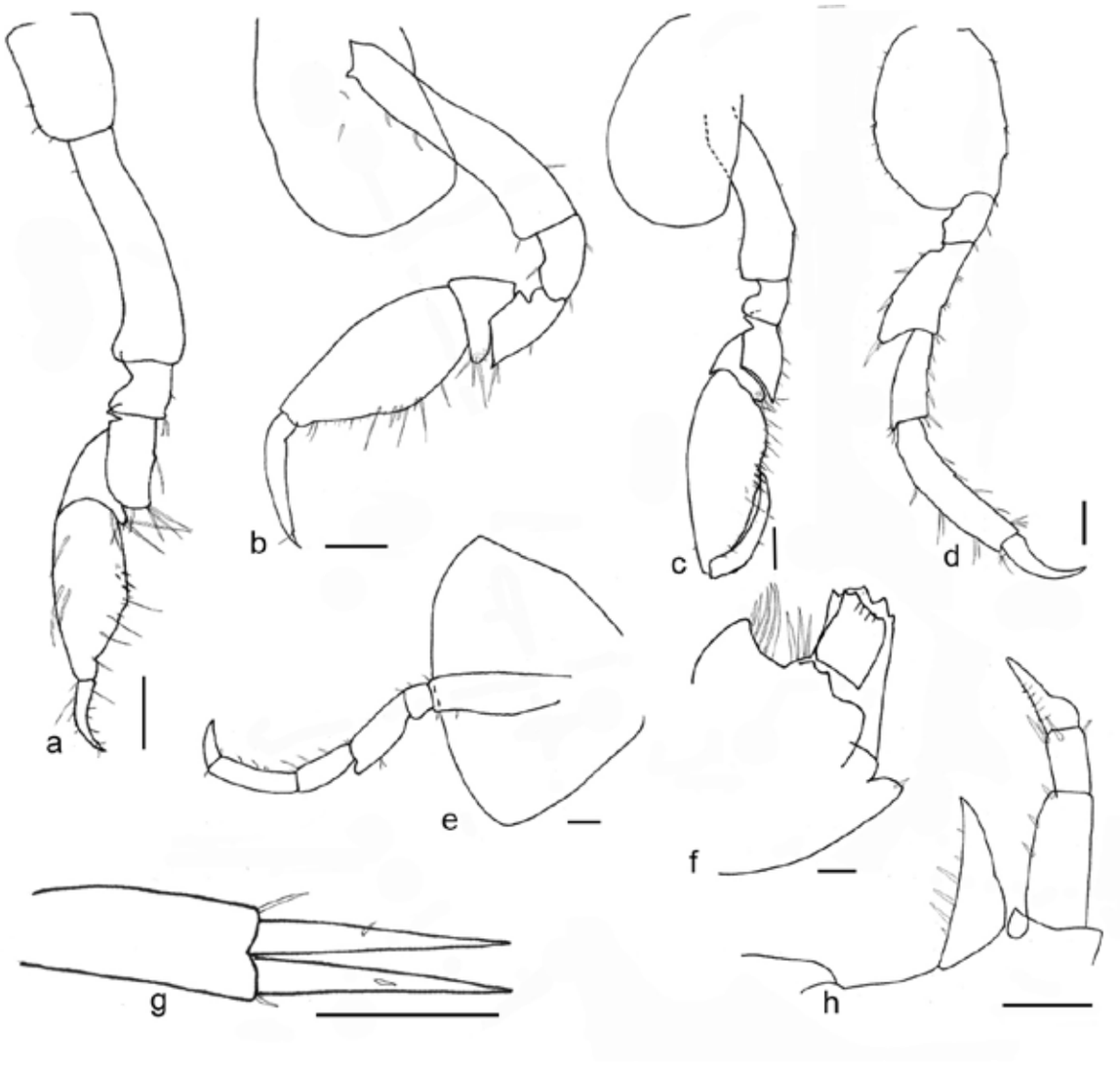

Fig. ZP-52. *Stenothoe gallensis*. Al-Bida'a. Male: a – gnathopod 1; c – gnathopod 2; d – pereopod 7; e – pereopod 4; f – mandible; g – uropod 2; h – telson and uropod 3. Female: b – gnathopod 2. Scale lines: f – 0.01 mm; a, b, c, d, e, g, and h – 0.1 mm.

Family Stenothoidae
Genus *Stenothoe*

Stenothoe* sp. cf. *aucklandicus
Plates 193 – 196 and Fig. ZP-53.
Occurrence: Al-Bida'a area, Auha Island area.
Subtidal Zone.
Habitats: shells, sand, and macroalgae.

Description (after Stephensen, 1927; modified). Female, 3.7 mm. Head with small rostrum. Eyes medium, oval. Lateral cephalic lobes little prominent. A1 longer than A2; flagellum 17-articles. A2 peduncular article 4 slightly longer than article 5; flagellum 14-articles. Cox2 – Cox4 enlarged. Gn1 **basis widened proximally and distally** with setae posterodistally and midlaterally; ischium-merus with setae posterodistally; carpus near triangular with setae posterodistally; propodus with **convex palm** defined by little spines; dactylus covered palm. Gn2 basis **widened distally,** with setae anteriorly and posterodistally; ischium-merus with setae posteriorly; carpus with inferior process bearing stout setae; propodus with palm, has a tooth **slightly distally,** palm defined by spine; dactylus regularly curved. Ep3 posterodistal corner minutely pointed. U1 peduncle **longer** than rami with marginal and distal spines; outer ramus slightly longer than inner with marginal small spines; inner ramus with marginal spines. U2 peduncle **longer** than rami with marginal and distal spines; outer ramus shorter than inner with marginal small spines; inner ramus with marginal spines. U3 peduncle slightly longer than ramus with spines marginally; ramus with two spines marginally. T longer than wide, **tapered** distally with 3 pairs of spines.
Males were not found in our investigations.
Taxonomic characters for distinguishing *Stenothoe* sp. cf. *aucklandicus* from *Stenothoe aucklandicus* (Stephensen, 1927), are expressed in **bold** text.

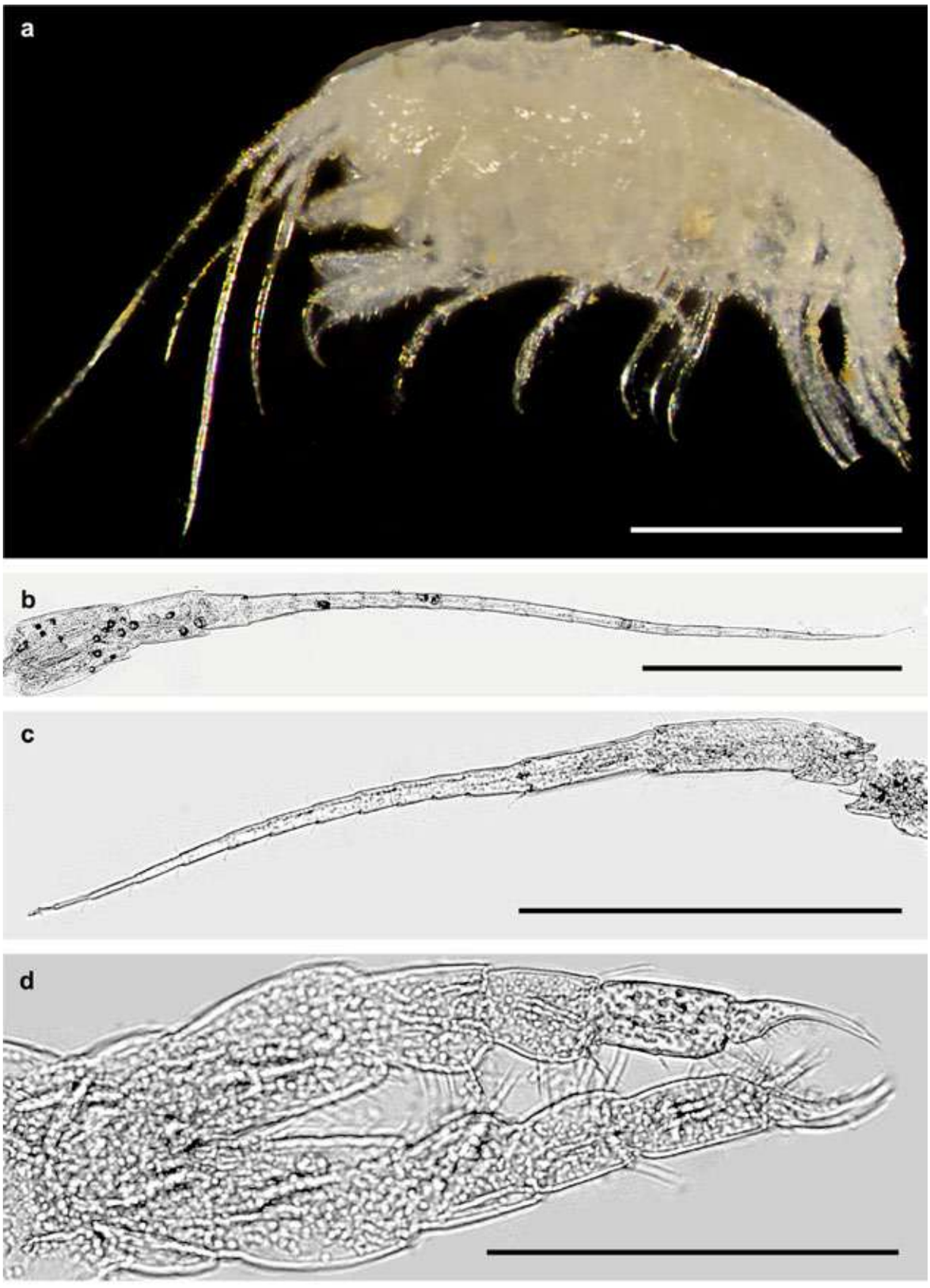

Plate 193. *Stenothoe* sp. cf. *aucklandicus*, Auha Island. Female: a – habitus; b – antenna 1; c – antenna 2; d – maxilliped. Scale lines: a – 1 mm; b and c – 0.5 mm; d – 0.2 mm.

