Cah. Biol. Mar. (1999) 40 : 15-20

Rhombognathus longisetus, a new halacarid mite (Rhombognathinae, Halacaroidea, Acari) from New Caledonia

Ilse BARTSCH
Biologische Anstalt Helgoland, Notkestrasse 31, D 22607 Hamburg
Fax : (49) 40 89 69 31 15

Abstract: *Rhombognathus longisetu*s sp. nov., a species from New Caledonia, is described. The species is characterized by the unusual length of the first pair of dorsal setae.

Résumé : *Rhombognathus longisetus* sp. nov., une espèce de Nouvelle-Calédonie, est décrite. Cette espèce se caractérise par la première paire de soies dorsales très allongées.

Keywords : New Caledonia, Halacaroidea, new species, description.

Introduction

The subfamily Rhombognathinae includes the four genera, *Rhombognathus, Isobactrus, Rhombognathides,* and *Metarhombognathus*. The two genera *Rhombognathides* and *Metarhombognathus*, closely related (Bartsch, 1975), are present only in the North Atlantic Ocean and adjacent seas whereas *Rhombognathus* and *Isobactrus* are cosmopolitans. At present, the genus *Rhombognathus* includes approximately 85 species, but the number of undescribed species certainly by far outnumbers that of described species. A new species, *Rhombognathus longisetus,* taken from New Caledonia, is described in this paper.

Reçu le 24 avril 1998 ; accepté après révision le 20 juin 1998.
Received 24 April 1998; accepted in revised form 20 June 1998.

Methods

The rhombognathine mites were cleared in lactic acid and mounted in glycerine jelly. Drawings were prepared using a camera lucida.

Abbreviations used in the descriptions: AD, anterior dorsal plate; AE, anterior epimeral plate; ds-1 to ds-6, first to sixth pair of dorsal setae; GA, genitoanal plate; GO, genital opening; OC, ocular plate(s); P-2 and P-4, second and fourth palpal segment; pas, parambulacral seta(e); PD, posterior dorsal plate; PE, posterior epimeral plate; pgs, perigenital setae; sgs, subgenital setae.

The position of setae is given in a decimal system, with reference to the length of the plate, from anterior to posterior.

The holotype is deposited in the Muséum National d'Histoire Naturelle, Paris (MNHNP), a paratype in the Zoological Museum in Hamburg (ZMH) and one specimen in the author's halacarid collection.

Rhombognathus longisetus sp. nov.

Material and collecting data: Holotype. Male (MNHNP); east coast of New Caledonia, east of Baie de Touho, 20°46.0'S, 165°14.2'E, north side of large intertidal bank north of Kombounou, reef platform with living corals and small patches of heterogeneous sand and rubble; September 1993. Coll. C. Erséus.

Paratype. One female (ZMH); collecting data as above.

