

**HALACARUS MALAYSIUS, A NEW HALACARID MITE  
(HALACARIDAE: ACARI) FROM THE ISLAND OF  
BABI BESAR, PENINSULAR MALAYSIA**

**Ilse Bartsch**

**ABSTRACT.** - *Halacarus malaysius*, new species, a new member of the *H. ctenopus* group is described and figured. *H. malaysius* was collected from a coral reef in the island of Babi Besar near Pulau Tioman, Peninsular Malaysia.

---

**INTRODUCTION**

Halacarid mites inhabit intertidal and subtidal zones down to the deep sea. More than 700 species are described worldwide (Bartsch, 1988). The first halacarids from the South China Sea were mentioned almost a century ago, namely, *Copidognathus bavayi* (Trouessart, 1896), *C. manicatus* (Trouessart, 1899) and *C. spinulus* (Trouessart, 1899), all collected at the mouth of Mekong (Trouessart, 1896, 1899). Later on, almost 20 species have been reported from the Philippines (Talker *et al.*, 1981; Bartsch, 1983, 1984, 1985a, b, 1986, 1991c) and more than 30 species from the Hong Kong area (Bartsch, 1990, 1991a, d, 1992a, b, d, e, f).

**MATERIAL**

The halacarids were collected by Dr H.-G. Müller in April 1991, while studying the isopod fauna on a coral reef of the island Babi Besar, about 15 km off Mersing, eastern Peninsular Malaysia.

The mites were cleared in lactic acid and mounted in glycerine jelly. Type material is deposited in the Zoological Institute und Zoological Museum, Hamburg (ZIMH), the Zoological Reference Collection, Department of Zoology, National University of Singapore (ZRC) and the author's halacarid collection (IB).

**DESCRIPTION**

**Genus *Halacarus* Gosse**

***Halacarus malaysius*, new species**

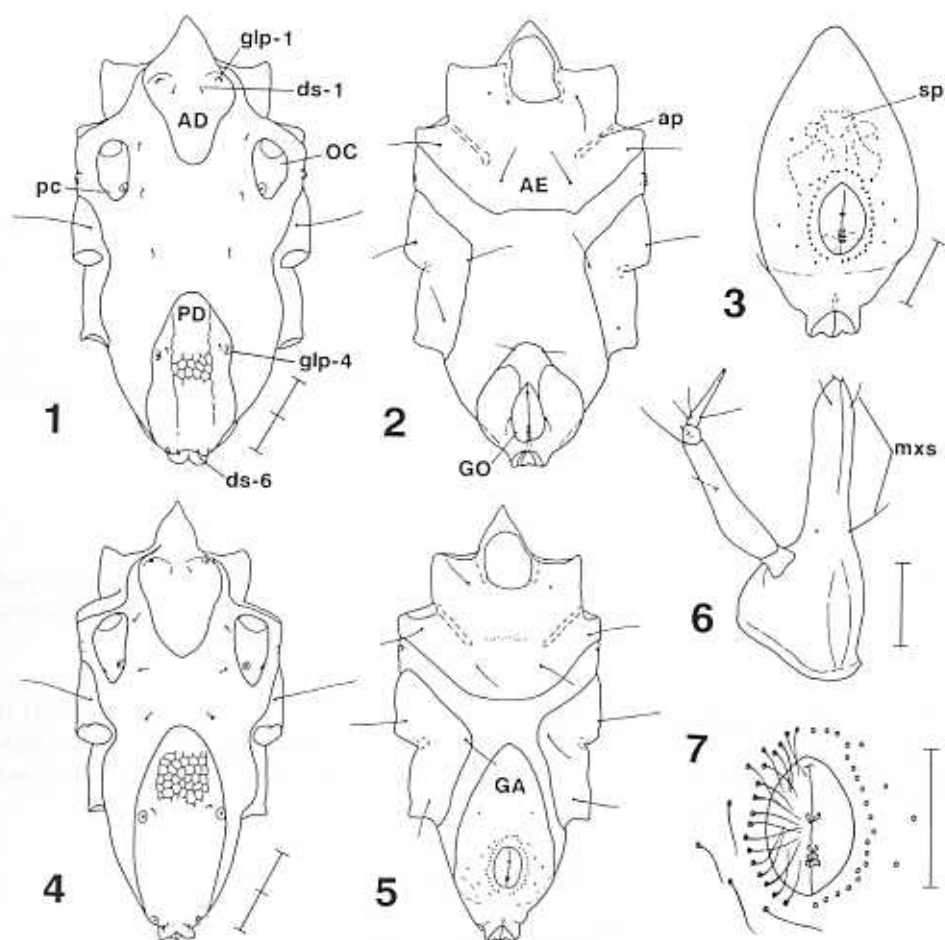
**Material.** - Holotype - female (ZIMH A31/93), Babi Besar, reef area in northwestern part of the island, reef flat, shallow water, 1.iv.1991, coll. H.-G. Müller.