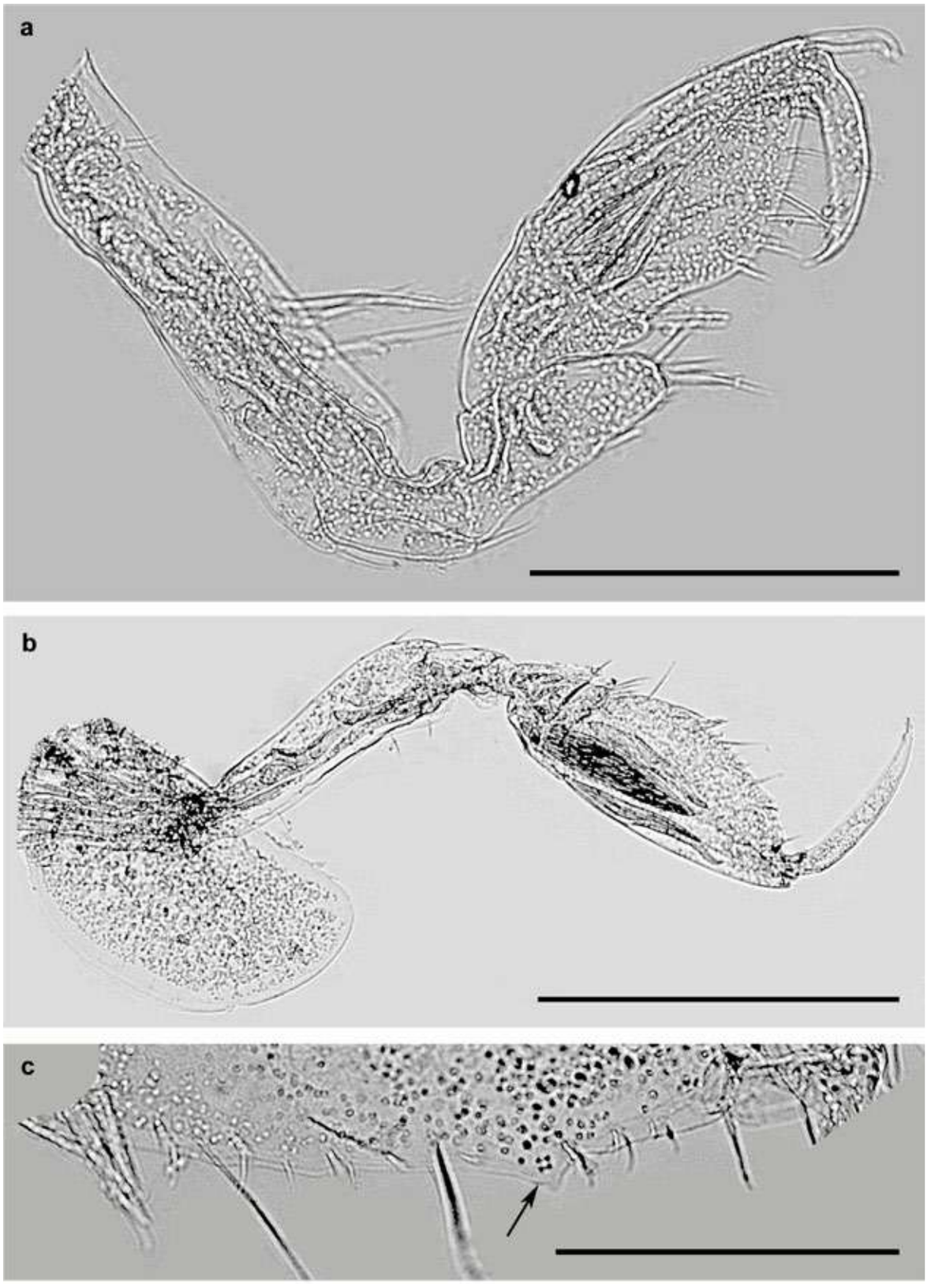

Plate 194. *Stenothoe* sp. cf. *aucklandicus*, Auha Island. Female: a – gnathopod 1; b – gnathopod 2; c – gnathopod 2, propodus palm, tubercle (arrow). Scale lines: b – 0.5 mm; a – 0.2 mm; c – 0.1 mm.

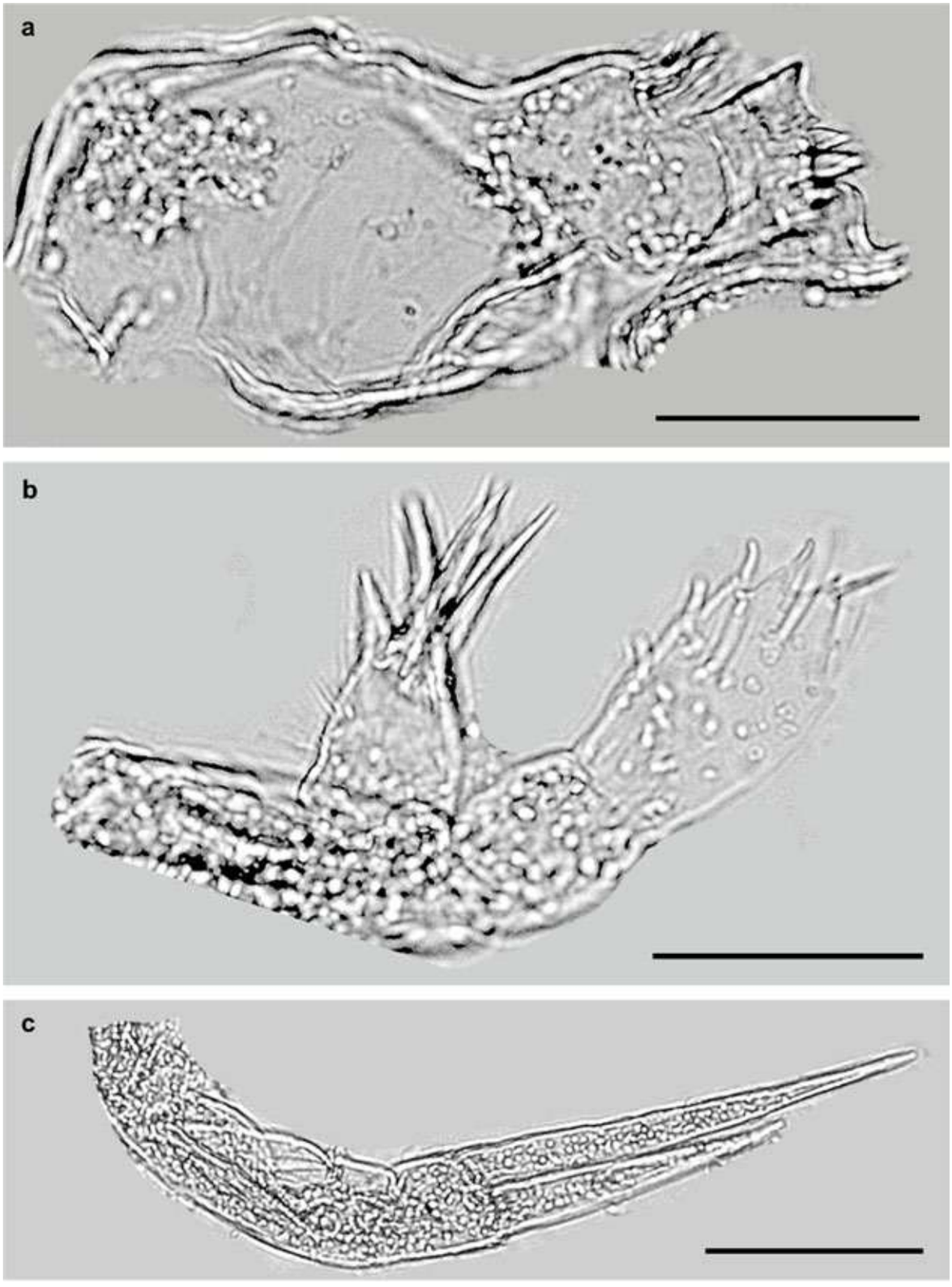

Plate 195. *Stenothoe* sp. cf. *aucklandicus*, Auha Island. Female: a – mandible; b – maxilla 1; c – uropod 2. Scale lines: c – 0.1 mm; a and b – 0.05 mm.