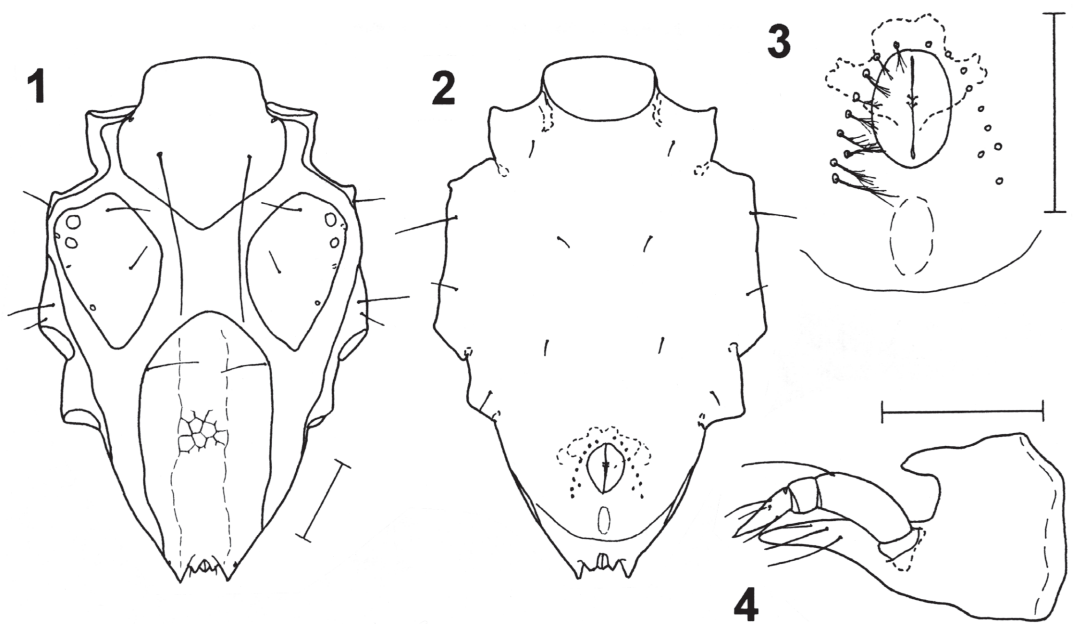
Other material. One male (author's collection); east coast of New Caledonia, reef crest north of Îlot Atit, 20°46.4'S, 165°14.9'E, small pools in intertidal zone, coarse sand and coral rubble, September 1993. Coll. C. Erséus.

Diagnosis: Idiosoma 310-320 µm long. AD, pair of OC and PD separated. PD with one pair of setae. Females and males with AE, PE and GA fused to a ventral shield. Area of AE and PE each with one marginal adjunct seta. Female GA with five pairs of pgs and two pairs of sgs; male GA with 9 pairs of plumose pgs. Gnathosoma almost 1.5 times longer than wide; rostrum as long as gnathosomal base. Tibiae I to IV with 4/1, 4/1, 3/0, 3/0 dorsal/ventral setae. Claws with single tooth.

Description: Male. Idiosoma 310-320 µm long, holotype 310 µm long. Dorsal plates separated; plates reticulated, each mesh subdivided. AD 100 µm long, 98 µm wide; posterior margin triangular (Fig. 1). Pair of gland pores level with insertion of leg I. OC 95 µm long, 66 µm wide; with two corneae anterolaterally, two gland pores in lateral margin, and pore canaliculus halfway between gland pores. PD slender, 162 µm long, 80 µm wide; anterior portion triangular; posteriorly with pair of 'horns'. Pair of narrow longitudinal ridges ending in these 'horns'. Pair of gland pores at bases of 'horns'. Setae ds-1 on AD; setae almost 95 µm long, extending posteriad almost to PD. Setae ds-2 and ds-3 approximately 30 and 15 µm long, respectively; ds-2 in anterior margin of OC, ds-3 almost at 0.5 relative to length of OC. Fourth pair of setae 30 µm long, inserted at 0.22 relative to length of PD. Adanal setae 3 µm long, on anal cusps.