---

**Ilse Bartsch** - Biologische Anstalt Helgoland, Notkestrasse 31, 22607 Hamburg, Germany

Paratypes - 1 female (ZRC), 1 male (IB As237), both type locality; 1 female, same reef but outer reef flat and reef margin, 1-2m, 2-9.iv.1991 (IB As 241).

**Description of female.** - Idiosomal length 529-548  $\mu\text{m}$ , holotype 529  $\mu\text{m}$  long, 291  $\mu\text{m}$  wide. Dorsal and ventral plates covered with delicately striated epicuticula. Dorsal plates separated by wide areas of membranous integument. Anterior dorsal plate (AD) of holotype 172  $\mu\text{m}$  long, 117  $\mu\text{m}$  wide; with short, triangular frontal spine and pair of large gland pores (glp) (Fig. 1). Ocular plates 72  $\mu\text{m}$  long, 40  $\mu\text{m}$  wide; with large cornea anteriorly and gland pore and minute pore canaliculus (pc) posteriorly. Another pair of gland pores in marginal position. Brown eye pigment present beneath frontal spine and ocular plates. Posterior dorsal plate (PD) 192  $\mu\text{m}$  long, 103  $\mu\text{m}$  wide, with two pairs of gland pores, one pair (glp-4) on a level with insertion of leg IV and one in posterior PD. Length of that portion of plate surpassing glp-4 about same as internal interval between the pores. Median plate coarsely reticulated. Dorsal setae small. First

