

## *Elaphoidella margaritae* sp. n., a New Phreatobitic Harpacticoid from Subterranean Waters of Thailand (Crustacea, Copepoda, Canthocamptidae)<sup>1</sup>

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In the course of recent faunistical research in South-East Asia, promoted by the Zoological Institute of the University of L'Aquila (Italy) and the Museo Civico di Storia Naturale, Verona (Italy), numerous samples of harpacticoid copepods were obtained from fresh and brackish-water wells in the Island of Phuket (Thailand).

Among these materials we identified a new *Elaphoidella* species which is herein described and illustrated as *Elaphoidella margaritae* sp. n.

*Elaphoidella margaritae* sp. n.  
(Fig. 1, 2)

Type-locality. Fresh-water well, Island of Phunket, Thailand; January 21, 1981; Coll.: P. Brignoli & M. El. Helou.

Type-material. Holotype (1 ♀), completely dissected and mounted on microscope slide, in Faure's medium, n. Th. 01; Paratypes (6 ♀, 3 ♂), completely dissected and mounted on microscope slides in Faure's medium, nn. Th. 02-010;

remaining paratypes (2 ♀, 2 ♂ and some copepodites) preserved in alcohol 60°. Type-material deposited at the Zoological Institute of the University of L'Aquila (Italy) (Authors'collections).

### Description

F e m a l e. Length, range of the examined specimens 0.58-0.76 mm. Body elongated and slender; a range of spinules along the posterior margin of

<sup>1</sup> Researches in South-East Asia promoted by Zoological Institute of the University of L'Aquila and Museo Civico di Storia Naturale, Verona (Italy).

abdominal segments, both on ventral and dorsal surface; last abdominal segment armed with a group of 5 spines at the basis of each furcal ramus, and with 4 stout spines along the external margin.

Genital segment short; receptaculum seminis as in Fig. 1—6. Anal operculum armed with 13-16 spinules along the medial margin (Fig. 1—2).

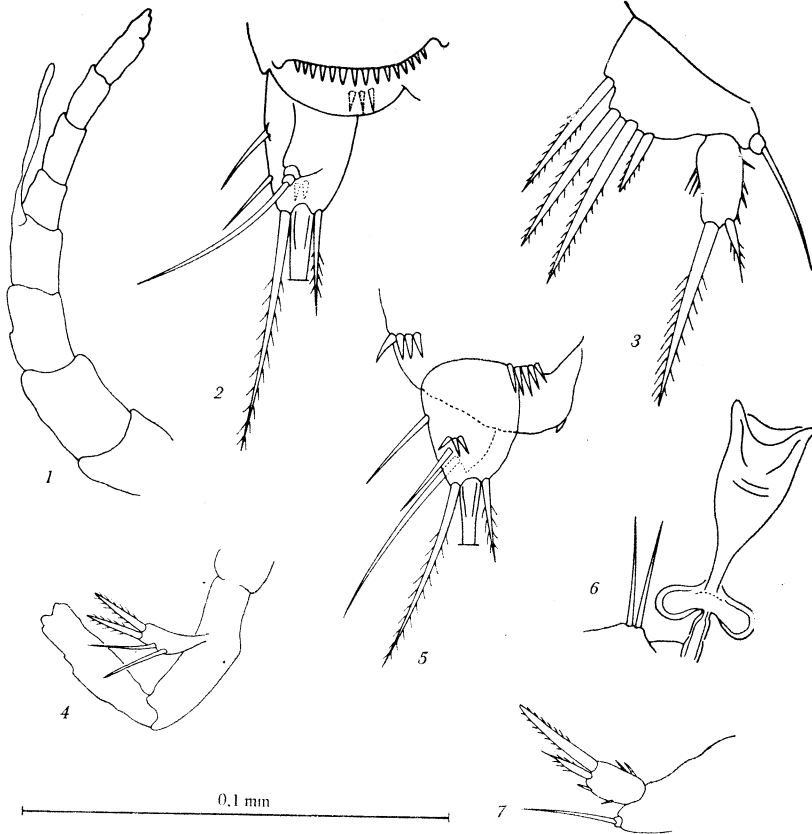


Fig. 1. *Elaphoidella margaritae* sp. n. (♀ and ♂)

1 — antenna; 2 — furcal ramus and anal operculum, dorsal view; 3 — female leg 5; 4 — antenna; 5 — furcal ramus, ventral view; 6 — genital field; 7 — male leg 5

Furcal rami subconical, short ( $L/l=1.35-1.40$ ), without cilia or spinules on the inner margin; outer margin with 2 setae, 3 spinules located near the base of the distal one; distal margin armed with 3 setae, the outer about twice longer than the inner one, and longer than furcal ramus; dorsal seta long, arising near apex of ramus, on a chitinous lamella (Fig. 1—2, 5).

