Bull. Inst. r. Sci. nat. Belg. Bull. K. Belg. Inst. Nat. Wet.	Bruxelles Brussel	30-IX-1982
54	ENTOMOLOGIE	8

NOTES ON THE *EWINGIIDAE (ACARI, ASTIGMATA)* LIVING IN ASSOCIATION WITH PAGURIDS AND FRESH-WATER CRABS *(CRUSTACEA)*, WITH DESCRIPTION OF A NEW GENUS AND A NEW SPECIES

BY

A. FAIN (1), C. E. YUNKER (2), J. VAN GOETHEM (3) and D. E. JOHNSTON (4)

(With 7 figures in the text)

ABSTRACT

Askinasia antillarum sp. n. (Acari : Ewingiidae) is described from the hermit crab *Coenobita clypeata*, from 3 localities in the Lesser Antilles and Florida, U. S. A. A new genus *Kanekobia* gen. n. of the same family is created for *Ewingia potamona* KANEKO & KADOSAKA described from a fresh-water crab, *Potamon dehaani*, in Japan. The species *Ewingia cenobitae* PEARSE is recorded from a second locality.

RESUME

Une nouvelle espèce d'acarien, *Askinasia antillarum* sp. n. (famille Ewingiidae) provenant de 3 localités (2 aux Petites Antilles et une en Floride, U. S. A.) et trouvée sur le bernard-l'ermite *Coenobita clypeata*, est décrite. Un nouveau genre, *Kanekobia* gen. n., appartenant à la même famille, est créé pour l'espèce *Ewingia potamona* KANEKO & KADOSAKA, trouvée

(1) Institut de Médecine Tropicale, 155 Nationalestraat, 2000 Antwerpen, Belgium.
(2) N. I. H., N. I. A. I. D., Epidemiology Branch, Rocky Mountain Laboratories, Hamilton, Montana 59840, USA.
(3) Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium.
(4) Acarology Laboratory, The Ohio State University, Columbus, Ohio 43210, USA.

sur un crabe dulcaquicole du Japon, *Potamon dehaani*. Une deuxième localité est mentionnée pour l'espèce *Ewingia cenobitae* PEARSE.

The crabs, specially the hermit crabs (Paguridae), are parasitized by a variety of mites belonging to the orders Mesostigmata, Prostigmata and Astigmata. The astigmatic mites are particularly interesting for they belong to a family, Ewingiidae, where all the species are completely specialized for pagurids and fresh-water crabs. These mites attach to the gills or to the leg-hairs of crabs.

PEARSE (1929) described the first genus and species, *Ewingia cenobitae*, from *Coenobita diogenes* (actually *C. clypeata*) in Florida. YUNKER (1970) redescribed this species and added two new genera and three new species : *Hoogstraalacarus tiwiensis* from *Coenobita rugosa*, in Kenya; *Askinasia aethiopicus* from *C. rugosa* in Kenya and *A. sinusarabicus* from *C. jousseaumi* in Egypt. He also recorded a third undescribed species. *Askinasia* sp. n. « C », from a single female specimen collected from *Coenobita clypeata*, St. Eustatius I. (Windward Group), by P. WAGENAAR HUMMELINCK, Zoologisch Laboratorium, Utrecht. This specimen was illustrated but not described.

Mites of the genera *Ewingia* and *Hoogstraalacarus* inhabit the gills of their hosts, while those of the genus *Askinasia* attach themselves to hairs of the protruded vas deferens on leg V of the host.

KANEKO and KADOSAKA (1978) described a new species, *Ewingia potamona*, from the gills of a fresh-water crab, *Potamon dehaani*, in Japan. It is the first record of the family Ewingiidae in a fresh-water crab of the genus *Potamon*, a non-coenobitid crustacean.

In the present paper we give a complete description and figures of the species *Askinasia* « C » of YUNKER, based on new specimens of both sexes collected from the same host in three different places : Republic of St. Vincent (Grenadines Is.), Curaçao (Netherlands Antilles) and Florida, U. S. A.

We also create a new genus *Kanekobia* gen. n. for the Japanese species *Ewingia potamona* KANEKO and KADOSAKA, 1978.

We thank Dr. K. WOUTERS of the I. R. Sc. N. B., who identified the hermit crabs, *Coenobita clypeata*, from Bequia Island (Republic of St. Vincent).

Askinasia antillarum spec. nov.

Askinasia n. sp. « C » YUNKER 1970 : 251 (fig. 14-15).