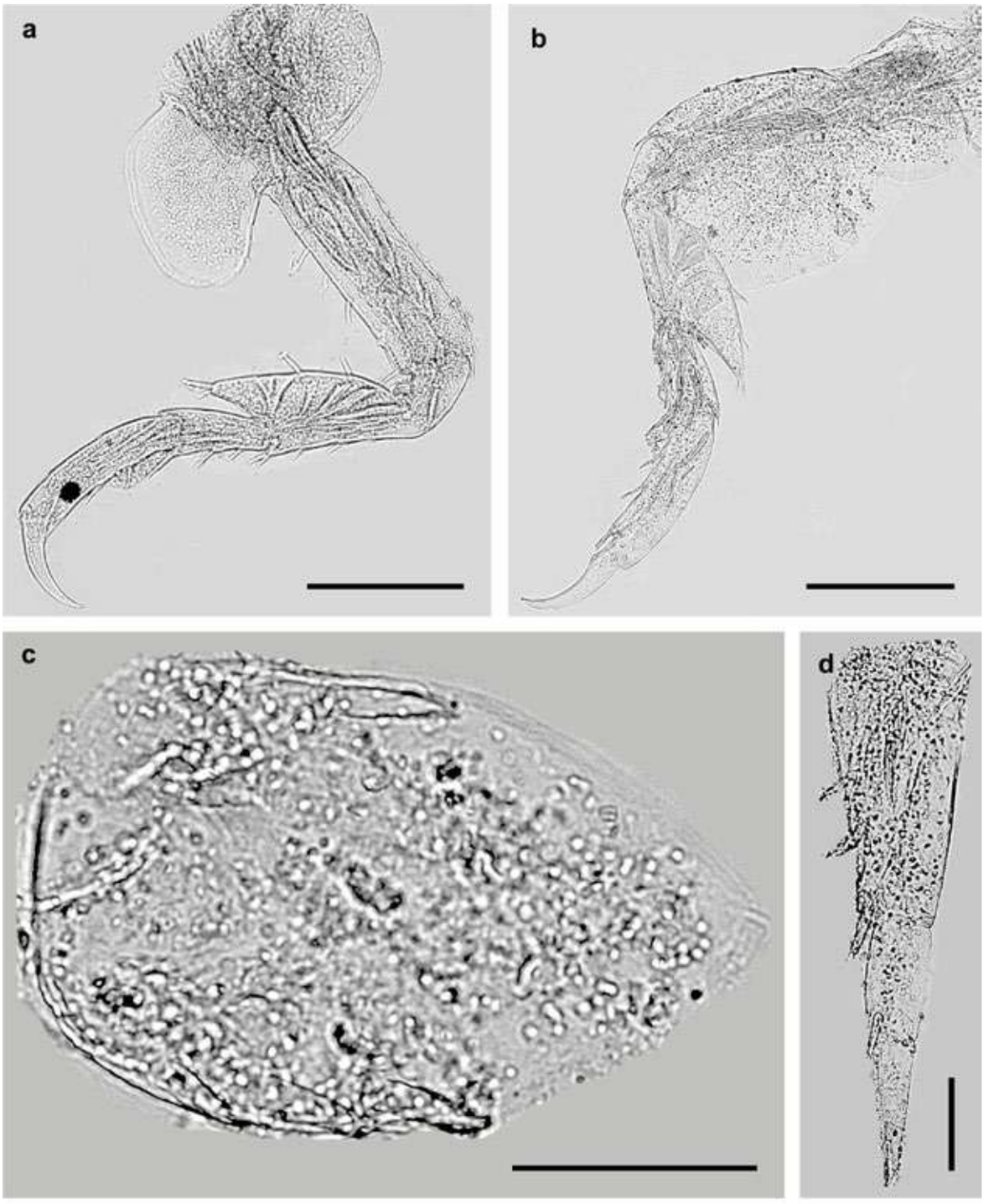

Plate 196. *Stenothoe* sp. cf. *aucklandicus*, Auha Island. Female: a – pereopod 5; b – pereopod 7; c – telson; d – uropod 3. Scale lines: a and b – 0. mm; c and d – 0.05 mm.

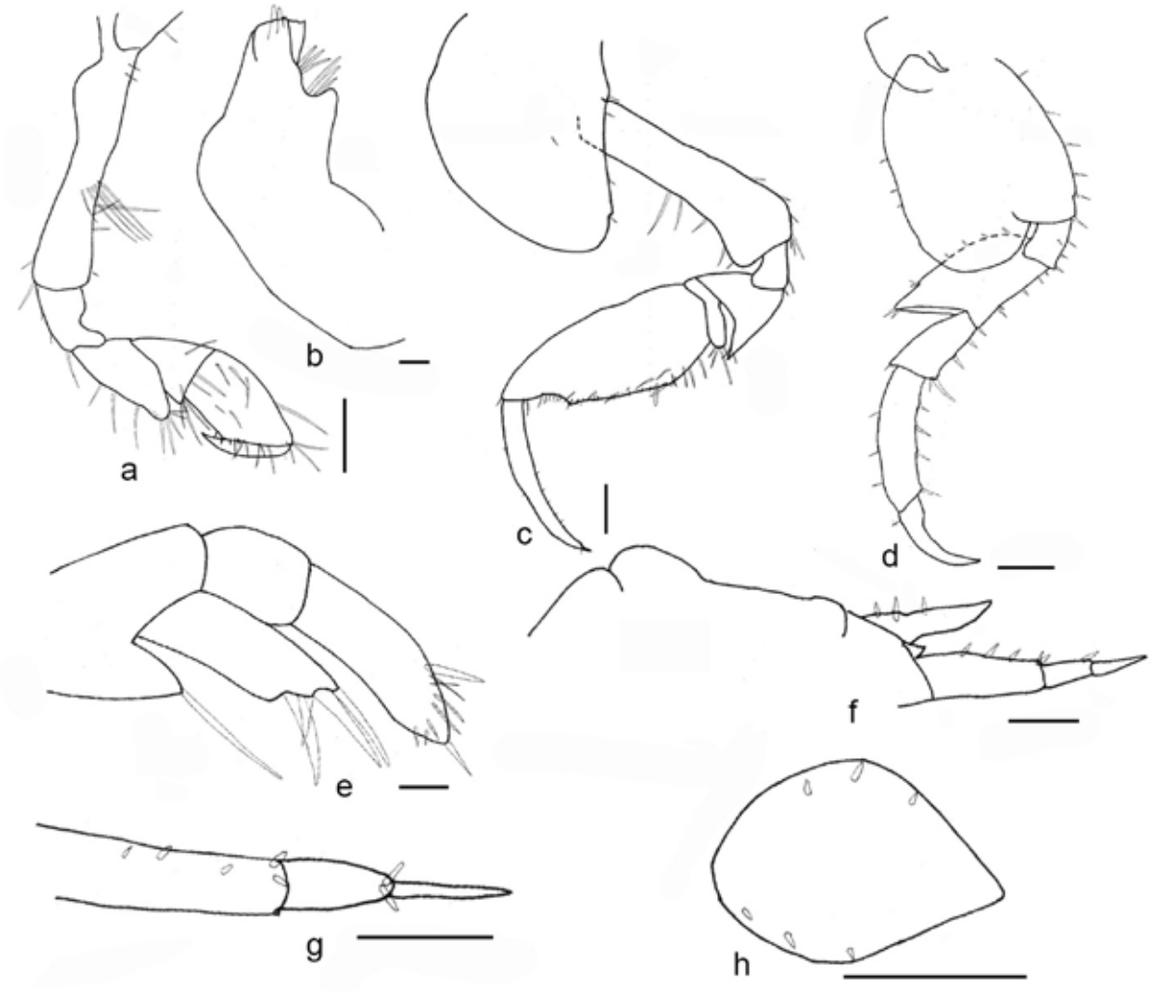

Fig. ZP-53. *Stenothoe* sp. cf. *aucklandicus*. Al-Bida'a. Female: a – gnathopod 1; b – mandible; c – gnathopod 2; d – pereopod 7; e – maxilla 1; f – urosome and telson; g – uropod 3; h – telson. Scale lines: b and e – 0.01 mm; a, c, d, f, g, and h – 0.1 mm.