Antenna 1,8-segmented, aesthete on the 4th segment reaching about half the 7th segment (Fi. 1—1).

Antenna 2, exopod 1-segmented, elongated and armed with 2 apical plumose spines and 2 lateral setae (Fig. 1—4).

Leg 1 (Fig. 2—1). Exopod 3-segmented; segment 1 with 1 outer spine; segment 2 with 1 inner seta and 1 outer spine; segment 3 with 2 outer subdistal spines and 2 apical setae; endopod 3-segmented, segment 1 elongated reaching about half the last exopod segment, and as long as the segment 2 and 3 together, armed with 1 inner seta; segment 2 armed with 1 inner seta; segment 3 with 1 inner short seta and 2 apical setae.

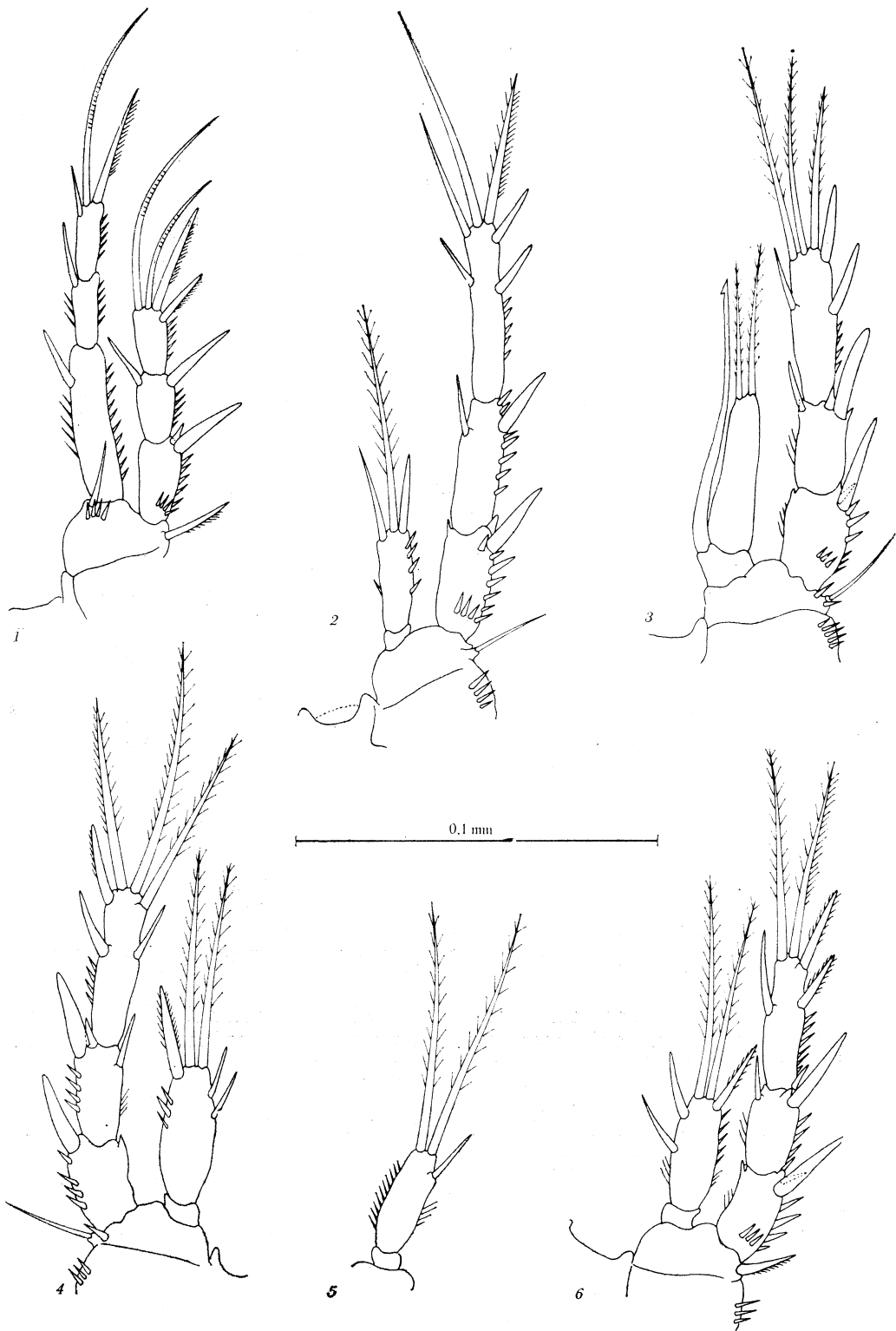


Fig. 2. *Elaphoidella margaritae* sp. n. (♀ and ♂)