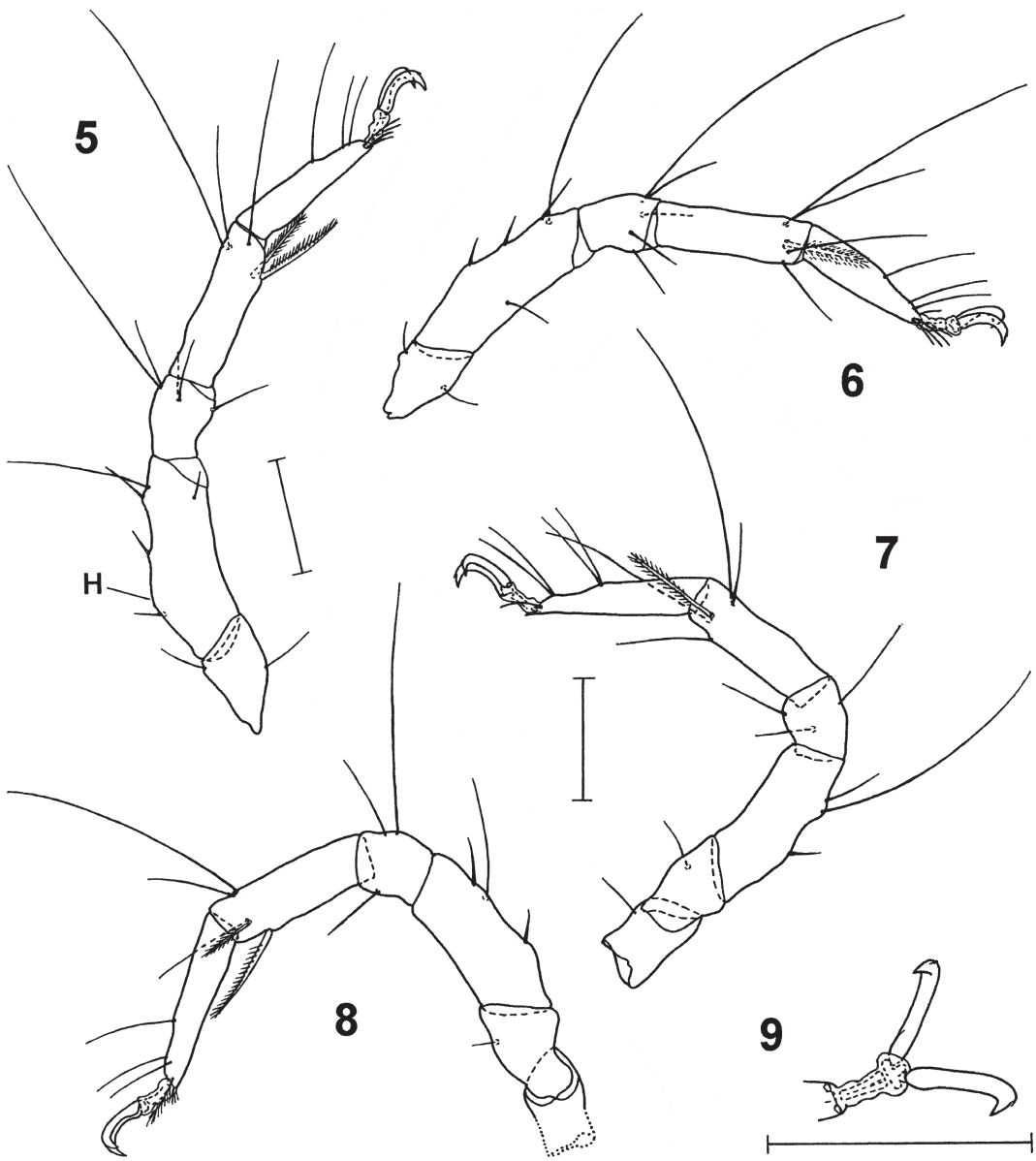
All ventral plates fused (Fig. 2). Portion representing AE with one pair of marginal (adjunct) and three pairs of ventral setae; portion representing PE with two dorsal and three ventral setae. GO 30 µm long, 21 µm wide, rather small. Distance between GO and base of anal sclerites equalling 1.3 times length of GO. Oval raised area between GO and anal cone 20 µm long. Spermatopositor very short, 32 µm long, 41 µm wide; somewhat extending beyond GO. Nine pairs of perigenital setae plumose (Fig. 3). Small anal sclerites flanked by anal cusps and 'horns' of PD.

Gnathosoma 96 µm long, 65 µm wide. Rostrum as in female (Fig. 14) slender, triangular, almost as long as gnathosomal base; with two pairs of maxillary setae. Anterior margin of tectum truncate (Fig. 15). Palps four-segmented (Fig. 4), not conspicuously flattened. P-2 with long dorsomedial seta. P-4 22 µm long (apical spurs included), with three setae.