Family Urothoidae
Genus *Urothoe*

***Urothoe* sp. 1**
Plates 197 – 200.
Occurrence: Funaitees area, Boubyan Island, Kuwait Bay area (subtidal), Al-Nuwaiseeb area, Salmiya town beach area, Al-Julia'a beach area, Al-Funatees area, Mina Abdullah area, Al-Khiran area, Al-Mangaf area, Failaka Island area, and Al-Sha'ab area.
Intertidal and Subtidal Zones.
Habitats: sand and shells.

Description. Female, 5.1 mm. Eyes medium. Cox1 slightly forward anteriorly. Cox2 tapered ventrally with long setae midventrally. A1 flagellum shorter than peduncle with 6-articles; acc.fl. 4-articles. A2, flagellum shorter than peduncle with 2-articles; peduncular article 5 with spines distally. Mx1 inner plate with setae apically. Gn1 and Gn2; basis long with setae posteriorly; ischium with setae posterodistally; carpus expanded, longer than propodus with lobe and setae posteriorly; propodus with setae posteriorly widened distally; dactylus shorter than propodus but longer than the palm of propodus. P3 and P4 moderately long. P5 with numerous spines and setae; carpus extremely widened more widened than basis; dactylus widened with a group of spines. P6 and P7 dactylus with small anterior humps. U1 peduncle slightly shorter than the outer ramus bearing stout spines and setae mediodorsally; inner ramus shorter than outer; outer ramus with 2 spines distoproximally. U2 peduncle shorter than rami with spine distodorsally and setae mediodorsally; inner ramus shorter than outer. U3 peduncle shorter than rami with spines distally; outer ramus longer than inner with 2-articles bearing long plumose setae; inner ramus with long plumose setae. T deeply cleft, each lobe bearing spine and two setae distally.
Male is similar to female but A2 is much longer, about 2/3 of the length of body. Eyes are bigger than those of female.

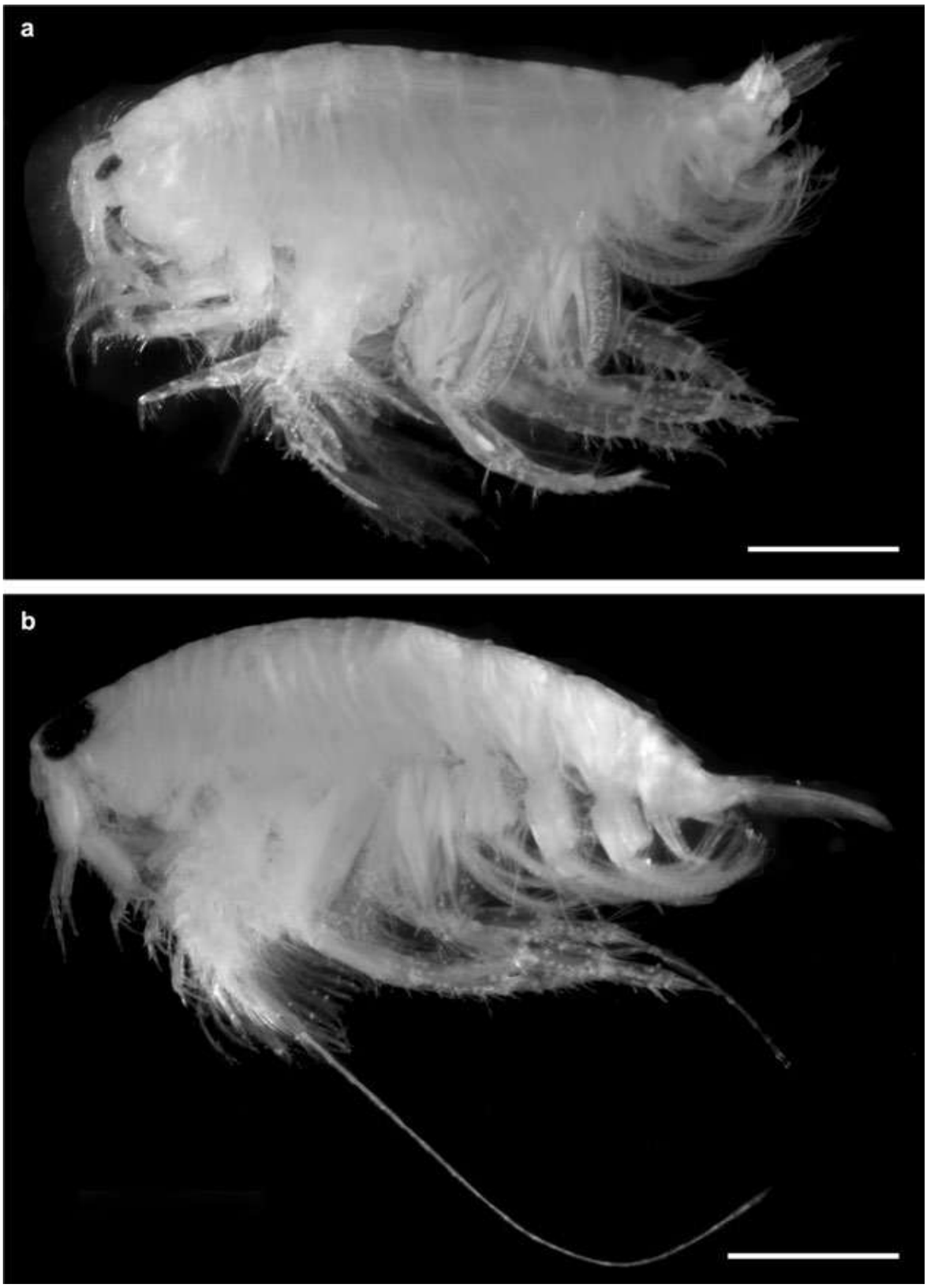

Plate 197. *Urothoe* sp. 1, Funaitees: a – male habitus; b – female habitus. Scale lines: a and b – 1 mm.

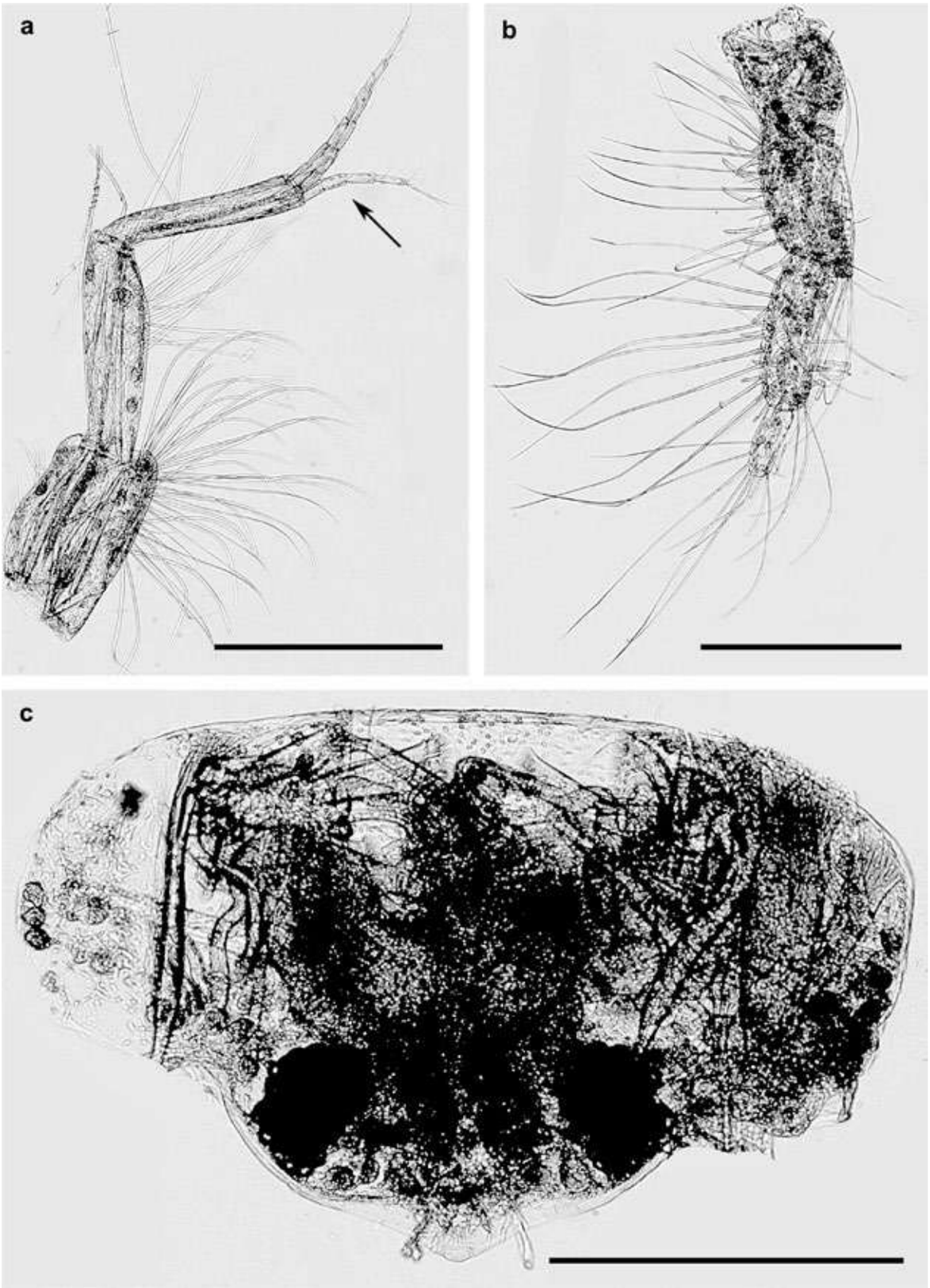

Plate 198. *Urothoe* sp. 1, Funaitees. Female: a – antenna 1, accessory flagellum (arrow); b – antenna 2; c – head, dorsal view, rostrum. Scale lines: a, b, and c – 0.5 mm.