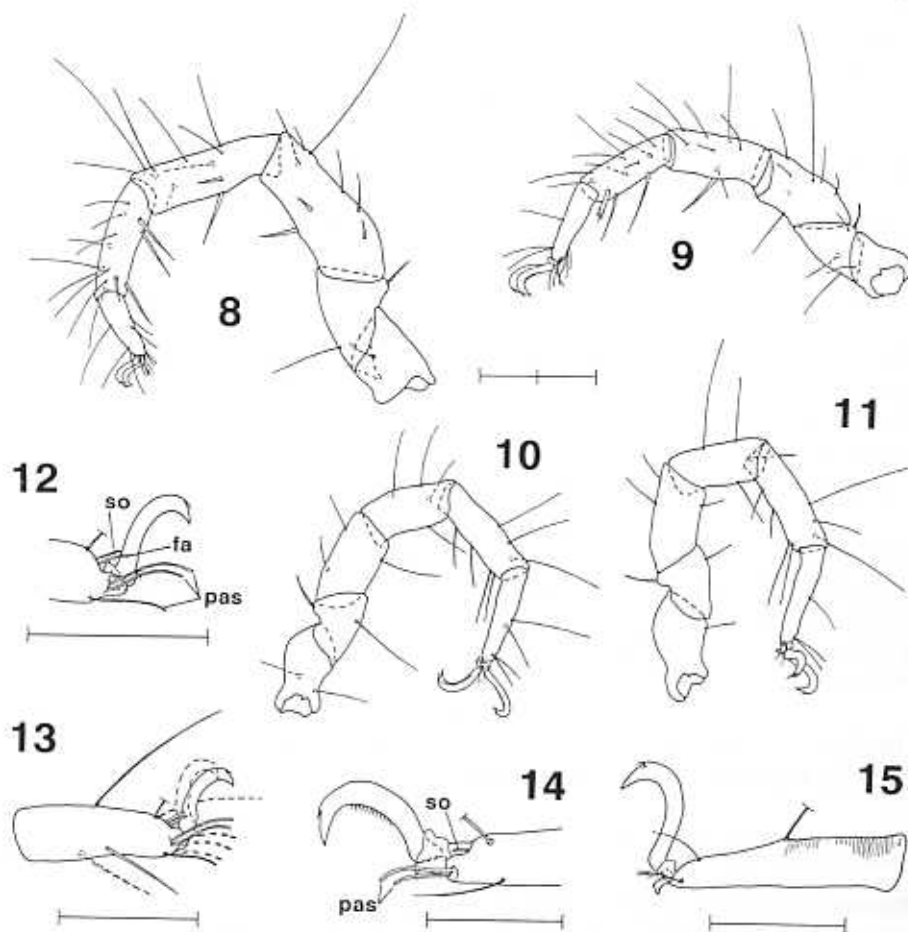


Figs 1-7. *Halacarus malaysius*, new species. 1, idiosoma, dorsum, female; 2, idiosoma, venter, female; 3, genitaloanal plate, male; 4, idiosoma, dorsum, male; 5, idiosoma, venter, male; 6, gnathosoma, ventrolateral aspect, female; 7, genital area, male. AD, anterior dorsal plate; AE, anterior epimeral plate; ap, apodeme; ds-1, ds-6, first and sixth dorsal idiosomal setae; GA, genitaloanal plate; glp-1, glp-4, first and fourth gland pore; GO, genital opening; mxs, maxillary setae; pc, pore canaliculus; sp, spermatopositor. Scale division = 50  $\mu\text{m}$

pair of dorsal setae (ds-1) inserted on AD posterior to gland pores, second, third and fourth pair of setae within membranous integument, fifth pair on posterior dorsal plate anteromedial to gland pores, and sixth pair of setae (ds-6) in posterior PD.

Anterior epimeral plate (AE) 126  $\mu$ m long, 281  $\mu$ m wide. Ventral setae long, inserted as figured (Fig. 2). Apodemes (ap) between epimeral plates I and II elongate, those between epimera III and IV short. Genitoanal plate (GA) 150  $\mu$ m long, 130  $\mu$ m wide, with anterior rounded plate hardly passing beyond anterior pair of perigenital setae. Second pair of perigenital setae inserted close to genital opening. Swelled integument on either side of genital opening set off from anterior portion of the plate. Genital opening 70  $\mu$ m long, 42  $\mu$ m wide. Genital sclerites with four pairs of minute setae along the genital slit.

Gnathosoma 180  $\mu$ m long. Rostrum 1.3 longer than gnathosoma base. Both pairs of maxillary setae (mxs) inserted on the rostrum (Fig. 6). Second palpal segment with two setae, one just



Figs 8-15. *Halacarus malaysius*, new species. 8, leg I, medial aspect, female; 9, leg II, medial aspect, female; 10, leg III, medial aspect, female; 11, leg IV, medial aspect, female; 12, tip of tarsus I, lateral aspect, female (medial setae and claw omitted); 13, tarsus I, lateral aspect, female (medial setae and claw in broken line); 14, tip of tarsus II, medial aspect, female (lateral setae and claw omitted); 15, tarsus IV, with striated epicuticula, lateral aspect, male (medial setae and claw omitted), fa, famulus; pas, parambulacral setae; so, solenidion. Scale division = 50  $\mu$ m

posterior to the segment's midline and one near the end. Medial spine on third palpal segment blunt. Fourth palpal segment with three setae in the basal whorl.