Figures 1-4. *Rhombognathus longisetus*. sp. nov., male.
1. Idiosoma, dorsal; 2. idiosoma, ventral; 3. genital area; 4. gnathosoma, lateral. Scale bars = 50 µm.
Figures 1-4. *Rhombognathus longisetus* sp. nov., mâle.
1. Idiosome, vue dorsale ; 2. idiosome, vue ventrale ; 3. région génitale ; 4. gnathosome, vue latérale. Échelles = 50 µm.

Legs shorter than idiosoma. Telofemora longer than tibiae; telofemora I to IV 2.9, 3.0, 2.8, 2.7 times longer than high. Ventral margins of telofemora almost truncate; dorsal margins each with a 'hump' (Figs 5-8); greatest height in basal half of the segment. Tarsi I and II slightly shorter than tibiae I and II (length of tarsi without carpus); tarsi III and IV somewhat longer than tibiae III and IV. Leg chaetotaxy, from trochanter to tarsus (without pas and solenidia): leg I, 1, 2, 5, 5, 5, 3; leg II, 1, 2, 5, 5, 5, 3; leg III, 1, 1, 3, 3, 5, 4; leg IV, 0, 1, 3, 3, 5, 3. Telofemora I and II dorsally with three short, bristle-like setae and one long seta; telofemora III and IV each with two short, bristle-like setae and one long seta. Tibiae I to IV each with one very long dorsal seta, its length surpassing that of the segment. Tibia I (Fig. 5) with pair of strongly bipectinate setae; tibiae II (Fig. 6) and III (Fig. 7) each with strongly bipectinate ventromedial seta and slender, smooth ventrolateral seta; tibia IV (Fig. 8) with large ventrolateral and smaller ventromedial seta, both setae



Figures 5-9. *Rhombognathus longisetus* sp. nov., male.
5. Basifemur to tarsus I, lateral; 6. basifemur to tarsus II, lateral; 7. leg III, medial; 8. leg IV, medial; 9. tip of tarsus I, ventral (setae omitted) (H, hump). Scale bars = 50 µm.

Figures 5-9. *Rhombognathus longisetus* sp. nov., mâle.
5. basifémur à tarse I, vue postérieure ; 6. basifémur à tarse II, vue postérieure ; 7. patte III, vue postérieure ; 8. patte IV, vue postérieure ; 9. extrémité du tarse I, vue ventrale (sans les soies) (H, gibbosité). Échelles = 50 µm.

bipectinate. Tarsi I, II and IV each with three dorsal setae; tarsus III with four setae; the two basal setae inserted immediately adjacent. Solenidia on tarsi I and II 14 µm long (Figs 10, 11); famulus on tarsus I papilliform, 1 µm long. Tarsi I and II each with pair of doubled pas. Tarsus III with slender, eupathid medial pas and short, flattened lateral pas. Medial pas on tarsus IV long, plumose (Fig. 12); lateral pas flattened and pectinate.