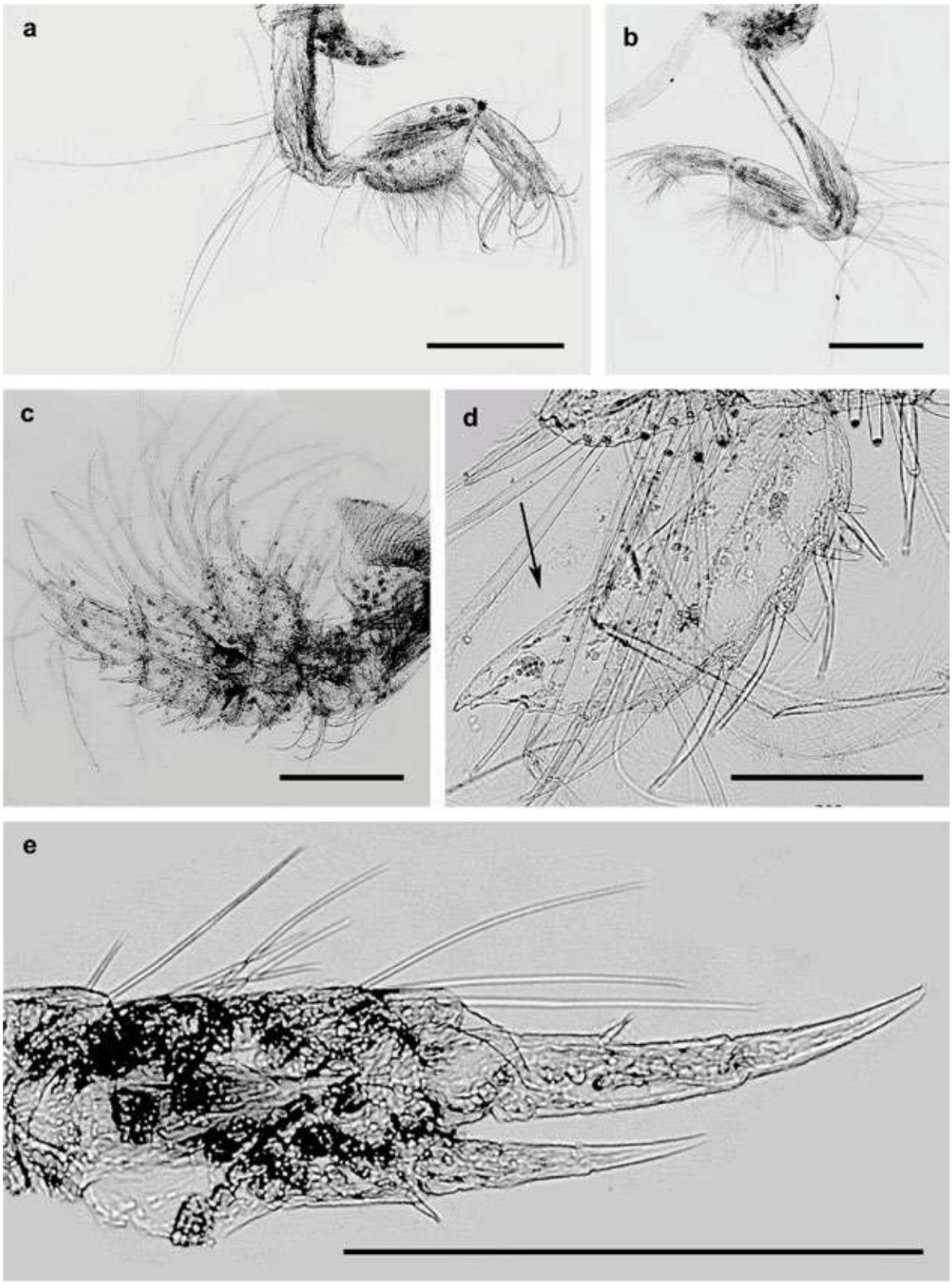

Plate 199. *Urothoe* sp. 1, Funaitees. Female: a – gnathopod 1; b – gnathopod 2; c – pereopod 5; d – pereopod 5, dactylus (arrow); e – uropod 1. Scale lines: a, b, c, and e – 0.5 mm; d – 0.2 mm.

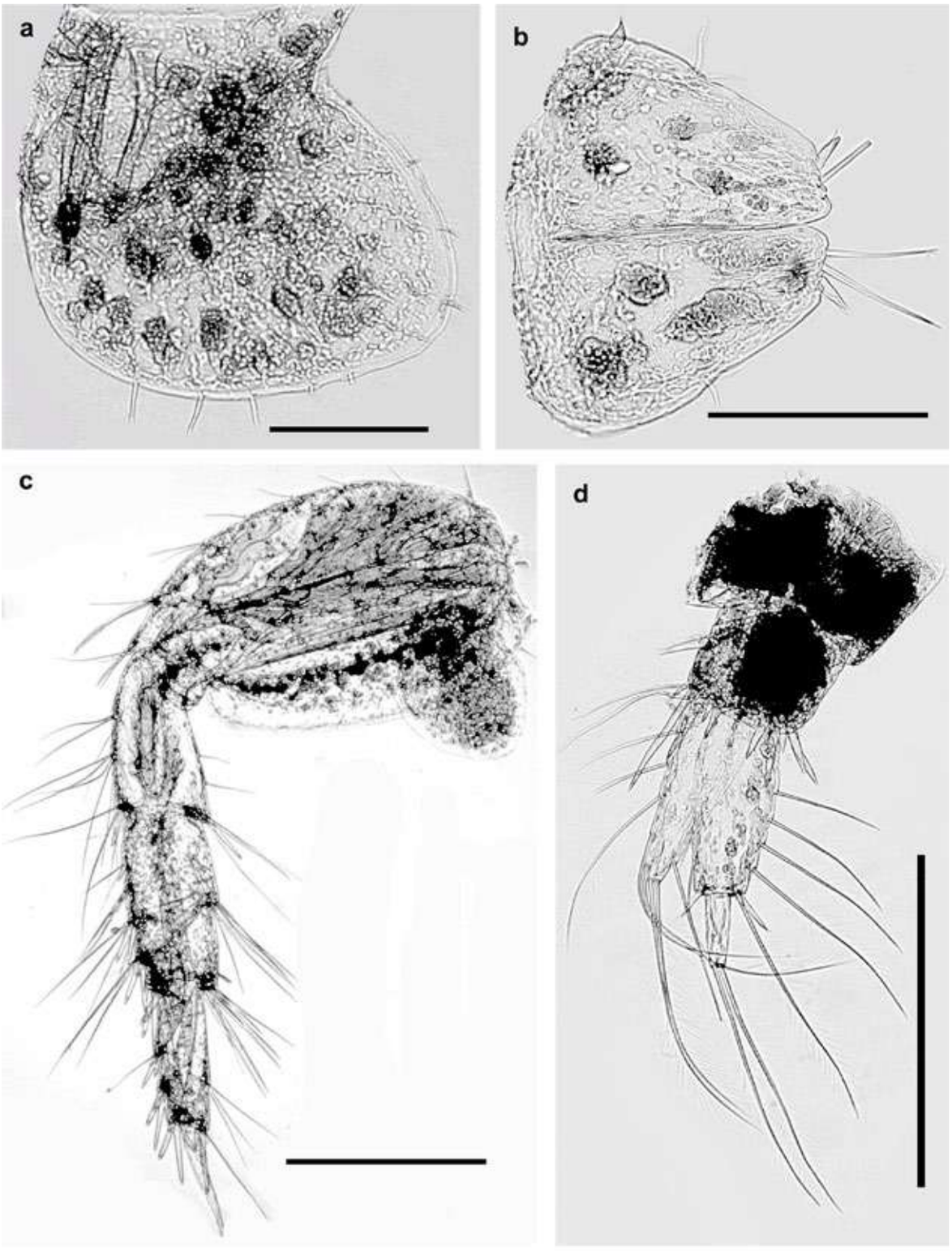

Plate 200. *Urothoe* sp. 1, Funaitees. Female: a – epimer 3; b – telson; c – pereopod 7; d – uropod 3. Scale lines: c and d – 0.5 mm; a and b – 0.2 mm.