Integument of legs covered with finely striated epicuticula. Length (with the claws included) of leg I about same as that of idiosoma and larger than the other legs. Genu I longer than tibia but shorter than telofemur I (Fig. 8). Leg II with telofemur, genu and tibia subequal in length (Fig. 9). Tibiae III and IV slightly longer than both telofemora and genua, respectively (Figs 10, 11). Chaetotaxal formula, from trochanter to tarsus (famulus and solenidion excluded): leg I, 1, 2, 8, 10, 13, 11; leg II, 1, 4, 7, 8, 11, 9; leg III, 2, 2, 3, 4, 7, 6; leg IV, 1, 2, 3, 4, 7, 5. Telofemur I with long ventral and minute ventromedial spine. Genu and tibia I with one and two pairs of tapering ventral bristles respectively. Genu II with tapering ventral spine and ventromedial seta, tibia II with two ventral bristles, tapering and smooth, and two ventromedial bristles, the basal one small and seta-like, the distal one bipectinate. Tibiae III and IV each with four ventral slender bristles. All dorsal setae slender. Tarsus I short, with three dorsal setae, rod-like dorsolateral solenidion (so) and famulus (fa), two ventral bristles, and pairs of three eupathid apical setae (parambulacral setae, pas) (Figs 12, 13). Tarsus II with three dorsal setae, very small dorsomedial solenidion, one pair of ventral setae and pair of doubled parambulacral setae (Fig. 14). Tarsi III and IV each with four and three dorsal setae respectively, pair of slender parambulacral setae, but no ventral setae. Both parambulacral setae on tarsus IV slender and tapering, whereas the medial one on tarsus III is blunt, the lateral one tapering.

All tarsi with small median and two longer lateral claws. Lateral claws with accessory process. Lateral claws on tarsi II - IV with long pectens. Tines of pecten on tarsus IV smaller than on tarsi II and III.

**Description of male.** - Idiosoma 475  $\mu\text{m}$  long, 232  $\mu\text{m}$  wide. Anterodorsal plate 170  $\mu\text{m}$  long, 98  $\mu\text{m}$  wide, about as large as that of female. Ocular plate and posterodorsal plate larger than in female. Ocular plate 80  $\mu\text{m}$  long, 42  $\mu\text{m}$  wide, surpassing gland pore and pore canaliculus. Posterior dorsal plate 224  $\mu\text{m}$  long 107  $\mu\text{m}$  wide, anteriorly extending beyond pair of gland pores for about width of the plate (on a level of the gland pores) (Fig. 4).

Anterior epimeral plate 121  $\mu\text{m}$  long, 233  $\mu\text{m}$  wide. Genitoanal plate elongate, 216  $\mu\text{m}$  long, 112  $\mu\text{m}$  wide, with anterior margin ovate. Genital opening 50  $\mu\text{m}$  long, 33  $\mu\text{m}$  wide, surrounded by 46 perigenital setae, arranged rather densely around the opening, plus one pair of anterior outlying setae (Fig. 5). Four pairs of spur-like setae at genital slit (Fig. 7). Spermatopositor (sp) rather large (Fig. 3).

Gnathosoma 150  $\mu\text{m}$  long, similar to that of female. Legs similar to those of female but tarsus IV with slightly plumose parambulacral setae (Fig. 15).

**Etymology.** - Named after Peninsular Malaysia.

**Remarks.** - *Halacarus malaysius*, new species, is a member of the *ctenopus* group. This natural group, named after *Halacarus ctenopus* Lohmann, 1893, is characterized by the combination of: anterior dorsal, ocular and posterior dorsal plate present; all idiosomal plates, gnathosoma and legs covered with delicately striated epicuticula; fourth pair of gland pores within posterior dorsal plate; female genitoanal plate with two pairs of perigenital setae, swelled integument on either side of genital opening set off from anterior plate; tibia I with two pairs of tapering spines; ventromedial spine on tibia II bipectinate.