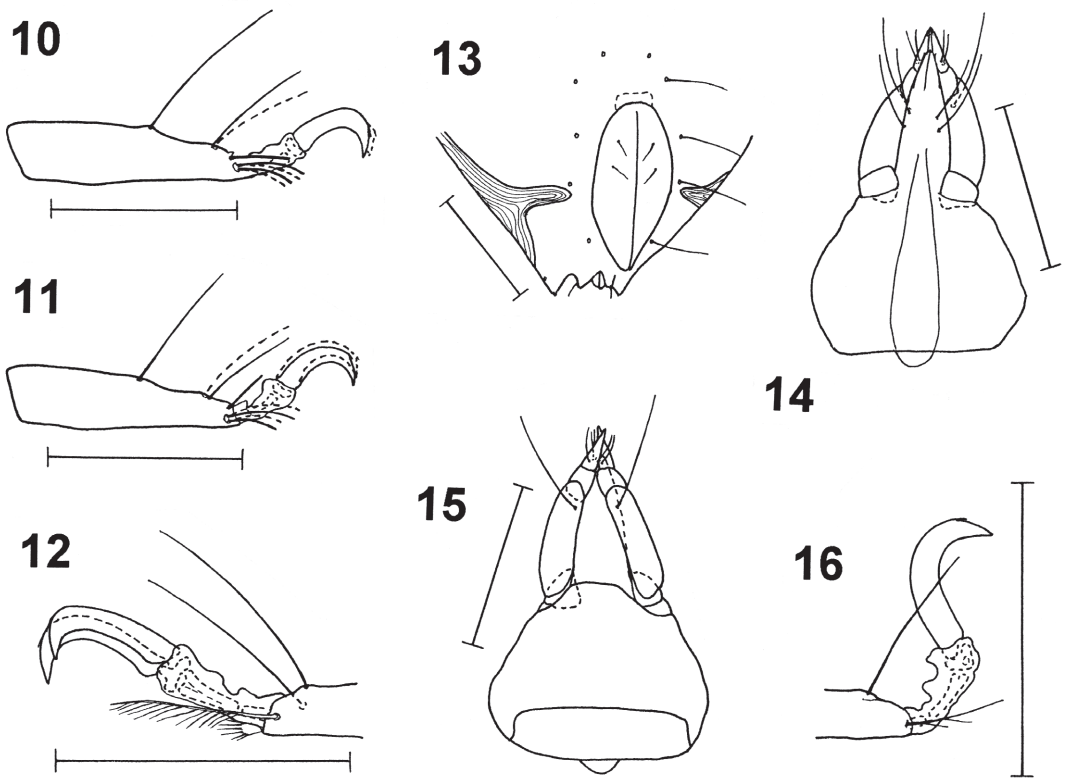
Claws each with delicate accessory tooth. Median claw lacks tooth-like process. Carpite slender; on tarsus I (Fig. 9) and II 8 µm long, on tarsus III and IV 10 and 11 µm long, respectively.

Female. Idiosoma 322 µm long. Dorsal aspect same as in male. Ventral plates fused. Marginal wedges of striated integument extending to ring of perigenital setae (Fig. 13). GO large, surrounded by 10 perigenital setae. Genital sclerites 70 µm long; extending posterior to bases of anal sclerites. Genital sclerites with two pairs of slender sgs. Medial pas on tarsus IV slender, not strongly plumose (Fig. 16); lateral pas similar to that of male.

Remarks

Rhombognathus longisetus is distinguished from all other *Rhombognathus* on the basis of the very long ds-1. In *Rhombognathus* in general, the setae on the dorsum are short, approximately 10-25 µm long. In some few species, the ds-1 are enlarged but they are not as long as in *R. longisetus*.

Other conspicuous characters of *Rhombognathus longisetus* are: PD slender, with single pair of setae, pair of posterior 'horns' extending beyond the anal cusps; rostrum long and slender; slender telofemora with dorsal 'hump'. A similar combination of characters is present in *R. placidus* Bartsch, 1993, a species inhabiting shallow water sediments of Western Australia (Bartsch, 1993). The two species are



Figures 10-16. *Rhombognathus longisetus* sp. nov.
10. Tarsus I, lateral, male (medial claw and setae dashed); 11. tarsus II, lateral, male (medial claw and setae dashed); 12. tip of tarsus IV, medial, male; 13. posterior portion of idiosoma, female; 14. gnathosoma, ventral, female; 15. gnathosoma, dorsal, female; 16. tip of tarsus IV, medial, female (lateral claw and setae omitted). Scale bars = 50 µ.

Figures 10-16. *Rhombognathus longisetus* sp. nov.
10. Tarse I, vue postérieure, mâle (griffe et soies antérieures en ligne discontinue) ; 11. tarse II, vue postérieure, mâle (griffe et soies antérieures en ligne discontinue) ; 12. extrémité du tarse IV, vue postérieure, mâle ; 13. région génitale, femelle ; 14. gnathosoma, vue ventrale, femelle ; 15. gnathosome, vue dorsale, femelle ; 16. extrémité du tarse IV, vue postérieure, femelle (sans la griffe et les soies antérieures). Échelles = 50 µm.

distinguished on the basis of the length of the ds-1, the ornamentation of the dorsal plates, the arrangement of the gland pores on the OC, and the shape of the PD.