Family Urothoidae
Genus *Urothoe*

Urothoe sp. 2 cf. *intermedia*

Plates 201 – 204.

Occurrence: Funaitees area, Al-Bida'a area, Kubbar Island area, Umm Al-Maradim Island area, Failaka Island area, Ras Ajuza (Kuwait Bay area), Al-Khiran area, Al-Nuwaiseeb area, Ras Al-Zour area, Auha Island area, and Al-Sha'ab area.

Intertidal and Subtidal Zones.

Habitats: sand, shells, rocks, dead corals, sponges, *Sargassum* spp. (macroalgae), and pebbles.

Description (after Bellan-Santini, 1989; modified). Male, 2.8 mm. Eyes big. Cox1 subrectangular. Cox2 subtrapezoidal with **1 seta midventrally** and 1 seta distoposteriorly. Cox3 and Cox4 subquadrate with **1 seta midventrally** and 1 seta distoposteriorly. A1 flagellum as long as peduncle with 4-articles; acc.fl. 2-articles. A2 long, flagellum longer than peduncle with 18-articles; peduncular article 5 with calceoli. Mx1 inner plate with 1 seta apically. Gn1 and Gn2; basis long with setae posteriorly; ischium with 1 seta posterodistally; carpus expanded, longer than propodus with setae posteriorly; propodus with setae posteriorly **not widened distally**; dactylus shorter than propodus. P3 and P4 **moderately long**. P5 with numerous spines and setae; basis more widened than carpus; dactylus with small anterior humps. P6 and P7 dactylus with small anterior humps. U1 peduncle as long as inner ramus bearing spines; inner ramus longer than outer; outer ramus with 1 spine in the middle part. U2 peduncle slightly shorter than rami with spine distodorsally; inner ramus longer than outer. U3 peduncle shorter than rami with spines distally; outer ramus longer than inner, with 2-articles bearing long plumose setae; inner ramus with long plumose setae. T deeply cleft, bearing little spines distally.

Female is similar to male but A2 is shorter.

Taxonomic characters for distinguishing *Urothoe* sp. 2 cf. *intermedia* from *Urothoe intermedia* (Bellan-Santini, 1989), are expressed in **bold** text.

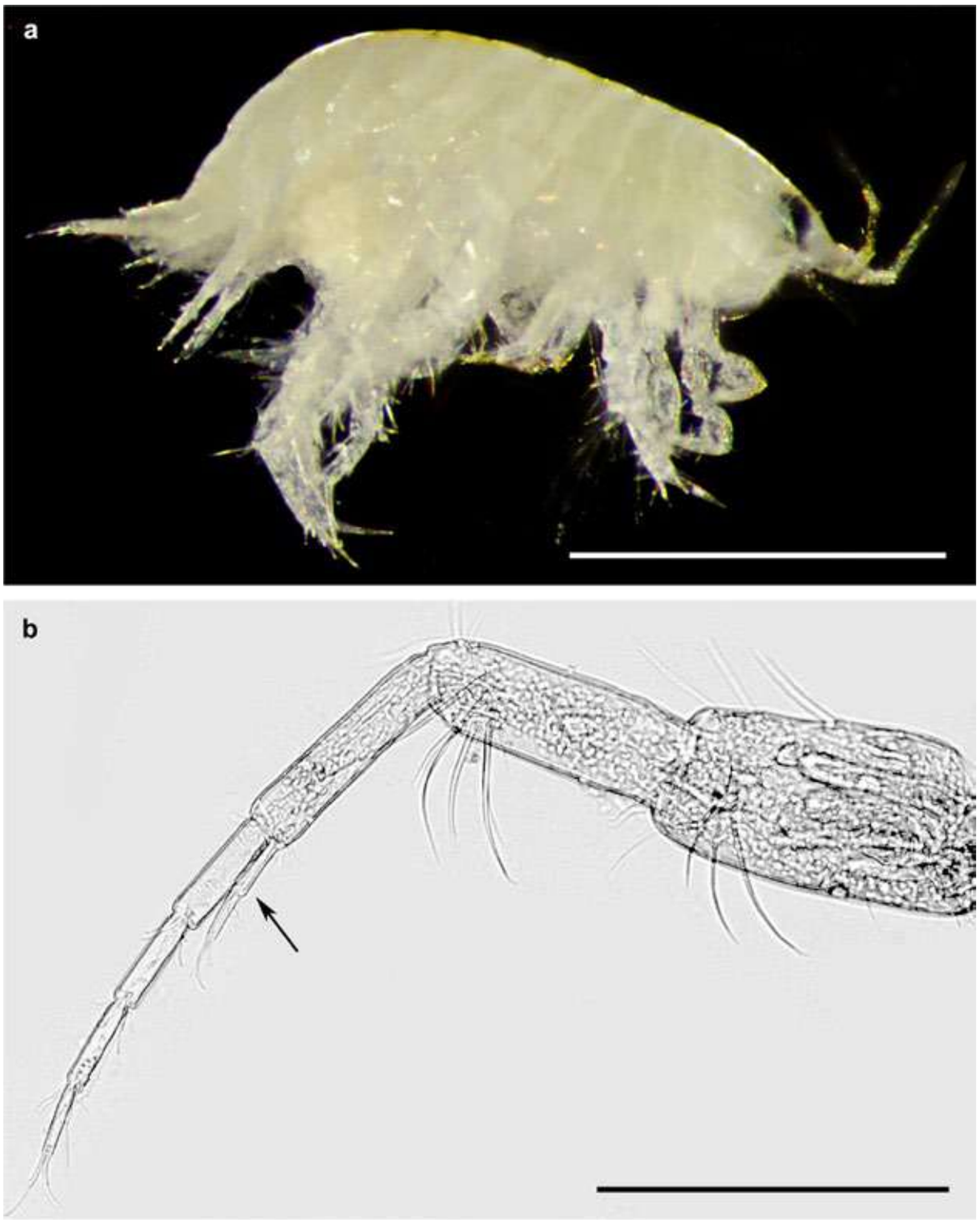

Plate 201. *Urothoe* sp. 2 cf. *intermedia*, Al-Bida'a. Female: a – habitus; b – antenna 1, accessory flagellum (arrow). Scale lines: a – 1 mm; b – 0.2 mm.