MEMBERS OF THE *CTENOPUS* GROUP AND  
DISTINGUISHING CHARACTERS

*H. ctenopus* Lohmann, 1893 (cf. Bartsch 1991b). - Spread in northwestern Atlantic (Bartsch, 1991b). Idiosoma length 470-550  $\mu\text{m}$ , males smaller than females. Male *H. ctenopus* are distinguished from *H. malaysius* on the basis of number of anterior outlying setae, two pairs in *H. ctenopus*, one pair in *H. malaysius*. The female genitoanal plate in *H. ctenopus* is longer and more pointed than in *H. malaysius*.

*H. mitrellus* Bartsch, 1993. - Recorded from southwestern Australia (Bartsch, 1993). Idiosoma length 560-630  $\mu\text{m}$ . The female posterior dorsal plate is remarkably elongate and pointed, the male posterior dorsal plate is truncate anteriorly and surpasses the level of the fourth pair of dorsal setae. Males have anterior epimeral plate and genitoanal plate fused.

*H. mooreus* Bartsch, 1992. - Taken in shallow water on the Society Islands (Bartsch, 1992c). Idiosoma length 350  $\mu\text{m}$ . *H. mooreus* is similar though distinctly smaller than *H. malaysius*, both in length of the idiosoma and that of the plates and gnathosoma.

*H. oblongus* Lohmann, 1893. - From off Sydney (Lohmann, 1893). Almost 400  $\mu\text{m}$  long. The posterior dorsal plate in female, hardly surpassing the level of the fourth pair of gland pores, is smaller than in *H. malaysius*.

*H. subtilis* Viets, 1940. - Spread in the Mediterranean (Viets, 1940; unpublished material in the author's collection). Idiosoma length of females is 440  $\mu\text{m}$ , that of males 370  $\mu\text{m}$ . The frontal spine is more slender than in the other known species.

*H. turgidus* Viets, 1952. - Spread in southern South America (Viets, 1952; Newell, 1984). Idiosoma length 560-670  $\mu\text{m}$ . *H. turgidus* is separated from the other species by the rounded ocular plates.

**Acknowledgement.**- Thanks are due to Dr H.-G. Müller (Waldsolm) for collecting and gift of these halacarid mites.

LITERATURE CITED

Bartsch, I., 1983. Zur Halacaridenfauna der Philippinen. Beschreibung von fünf Arten der Gattung *Rhombognathus* (Halacaridae, Acari). *Ent. Mitt. zool. Mus. Hamburg*, **7**: 399-416.

Bartsch, I., 1984. Three new psammobiont species of *Copidognathus* (Acari, Halacaridae) from the Philippines. *Philipp. J. Sc.*, **113**: 201-214.

Bartsch, I., 1985a. Zur Verbreitung der *gibbus*-Gruppe (*Copidognathus*: Halacaridae, Acari) und Beschreibung zweier neuer Arten. *Acarologia*, **26**: 25-35.

Bartsch, I., 1985b. Zur Halacaridenfauna (Halacaridae, Acari) der Philippinen. Beschreibung von drei neuen Arten. *Mitt. hamb. zool. Mus. Inst.*, **82**: 269-277.

Bartsch, I., 1986. Three new species of *Copidognathus* (Acari, Halacaridae) from the Philippines. *Philipp. J. Sc.*, **115**: 43-54.