T y p e - d a t a . — Holotype female ex. *Coenobita clypeata* (HERBST, 1791), St. Eustatius Is. (Windward Group); 6 July 1949 (Coll. P. W. H.). Other specimens, all paratypes from the same host, but in the following localities :

1. Republic of St. Vincent, Bequia Is., Grenadines Is. (Windward Group), 12 March 1980 : 2 females, 3 males and 2 nymphs (Coll. J. V. G. & G. WAUTERS), I. R. Sc. N. B., I. G. n° 26.103.
2. Curaçao, Oostpunt S coast, 1967 : 2 females (Coll. P. W. H.).
3. Florida, Monroe Co., small mangrove island off Marathon key, 24 August 1976 : 5 females, allotype and 5 males, 11 nymphs, 1 larva (Coll. D. J.).

Description :

Female. — The holotype was figured but not described by YUNKER (1970, fig. 14-15). We give here the description. Idiosoma 495 µm long by 340 µm wide (maximum width). In 2 females from Florida : 510 × 390 µm and 460 × 360 µm. Cuticle slightly wrinkled, not striate nor punctate. *Dorsum* : There is a rounded tegumen covering the base of the gnathosoma. Setae *v i* stiff, 26 µm long; the *v e* are lacking. There are 2 pairs of strong spinous lateral setae; one situated on propodonotum 87 µm long (*sc e*), the other on hysteronotum 70 µm long (*d 1* setae). In addition, the dorsum bears 6 pairs of microsetae. *Venter :* Epimeres I fused in a sternum. Epimeres and epimerites II well developed, the epimerites more sclerotized than in the drawings of C. Y., their internal extremities almost contiguous. Posterior epimeres free. Vulva longitudinal, their lips striated in anterior half. Epigynium forming a small triangular sclerite. Genital suckers rather well developed, longer than wide. There are 3 pairs of very small genital setae. Anus ventral. Anal setae (*a i*) very small. Behind these setae there is a pair of strong and very long setae (about 200 µm) (*d 5* or *l 5*) and more posteriorly a pair of microsetae (not figured by C. Y.). Setae *cx I* long and thin (more than 100 µ), *cx III* 12 µm long. Gnathosoma with the base abruptly narrowed in its posterior third or half. Chelicera as in the other species of the genus. *Legs* : Posterior legs much stronger than anterior ones and ending in powerful clasping organs. Tarsi III-IV almost completely fused with corresponding tibiae. *Chaetotaxy of legs :* Trochanters I with a long, very thin seta; trochanters II-III with a very short and thin seta. Femora I-IV with 1-1-0-0 setae; genua, 2-2-0-0; tibiae, 2-2-0-0. Tarsi I-II with a strong curved apical claw, 4 thin and long setae, 1 strong ventro-basal spine, 3 smaller ventro-subapical spines and 1 strong dorso-apical spine. Tarsi III-IV ending in a very strong curved claw articulating with a thick ventro-basal spine. These tarsi bear 7 other setae : 2 thin and long dorso-preapical and 5 shorter ventral, of which 2 are thin and small and 3 are longer and strongly inflated basally. These 3 swollen setae probably serve as elastic buffers in order to make the clasping more efficient. Similar organs exist on posterior legs of Myocoptidae (FAIN *et al.* 1970, p. 75).

Solenidiotaxy. — Tarsi I with a subapical ω *3* and a basal ω *1* the latter flanked by a short and thick famulus. Tarsi II with only ω *1*.

Tarsi I-IV with 1-1-1-1 solenidia, those of legs III-IV very short and small. Genua I-II with a rather long solenidion.

M a l e (figs. 1-7). — Allotype 489 μm long and 390 μm wide. In 2 specimens from Florida, 438 × 347 μm and 470 × 360 μm. Cuticle soft, not punctate nor striated. Dorsum as in female. *Venter* : Epimeres as in female. Genital organ situated at the level of coxae IV, broadly conical with the apex divided into two short sclerotized rounded and inwardly curved hooks. Its length in midline 38 μm. Anus flanked by 2 adanal