Rhombognathus psammophilus Bartsch, 1993, and *R. thalassinus* Bartsch, 1993, both recorded from Western Australia (Bartsch, 1993), also have a slender rostrum and slender telofemora, but the ds-1 are short, and the PD of *R. psammophilus* is wide and has a smooth surface. The shape of the dorsal plates of *R. setifer* Bartsch, 1983, resembles that of *R. longisetus*, but that former species, recorded from the Philippines (Bartsch, 1983), is characterized by the large number of marginal setae within the areas representing the AE and PE. *R. longiscutatus* Bartsch, 1977, recorded from the Galapagos Islands (Bartsch, 1977) has elongate ds-1 and a very slender PD. In contrast to *R. longisetus*, rostrum and telofemora of *R. longiscutatus* are short and the claws bear numerous tines.

Rhombognathus longisetus was extracted from a sample with heterogeneous sand and coral rubble; the species may prefer heterogeneous sandy deposits. Noteworthy is that *R. placidus* and *R. psammophilus*, species with rostrum and telofemora shaped as in *R. longisetus*, are psammophilous.

With the finding of *Rhombognathus longisetus*, the number of *Rhombognathus* species in the western Pacific Ocean is raised to 34 (Table 1). Not included in that list of species is the report by Womersley (1937) on *R. lionyx* Trouessart, 1899, from the Macquarie Island; that record is thought to base on a mis-identification.

Table 1. Species of *Rhombognathus* in the western Pacific Ocean and their geographical distribution.

Tableau 1. Les espèces de *Rhombognathus* du Pacifique Ouest et leur répartition

Species	Distribution (References)
adeliensis Newell, 1984	Terre Adélie (Newell, 1984)
ambiguus Newell, 1984	Terre Adélie (Newell, 1984)
arenarius Bartsch, 1992	Hong Kong (Bartsch, 1992)
atuy Abé, 1990	Hokkaido/Japan (Abé, 1990, 1996)
caudiculus Bartsch, 1983	Philippines (Bartsch, 1983)
cebuus Bartsch, 1983	Philippines (Bartsch,1983)
compressus Abé, 1996	Hokkaido/Japan (Abé, 1996)
denticulatus Sokolov, 1952	Sea of Japan/Russia (Sokolov, 1952)
dictyotus Bartsch, 1992	Hong Kong (Bartsch, 1992)
dissociatus Abé, 1990	Hokkaido/Japan (Abé, 1990, 1996)
ezoensis Abé, 1990	Hokkaido/Japan (Abé, 1990, 1996)
fractus Bartsch, 1979	New Zealand (Bartsch, 1979)
guamensis Bartsch, 1989	Guam (Bartsch, 1989)
hirtellus Bartsch, 1992	Hong Kong (Bartsch, 1992)
incertus Abé, 1996	Hokkaido/Japan (Abé, 1996)
lacunosus Bartsch, 1979	New Zealand (Bartsch, 1979)
l*eurodactylus* Krantz, 1976	Hokkaido/Japan; Oregon/US (Abé, 1990; Krantz, 1976)
longisetus sp. nov.	New Caledonia
medialis Abé, 1996	Hokkaido/Japan (Abé, 1996)
neotenus Abé, 1996	Hokkaido/Japan (Abé, 1996)
neptunellus Bartsch, 1992	Hong Kong (Bartsch, 1992)
novaezelandicus Bartsch, 1985	New Zealand (Bartsch, 1985)
oblongus Bartsch, 1989	Papua (Bartsch, 1989)
papuensis Bartsch, 1989	Papua; eastern and western coast of India (Bartsch, 1989; Chatterjee, 1995)
scutulatus Bartsch, 1983	Philippines; eastern and western coast of India; Western Australia (Bartsch, 1983, 1993; Chatterjee, 1995)
semiarmatus Bartsch, 1983	Philippines (Bartsch, 1983)
setellus Bartsch, 1992	Hong Kong (Bartsch, 1992)
setifer Bartsch, 1983	Philippines (Bartsch, 1983)
sinensis Bartsch, 1990	Hong Kong; Hokkaido (Bartsch, 1990, 1992; Abé, 1996)
sinensoideus Bartsch, 1992	Hong Kong (Bartsch, 1992)
tenuiformis Abé, 1996	Hokkaido/Japan (Abé, 1996)
terminalis Sokolov, 1952	Sea of Japan/Russia (Sokolov, 1952)
teurinus Abé, 1996	Hokkaido/Japan (Abé, 1996)
verrucosus Bartsch, 1992	Hong Kong (Bartsch, 1992)