Bartsch : Halacaridae from Babi Besar, Malaysia

- Bartsch, I., 1988. Halacaroidea. In: R. P. Higgins & H. Thiel, (eds.), *Introduction to the Study of Meiofauna*: 417-422. Smithsonian Institution Press, Washington, D.C.
- Bartsch, I., 1990. Halacaridae (Acari) of Hong Kong. In: B. Morton (ed.), *The Marine Flora and Fauna of Hong Kong and Southern China II*: 661-665. Univ. Press, Hong Kong.
- Bartsch, I., 1991a. Halacaridae (Acari) von Hong Kong. Beschreibung von drei Arten der Gattung *Copidognathus*. *Mitt. hamb. zool. Mus. Inst.*, **88**: 175-184.
- Bartsch, I., 1991b. On the identity of some North Atlantic halacarid species (Acari). *J. nat. Hist.*, **25**: 1339-1353.
- Bartsch, I., 1991c. *Arhodeoporus mactanus* n. sp., a new species of marine mite (Acari, Halacaridae), from the Philippines. *Philipp. J. Sc.*, **120**: 21-25.
- Bartsch, I., 1991d. Arenicolous Halacaridae (Acari) from Hong Kong. *Asian mar. Biol.*, **8**: 57-75.
- Bartsch, I., 1992a. Halacaridae (Acari) von Hong Kong. Beschreibung von drei *Copidognathus*-Arten aus dem Sublitoral. *Ent. Mitt. zool. Mus. Hamburg*, **10**: 187-198.
- Bartsch, I., 1992b. Halacaridae (Acari) from Hong Kong. Three new species of *Copidognathus*. *Ent. Mitt. zool. Mus. Hamburg*, **10**: 229-241.
- Bartsch, I., 1992c. Halacariden von den Inseln Moorea und Bora Bora, Gesellschaftsinseln, Polynesien (Arachnida: Acari). *Senckenberg. biol.*, **72**: 465-488.
- Bartsch, I., 1992d. Two new species of littoral *Agauopsis* (Acari: Halacaridae) from Hong Kong. In: B. Morton (ed.), *The Marine Flora and Fauna of Hong Kong and Southern China III*: 243-250. Univ. Press, Hong Kong.
- Bartsch, I., 1992e. Hong Kong rhombognathine mites (Acari: Halacaridae). In: B. Morton (ed.), *The Marine Flora and Fauna of Hong Kong and Southern China III*: 251-276. Univ. Press, Hong Kong.
- Bartsch, I., 1992f. Two new species of arenicolous *Agauopsis* (Acari: Halacaridae) from Hoi Ha Wan. In: B. Morton (ed.), *The Marine Flora and Fauna of Hong Kong and Southern China III*: 891-897. Univ. Press, Hong Kong.
- Bartsch, I. 1993. *Halacarus* (Halacaridae, Acari) from south-western Australia. In: F. E. Wells, D. I. Walker, H. Kirkman & R. Lethbridge (eds.), *Proceedings of the Fifth International Marine Biological Workshop: The Marine Flora and Fauna of Rottneest Island, Western Australia*. Western Australian Museum, Perth.
- Lohmann, H., 1893. Die Halacarinen der Plankton-Expedition. *Ergebn. Atlant. Ozean, Planktonexped. Humboldt Stift.*, **2**: 11-95.
- Newell, I.M., 1984. Antarctic Halacaroidea. *Antarct. Res. Ser.*, **40**: 1-284.
- Talker, H.E., G. Alberti & F.B. Sotto 1981. Mites (Acari, Arachnida) in intertidal habitats off Cebu. *Philipp. Scientist*, **18**: 27-44.
- Trouessart, E., 1896. Description d'espèces nouvelles d'Acariens marins. *Bull. Soc. ent. Fr.*, **65**: 250-253.
- Trouessart, E., 1899. Description d'espèces nouvelles d'Halacaridae. *Bull. Soc. Etud. scient. Angers*, **29**: 209-223.
- Viets, K., 1940. Meeresmilben aus der Adria (Halacaridae und Hydrachnellae, Acari). *Arch. Naturgesch.*, **N.F. 9**: 1-135.
- Viets, K., 1952. Nachträge zu "Die Meeresmilben (Halacaridae, Acari) der Fauna Antarctica". *Further zool. Res. Swed. Antarct. Exped.*, **4**(10): 1-11.