1 — leg 1; 2 — leg 4; 3 — male leg 3; 4 — female leg 3; 5 — endopod of male leg 2; 6 — leg 2

Leg 2. Exopod 3-segmented; segment 1 armed with 1 outer spine; segment 2 with 1 inner seta and 1 outer spine; segment 3 with 2 outer spines and 2 apical and 1 inner setae; endopod 2-segmented, segment 1 naked; segment 2 reaching about the tip of segment 2 of the exopod, and armed with 1 outer spine, 2 apical long setae and 2 inner setae (Fig. 2—6).

Leg 3. Exopod 3-segmented; segment 1 and 2 as in leg 2; segment 3 with 2 inner and 2 apical setae and 2 outer spines; endopod 2-segmented, segment 1 naked; segment 2 with 2 short inner setae, 2 apical setae and 1 subapical inner spine (Fig. 2—4).

Leg 4. Exopod 3-segmented and armed as in leg 3; endopod 2-segmented, segment 1 naked; segment 2 with 2 apical and 1 subapical inner setae (Fig. 2—2).

Setae formula for legs 1-4 (including spines) as follows:

	Exp.			Enp.	
P <sub>1</sub>	0	1	0 2 2	1	1 2 0
P <sub>2</sub>	0	1	1 2 2	—	0 2 2 1
P <sub>3</sub>	0	1	2 2 2	—	0 2 2 1
P <sub>4</sub>	0	1	2 2 2	—	0 1 2 0

Leg 5 (Fig. 1—3). Exopod elongated ( $L/l=1.90-2.10$ ), armed with 1 spiniform apical seta and 1 shorter subapical element; inner basal expansion with four setae, the two middle of approximately the same length and about twice the length of the exopod, the outer shorter.

*M a l e*. Length, range of 3 specimens 0.60-0.75 mm, excluding antennae, antennulae and furcal setae. Caudal rami slender than in the female ( $L/l=1.50-1.60$ ); only 3 spines at the base of each furcal ramus. Leg 2 (Fig. 2—5) endopod segment 2 armed with 1 inner and 2 long apical setae. Leg 3 (Fig. 2—3) endopod modified into copulatory organ, process on segment 2 nearly twice the length of distal segment; spines of all the exopod segments, stout. Leg 4, distal segment of the exopod without transformed spines or setae. Leg 5 (Fig. 1—7) exopod shorter than in the female, armature the same; basal expansion not produced and without spines or setae.

Other characteristics — as in the female.

## Remarks and affinities

The new species *Elaphoidella margaritae* sp. n. clearly belongs to the genus *Elaphoidella* as defined by Lang (1948) and shows some similarity with *Elaphoidella plutonis* Chappuis, 1938, *E. winkleri* (Chappuis, 1928), *E. putealis* (Chappuis, 1925), *E. pectinata* (Delachaux, 1923) and *E. simplex* Chappuis, 1944.

This species differs from the other by the number of setae and/or spines on P<sub>2</sub>-P<sub>4</sub>; P<sub>5</sub>.

It is similar in particular to *putealis* and to *plutonis* by the construction and armature of the exopod P<sub>2</sub>-P<sub>4</sub>, the number of setae or spines on the endopod of P<sub>4</sub>; the morphology and armature of the exopod P<sub>5</sub> ♂ in *putealis*; with *winkleri* it is most similar in morphology and armature of the exopods of P<sub>5</sub> ♂; with *simplex* it shares the morphology and armature of the exopods and endopods of P<sub>4</sub>; the armature of the basipodid of P<sub>5</sub> and the armature of the exopod of P<sub>5</sub> (♀ and ♂).

*Elaphoidella margaritae* sp. n. differs from these species as follows:

Leg 2. Exopod 3-segmented; segment 1 armed with 1 outer spine; segment 2 with 1 inner seta and 1 outer spine; segment 3 with 2 outer spines and 2 apical and 1 inner setae; endopod 2-segmented, segment 1 naked; segment 2 reaching about the tip of segment 2 of the exopod, and armed with 1 outer spine, 2 apical long setae and 2 inner setae (Fig. 2—6).

Leg 3. Exopod 3-segmented; segment 1 and 2 as in leg 2; segment 3 with 2 inner and 2 apical setae and 2 outer spines; endopod 2-segmented, segment 1 naked; segment 2 with 2 short inner setae, 2 apical setae and 1 subapical inner spine (Fig. 2—4).