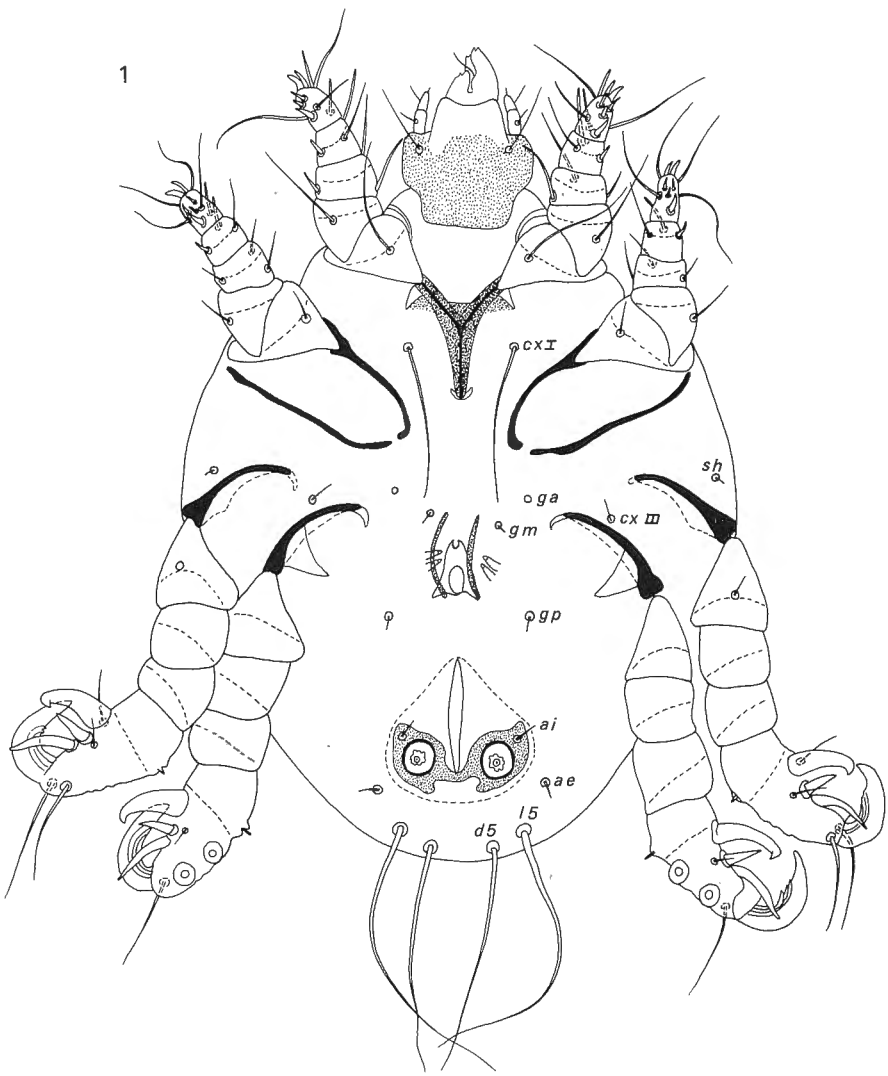

Fig. 1. — *Askinasia antillarum* sp. n., Male, in ventral view.

suckers situated on a sclerotized area. Behind the anus there are 2 pairs of strong and long unequal (130 and 200 μm) setae. Gnathosoma and legs I-III as in female. Tarsi of leg IV bearing a pair of copulatory suckers (diameter 12 μm).

R e m a r k s . — This new species differs from the two other known species in the genus, in both sexes, by the absence of a pair of strong setae on the opisthonotum, and by the much greater length of the *cx I*; the female differs by the greater length of the postero-paraanal setae.