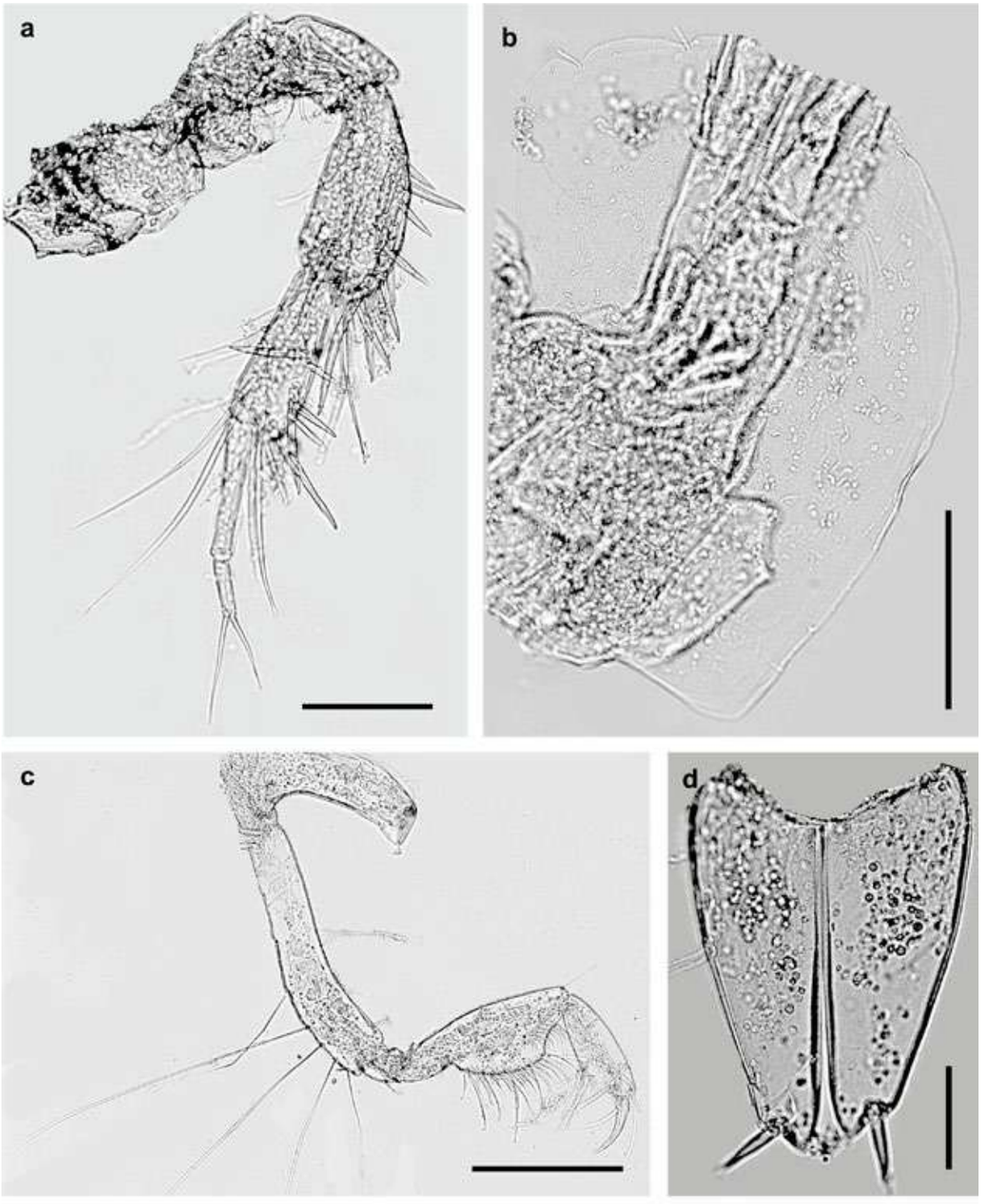

Plate 202. *Urothoe* sp. 2 cf. *intermedia*, Al-Bida'a. Female: a – antenna 2; b – coxa 4; c – gnathopod 1; d – telson. Scale lines: c – 0.2 mm; a and b – 0.1 mm; d – 0.05 mm.

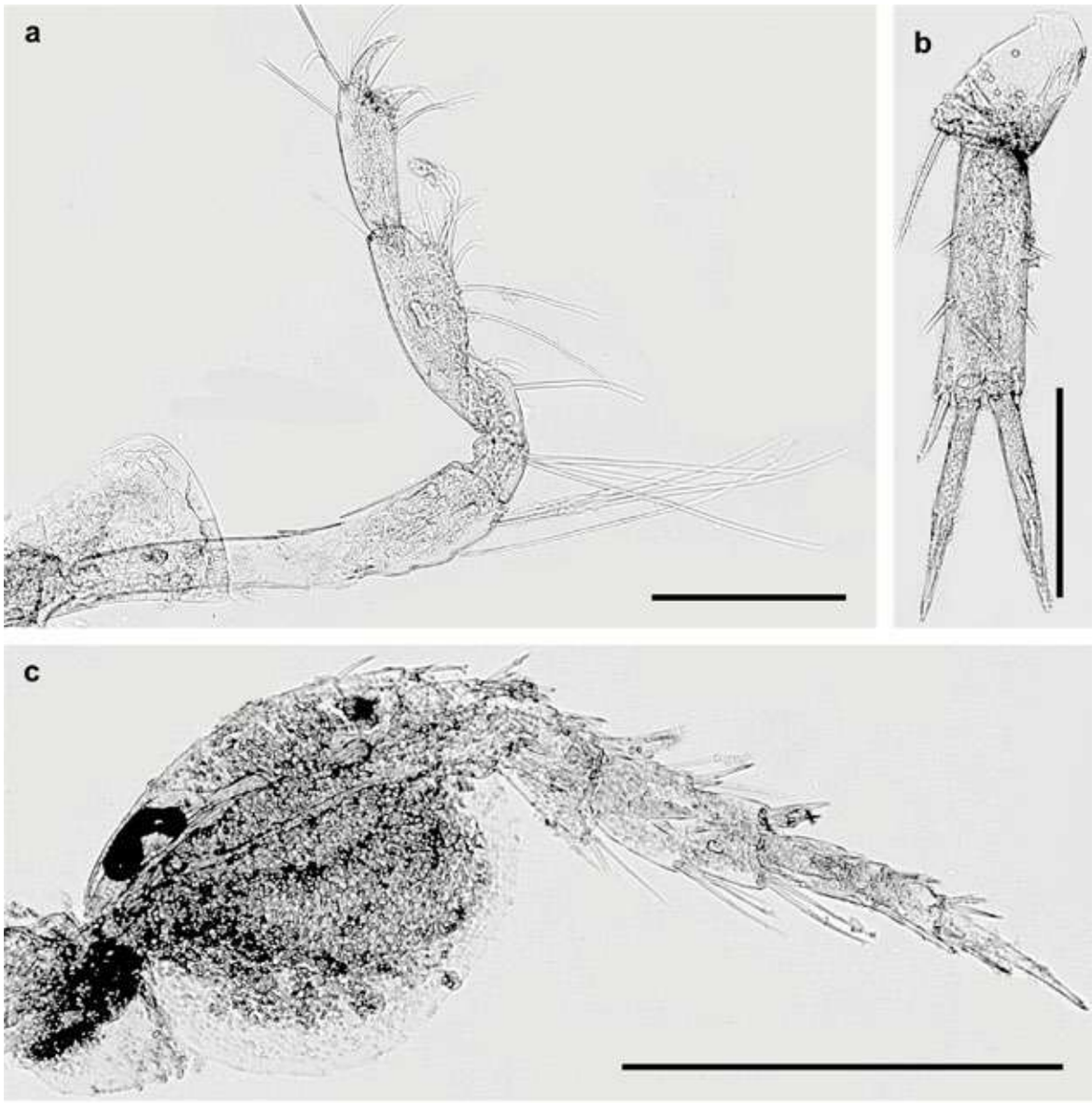

Plate 203. *Urothoe* sp. 2 cf. *intermedia*, Al-Bida'a. Female: a – gnathopod 2; b – uropod 1; c – pereopod 7. Scale lines: c – 0.5 mm; a and b – 0.2 mm.

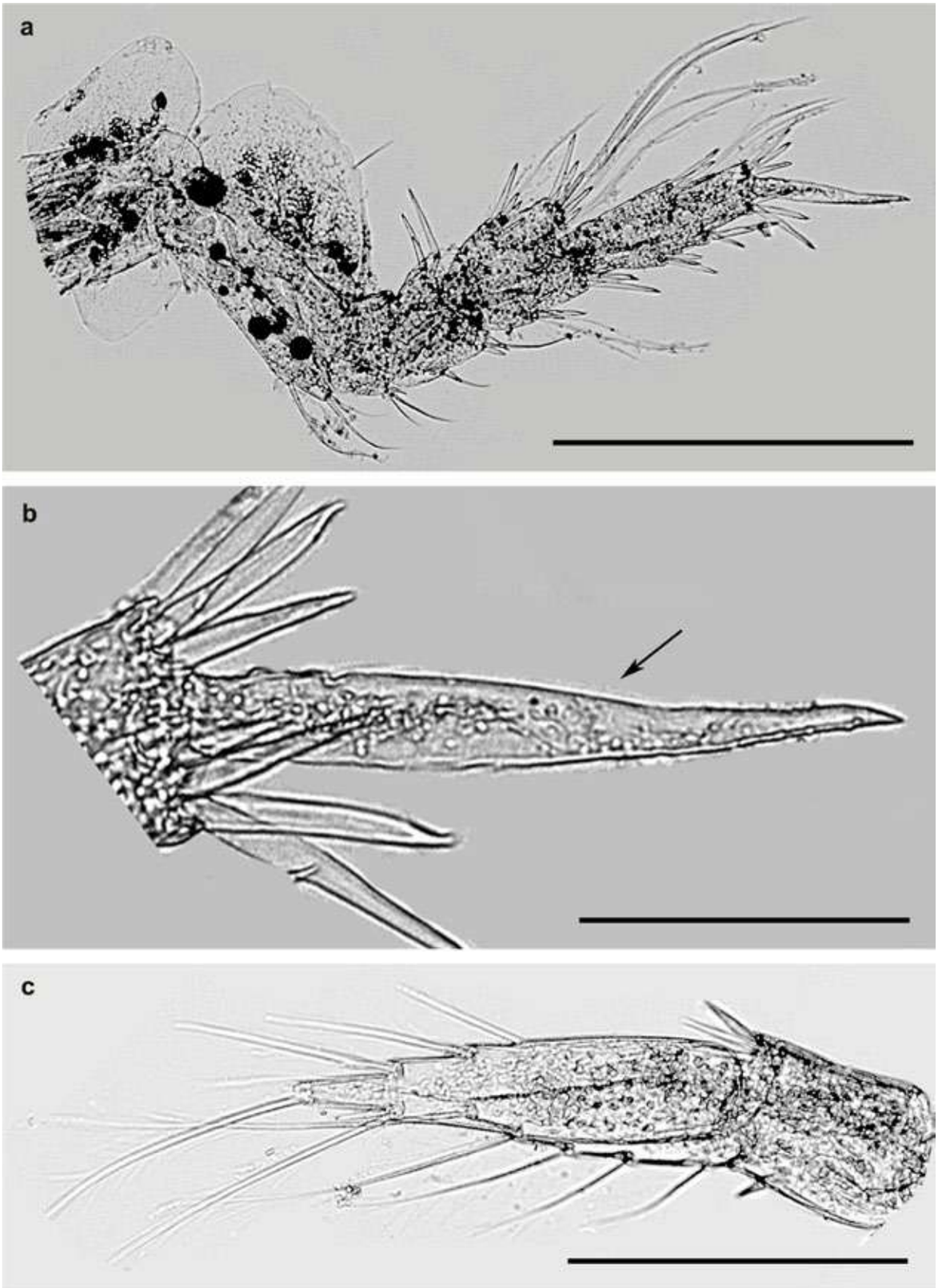

Plate 204. *Urothoe* sp. 2 cf. *intermedia*, Al-Bida'a. Female: a – pereopod 5; b – pereopod 5, dactylus (arrow); c – uropod 3. Scale lines: a – 0.5 mm; c – 0.2 mm; b – 0.1 mm.