Leg 4. Exopod 3-segmented and armed as in leg 3; endopod 2-segmented, segment 1 naked; segment 2 with 2 apical and 1 subapical inner setae (Fig. 2—2).

Setae formula for legs 1-4 (including spines) as follows:

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P <sub>1</sub>	0 1	0 2 2		1 1	1 2 0	
P <sub>2</sub>	0 1	1 2 2		— 0	2 2 1	
P <sub>3</sub>	0 1	2 2 2		— 0	2 2 1	
P <sub>4</sub>	0 1	2 2 2		— 0	1 2 0	

Leg 5 (Fig. 1—3). Exopod elongated ( $L/l=1.90-2.10$ ), armed with 1 spiniform apical seta and 1 shorter subapical element; inner basal expansion with four setae, the two middle of approximately the same length and about twice the length of the exopod, the outer shorter.

Male. Length, range of 3 specimens 0.60-0.75 mm, excluding antennae, antennulae and furcal setae. Caudal rami slender than in the female ( $L/l=1.50-1.60$ ); only 3 spines at the base of each furcal ramus. Leg 2 (Fig. 2—5) endopod segment 2 armed with 1 inner and 2 long apical setae. Leg 3 (Fig. 2—3) endopod modified into copulatory organ, process on segment 2 nearly twice the length of distal segment; spines of all the exopod segments, stout. Leg 4, distal segment of the exopod without transformed spines or setae. Leg 5 (Fig. 1—7) exopod shorter than in the female, armature the same; basal expansion not produced and without spines or setae.

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*Elaphoidella margaritae* sp. n. differs from these species as follows:

- From *putealis*, *plutonis* and *simplex* by the structure and armature of the exopod P<sub>2</sub>;
- From *simplex* by the structure of the endopod P<sub>3</sub> and 3 segment of the exopod P<sub>4</sub>;
- From *plutonis* by the structure of the first segment of endopod P<sub>3</sub> and exopod P<sub>5</sub> (in female and male);
- From *winkleri* by the structure and armature of endopod P<sub>1</sub>-P<sub>4</sub> and exopod P<sub>3</sub>-P<sub>4</sub>, in the structure of basiendopod P<sub>5</sub> ♀;
- From *pectinata* in the structure of endopod P<sub>1</sub> and the second segment of endopod P<sub>2</sub> ♀; in the structure of P<sub>5</sub> in female and male.

## Ecology

The new species lives in sandstone sediments in association with cyclopoid copepods (*Mesocyclops leuckarti* Claus), stenasellid isopods (*Stenasellus brignolii* Pesce & Argano), ostracods, oligochaetes water mites and some mosquito larvae.

## Etymology

We took great pleasure in naming this species after Dr. Margarita Mihailova in recognition of her contribution to the research of genus *Elaphoidella*.

## References

- L a n g, K. 1948. Monographie der Harpacticiden. T. I, II. Stockholm, Nordiska Bokhandeln. 1683 p.

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*Elaphoidella margaritae* sp. n. — новый фреатический вид Harpacticoida из подземных вод Таиланда (Crustacea, Copepoda, Canthocamptidae)

Джузенне Л. Песше, Апостол М. Апостолов

(Резюме)

Описывается новый для науки вид *E. margaritae*. В общей сложности в подземных водах Таиланда найдено 6 самок и 3 самца этого вида.

В систематическом отношении наблюдается сходство с видами *E. plutonis*, *E. winkleri*, *E. putealis*, *E. pectinata* и *E. simplex*. Важнейшие отличия от упомянутых видов касаются строения плавательных ножек P<sub>1</sub>—P<sub>5</sub>. Выявляется некоторое сходство с видами *E. putealis* и *E. plutonis*, главным образом в строении экзоподита P<sub>2</sub>—P<sub>4</sub>, а также в количестве щетинок эндоподита P<sub>4</sub> и морфологическом строении экзоподита P<sub>5</sub> у самцов.

Сходство с видом *E. winkleri* имеется в строении экзоподита и эндоподита  $P_4$ , а также в строении базисэндоподита  $P_5$  и экзоподита  $P_5$  у самцов. Несмотря на указанное сходство с уже известными видами этого рода, найденный в подземных водах Таиланда вид не может быть причислен ни к одному из них. Вместе с новым видом найдены представители Cyclopoidae, Oligochaeta и множество личинок насекомых.

Новый вид посвящен с уважением и признательностью доценту биологического факультета Софийского университета им. К. Охридского Маргарите Михайловой.