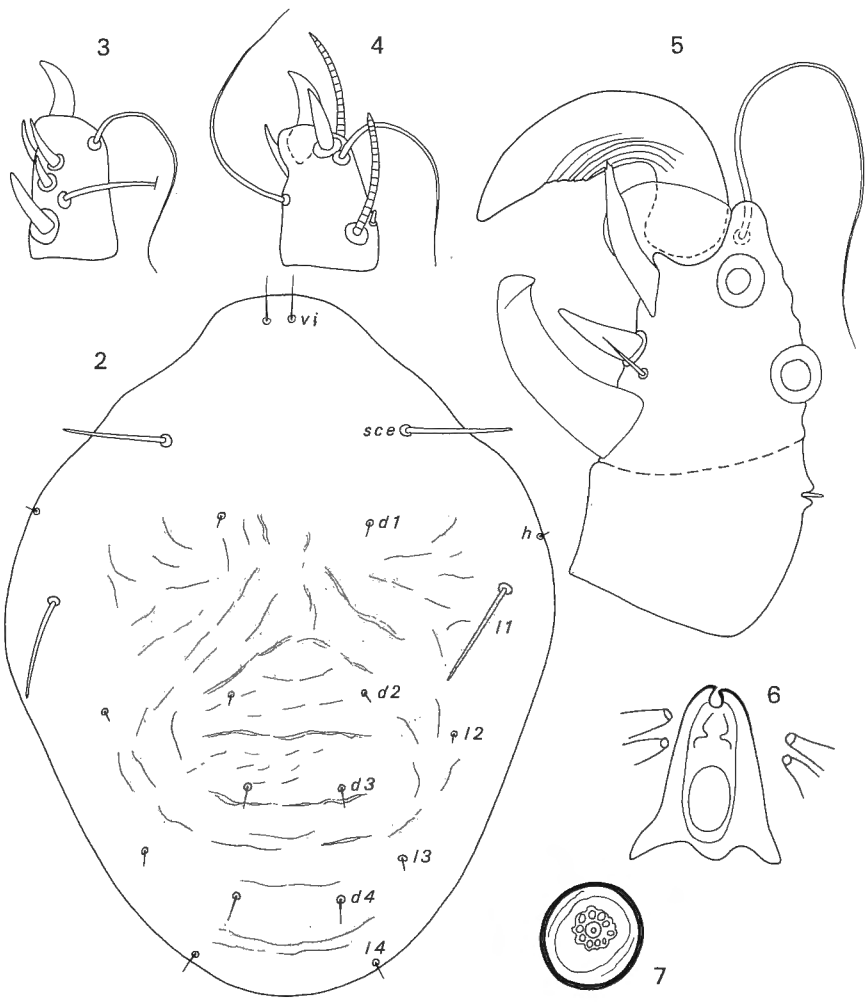

Fig. 2-7. — *Askinasia antillarum* sp. n., Male : (2), in dorsal view; (3), tarsus I in ventral view; (4), tarsus I in dorsal view; (5), tibio-tarsus IV, posterior surface; (6), genital organ; (7), adanal sucker.

Ewingia cenobitae PEARSE, 1929

This species was known only from a crab identified as *Coenobita diogenes* (LATREILLE) [actually *C. clypeata* (HERBST)] at Loggerhead Key, Tortugas, Florida, 17 July 1928.

Nine new specimens, among which two males, three females and three nymphs have been found on *Coenobita clypeata* from St. Vincent Republic, Grenadines Is., Bequia Is. (Windward group), 12 March 1980 (Coll. J. V. G. & G. WAUTERS), I. R. Sc. N. B., I. G. nº 26.103.

Genus Kanekobia gen. nov.

KANEKO and KADOSAKA (1978) described *Ewingia potamona* from the fresh-water crab *Potamon dehaani*, in Japan. According to the description, this species does not agree with the genus *Ewingia* nor with the two other genera described in the family and we erect for it a new genus, that we name *Kanekobia* g. n. for the distinguished Japanese Acarologist, Kiyotoshi KANEKO.

Definition. — Cuticle soft without punctation or striations. Vulva longitudinal with a fairly conspicuous epigynium. Anus subterminal and ventral in female, far in front of posterior extremity and flanked by 2 copulatory suckers in male. In the male the posterior extremity is bilobed and both lobes bear 2 ornate flanges. All legs with 5 free-segments. In both sexes legs III distinctly smaller than legs IV and their claw is also smaller than in the latter.

Type species. — *Ewingia potamona* KANEKO & KADOSAKA, 1978.

Remarks. — This genus is distinguished from the three other known genera in the Ewingiidae in both sexes by the inequal size of legs III and IV, and the absence of fusion of tarsus and tibia in these legs. The male is distinguished by the presence of flanges at posterior extremity. In addition, this genus is distinguished from *Ewingia* and *Askinasia* in the male by the bilobation of the posterior extremity and the more anterior situation of the anus.

REFERENCES

FAIN, A., MUNTING, A. J. & LUKOSCHUS, F.

1970. Les *Myocoptidae* parasites des rongeurs en Hollande et en Belgique (Acarina : Sarcoptiformes). — *Acta Zool. Path. Antverp.*, 50 : 67-172.

KANEKO, K. & KADOSAKA, T.

1978. A new parasitic mite *(Astigmata : Ewingidae)* from the gills of fresh-water crab in Japan. — *Jap. J. Sanit. Zool.*, 19 : 313-315.

PEARSE, A. S.

1929. Two new mites from the gills of land crabs. — *Tortugas Lab. Carnegie Inst. Wash.*, 26 : 225-230.

YUNKER, C. E.

1970. New genera and species of *Ewingidae (Acari : Sarcoptiformes)* from Pagurids *(Crustacea)* with notes on *Ewingia cenobitae* PEARSE, 1929. — *Rev. Zool. Bot. Afr.*, 81 : 237-254.