Acknowledgements

Prof. Dr. C. Erséus, Stockholm, collected and send me the mites which is gratefully acknowledged.

References

Abé, H. 1990. Three new species of the genus *Rhombognathus* (Acari, Halacaridae) from Japan. *Zoological Science,* **7**: 517-535.

Abé, H. 1996. Rhombognathine mites (Acari : Halacaridae) from Hokkaido, Northern Japan. *Publications of the Seto Marine Biological Laboratory,* **37**: 63-166.

Bartsch, I. 1975. Ein Beitrag zum System der Rhombognathinae (Halacaridae, Acari). Zur Morphologie der Tarsalregion und des Ovipositors. *Zoologischer Anzeiger,* **194**: 193-200.

Bartsch, I. 1977. Interstitielle Fauna von Galapagos. XX. Halacaridae (Acari). *Mikrofauna des Meeresbodens,* **65**: 1-108.

Bartsch, I. 1979. Five new species of Halacaridae (Acari) from New Zealand. *New Zealand Journal of Marine & Freshwater Research,* **13**: 175-185.

Bartsch, I. 1983. Zur Halacaridenfauna der Philippinen. Beschreibung von fünf Arten der Gattung *Rhombognathus* (Acari, Halacaridae). *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg,* **7**: 399-416.

Bartsch, I. 1985. New species of Halacaridae (Acari) from New Zealand. *New Zealand Journal of Zoology,* **12**: 547-560.

Bartsch, I. 1989. Rhombognathinae (Halacaridae, Acari) aus dem Pazifik. Beschreibung sieben neuer Arten. *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg,* **9**: 229-246.

Bartsch, I. 1990. Halacaridae (Acari) of Hong Kong. In: *The Marine Flora and Fauna of Hong Kong and Southern China II* (B. Morton ed). 661-665. University Press: Hong Kong.

Bartsch, I. 1992. Hong Kong rhombognathine mites (Acari : Halacaridae). In: *The Marine Flora and Fauna of Hong Kong and Southern China III* (B. Morton ed). 251-276. University Press: Hong Kong.

Bartsch, I. 1993. Rhombognathine mites (Halacaridae, Acari) from Rottnest Island, Western Australia. In: *The Marine Flora and Fauna of Rottnest Island, Western Australia* (F.E. Wells, D.I. Walker, H. Kirkman & R. Lethbridge eds). 19-43. Western Australian Museum: Perth.

Chatterjee, T. 1995. Record of three species of *Rhombognathus* (Halacaridae: Acari) from Indian Ocean Region. *Journal of the Bombay Natural History Society,* **92**: 282-286.

Krantz, G.W. 1976. Arenicolous Halacaridae from the intertidal zone of Schooner Creek, Oregon (Acari: Prostigmata). *Acarologia,* **18**: 241-258.

Newell, I.M. 1984. Antarctic Halacaroidea. *Antarctic Research Series,* **40**: 1-284.

Sokolov, I.I. 1952. Vodjanye klesv̌i. II. Halacarae. *Fauna SSSR,* **5**: 1-201

Womersley, H. 1937. Acarina. *Australasian Antarctic Expedition 1911-1914, Scientific Reports,* C, **10** (**6**): 1-24.