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ANNEX 1

LIST OF SPECIES ENCOUNTERED DURING THE SURVEY OF AMPHIPODA ALONG KUWAIT'S COAST IN 2012-2016

Phylum ARTROPODA
Subphylum Crustacea
Superclass Multicrustacea
Class Malacostraca
Subclass Eumalacostraca
Superorder Peracarida
Order Amphipoda
Suborder Amphilochidea
Infraorder Lysianassida
Parvorder Synopiidira
Superfamily Synopioidea
Family Ampeliscidae
Genus *Ampelisca*
Ampelisca euroa Lowry & Poore, 1985
Ampelisca sp. 1
Ampelisca sp. 2 cf. *brevicornis*
Ampelisca sp. 3 cf. *misakiensis*
Ampelisca sp. 4 cf. *rubella*
Ampelisca sp. 5 cf. *taynamensis*
Ampelisca sp. 6 cf. *tulearensis*
Genus *Byblis*
Byblis sp.

Superfamily Dexaminoidea
Family Dexaminidae
Genus *Paradexamine*
Paradexamine sp. 1 cf. *latifolia*
Paradexamine sp. 2 cf. *orientalis*

Family Melphidippidae
Genus *Melphisana*
Melphisana madagascarensis Ledoyer, 1984

Parvorder Lysianassidira
Superfamily Lysianassoidea
Family Lysianassidae
Subfamily Lysianassinae
Genus *Socarnoides*
Socarnoides sp.

Family Tryphosidae
Genus *Orchomenella*
Orchomenella sp.

Parvorder Haustoriidira
Superfamily Haustorioidea
Family Phoxocephalidae
Subfamily Brolginae
Genus *Brolgus*
Brolgus sp. cf. *mamak*

Family Platyischnopidae
Genus *Indischnopus*
Indischnopus herdmani (Walker, 1904)

Family Urothoidae
Genus *Urothoe*
Urothoe sp. 1
Urothoe sp. 2 cf. *intermedia*

Infraorder Amphilochida
Parvorder Amphilochidira
Superfamily Amphilochoidea
Family Amphilochidae
Genus *Apolochus*
Apolochus sp. 1 cf. *kailua*
Apolochus sp. 2. cf. *menehune*

Family Cyproideidae
Genus *Cyproidea*
Cyproidea sp. cf. *serratipalma*

Family Stenothoidae
Subfamily Stenothoinae
Genus *Stenothoe*
Stenothoe gallensis Walker, 1904
Stenothoe sp. cf. *aucklandicus*

Superfamily Leucothoidea
Family Leucothoidae
Genus *Leucothoe*
Leucothoe gracilis (Haswell, 1879)
Leucothoe sp. cf. *richiardii*
Genus *Paranamixis*
Paranamixis sp. cf. *ledoyeri*

Parvorder Oedicerotidira
Superfamily Oedicerotoidea
Family Oedicerotidae
Genus *Perioculodes*
Perioculodes sp. 1
Perioculodes sp. 2 cf. *megapleon*
Perioculodes sp. 3 cf. *serra*
Genus *Pontocrates*
Pontocrates sp. cf. *arenarius*

Parvorder Maxillipiidira
Superfamily Maxillipioidea
Family Maxillipiidae
Genus *Maxillipius*
Maxillipius rectitelson Ledoyer, 1973

Parvorder Eusiridira
Superfamily Liljeborgioidea
Family Liljeborgiidae
Subfamily Idunellinae
Genus *Idunella*
Idunella demersalis (Sivaprakasam, 1972)

Suborder Colomastigidea
Infraorder Colomastigida
Parvorder Colomastigidira
Superfamily Colomastigoidea
Family Colomastigidae
Genus *Colomastix*
***Colomastix* sp. 1**
***Colomastix* sp. 2**

Suborder Senticaudata
Infraorder Hadziida
Parvorder Hadziidira
Superfamily Calliopioidea
Family Megaluropidae
Genus *Megaluropus*
Megaluropus excavatus Ledoyer, 1979
Megaluropus* sp. cf. *monasteriensis

Infraorder Corophiida
Parvorder Corophiidira
Superfamily Corophioidea
Family Ampithoidae
Genus *Biancolina*
***Biancolina* sp.**

Genus *Ampithoe*
Ampithoe ramondi Audouin, 1826
***Ampithoe* sp. 1**
Ampithoe* sp. 2 cf. *kava
Genus *Cymadusa*
Cymadusa setosa (Haswell, 1879)

Family Corophiidae
Subfamily Corophiinae
Tribe Corophiini
Genus *Laticorophium*
Laticorophium bifurcatum Myers & Nithyanandan, 2016

Subfamily Protomediinae
Genus *Cheiriphotis*
Cheiriphotis megacheles (Giles, 1885)
Cheiriphotis* sp. cf. *walkeri

Superfamily Aoroidea
Family Aoridae
Genus *Bemlos*
Bemlos acuticoxa Myers & Nithyanandan, 2016
Genus *Globosolembos*
Globosolembos indicus (Ledoyer, 1967)
Genus *Grandidierella*
Grandidierella gilesi Chilton, 1921
***Grandidierella* sp.**

Parvorder Caprellidira
Superfamily Caprelloidea
Family Caprellidae
Subfamily Caprellinae
Genus *Deutella*
***Deutella* sp.**
Genus *Metaprotella*
Metaprotella macoranicus Momtazi & Sari, 2013

Family Podoceridae
Genus *Laetmatophilus*
***Laetmatophilus* sp.**

Genus *Podocerus*
Podocerus mamlahensis Myers & Nithyanandan, 2016

Superfamily Microprotopoidea
Family Neomegamphopidae
Genus *Neomegamphopus*
***Neomegamphopus* sp.**

Superfamily Photoidea
Family Ischyroceridae
Subfamily Ischyrocerinae
Tribe Ischyrocerini
Genus *Ischyrocerus*
***Ischyrocerus* sp.**

Tribe Ericthonini
Genus *Ericthonius*
Ericthonius* sp. cf. *forbesii

Tribe Siphonoecetini
Subtribe Bubocorophiina
Genus *Orientoecetes*
Orientoecetes arabicus (Barnard & Thomas, 1984)

Family Photidae
Genus *Latigammaropsis*
Latigammaropsis pseudojassa Myers & Nithyanandan, 2016
***Latigammaropsis* sp. 1**
Latigammaropsis* sp. 2 cf. *atlantica
Genus *Photis*
Photis hawaiensis J.L. Barnard, 1955
***Photis* sp. 1**
Photis* sp. 2 cf. *bifurcata
Photis* sp. 3 cf. *viuda

Infraorder Hadziida
Parvorder Hadziidira
Superfamily Calliopioidea
Family Cheirocratidae
Genus *Cheirocratus*
***Cheirocratus* sp.**

Family Pontogeneiidae
Genus *Abdia*
Abdia latipalpus (Walker & Scott, 1903)

Superfamily Hadzoidea
Family Eriopisidae
Genus *Eriopisa*
Eriopisa* sp. cf. *elongata
Genus *Eriopisella*
***Eriopisella* sp.**

Family Maeridae
Genus *Ceradocus*
Ceradocus (Denticeradocus) alama Myers & Nithyanandan, 2016
Genus *Elasmopus*
Elasmopus alkhiranensis Myers & Momtazi, 2015
Genus *Maera*
Maera irregularis Myers & Nithyanandan, 2016

Family Melitidae
Genus *Dulichiella*
Dulichiella fresnelii (Audouin, 1826)
Genus *Melita*
Melita persia Momtazi & Sari, 2014

Infraorder Talitrida
Parvorder Talitridira
Superfamily Talitroidea
Family Hyalidae
Subfamily Hyalinae
Genus *Parhyale*
Parhyale basrensis Salman, 1986
Genus *Protohyale*
Protohyale arabica Myers & Nithyanandan, 2016

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FIELD GUIDE OF

ORDER AMPHIPODA

(Malacostraca, Crustacea)

OF KUWAIT

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