THE LABIDOCARPINE MITES (ACARI: CHIRODISCIDAE) FROM ORIENTAL BATS II. GENUS *PARAKOSA* MCDANIEL & LAWRENCE, 1962

A. Fain[1]

----- ABSTRACT--The genus *Parakosa* McDaniel & Lawrence, 1962 is represented in the East Asiatic bats by 4 species. These species are redescribed here and depicted for the first time. A key to the genus is given. -----

We give here a redescription and figures of 4 species of genus *Parakosa* McDaniel & Lawrence. These species were known only from a brief description and without figures. They were collected from Oriental bats, mainly Molossidae. Among these 3 species were collected by us on bats conserved in British Museum (Nat. Hist.), London (BM) and fourth belonged to the collection of B. P. Bishop Museum, Honolulu (BHM). The holotype of these species are deposited in the respective museums. The length of the body mentioned in the descriptions includes the gnathosoma.

Family CHIRODISCIDAE Trouessart, 1892
Subfamily LABIDOCARPINAE Gunther, 1942
Genus *Parakosa* McDaniel & Lawrence, 1962

Up to now this genus was represented by 2 South American and 1 Afrotropical species parasitic on bats of the family Molossidae. In Eastern Asia we have found from several bats 4 new species belonging to the same genus. These species had been briefly described (Fain, 1976) and without figures. In the present paper we complete these descriptions and give the first figures.

Key to the genus *Parakosa*
Females

1. Tarsus IV with a very long (120 μm) flattened (18μm wide) and lanceolate spine nearly as long as the apical spine (claw); host-*Tadarida* (*Chaerephon*) *johorensis* , Malaya ..... *P. asiatica* Fain, 1976
- Tarsus IV without such long flattened spine 2

2. Ambulacral peduncle of tarsi IV asymmetrical, abruptly narrowed in its apical half. Ventral spine of tarsus IV abnormally thick and with apex strongly curved; hosts-*Molossus* spp., South and Central America ..... *P. flexipes* (Pinichpongse, 1963)
- Ambulacral peduncle regular, conical. Ventral spine of tarsus IV not curved at apex..... 3

3. Tarsus IV with an apical spine (claw) inflated in its median part; ventral spine long, narrow, conical and not striated; hosts-*Tadarida* (*Mormopterus*) *beccarii* , Amboina (Indonesia) ..... *P. mormopterus* Fain, 1976
- Tarsus IV with an apical spine not inflated medially and with a striated apical spine 4

4. Setae *sc i* and *sc e* situated on a narrow punctate band. Apical spines (claws) of tarsi III-IV 36 μm and 45 μm long respectively and as long as the length of their respective tarsi + tibiae. Opisthosoma as long as 40% of total length of the body; host- *Otomops wroughtoni*, India ..... *P. indica* Fain, 1976

1. Institute of Tropical Medicine, Nationalestraat 155, B-2000 Antwerpen, Belgium.

- Setae *sc i* and *sc e* situated on soft cuticle. Apical spines of tarsi III-IV more unequal. The spine of tarsi IV 75-80 μm long and much longer than tibia + tarsus. Length of opisthosoma variable 5

5. Opisthosoma as long as 40-45% of the total length of body 6
- Opisthosoma as long as 28% of total length of body. With 49 striations in midline; host-*Tadarida* (*Mops*) *condylura*, Guiné Portuguesa ..... *P. mops* Fain, 1970

6. Dorsum with 45-50 striations in midline. Body 700-800μm long. Apical spines of tarsi III-IV strongly curved, 55 and 75 μm long respectively; host-*Tadarida yucatanica*, Mexico; several species of *Molossus* in Cuba, Trinidad etc. ..... *T. tadarida* McDaniel & Lawrence, 1962
- Dorsum with 32-36 striations in midline. Body 600 μm long. Apical spines of tarsi III-IV less curved and more unequal (40 μm and 80μm long respectively); host-Non identified bat; also from *Rousettus amplicaudatus*, Philippines ..... *T. philippinensis* Fain, 1976

Males

(N. B. The male of *P. mormopterus* is unknown)

1. Setae *sc i* and *sc e* situated on a narrow punctate band 2
- Setae *sc i* and *sc e* situated on soft cuticle 3

2. Tarsus IV with ambulacral peduncle asymmetrical, abruptly narrowed near apex; ventral spine large, curved at apex. With 3 pairs of setae on posterior border of body. The punctate band bearing setae *sc i* and *sc e* connected with prescapular shield ..... *P. flexipes* Pinichpongse, 1963
- Tarsus IV with ambulacral peduncle conical and symmetrical; ventral spine not curved api apically. With 4 pairs of setae on posterior border of body. The punctate band bearing the scapular setae free ..... *P. indica* Fain, 1976

3. Tarsi III-IV with a thick and stiff seta 60-85μm long ..... *P. asiatica* Fain, 1976
- Tarsi III-IV without such seta 4

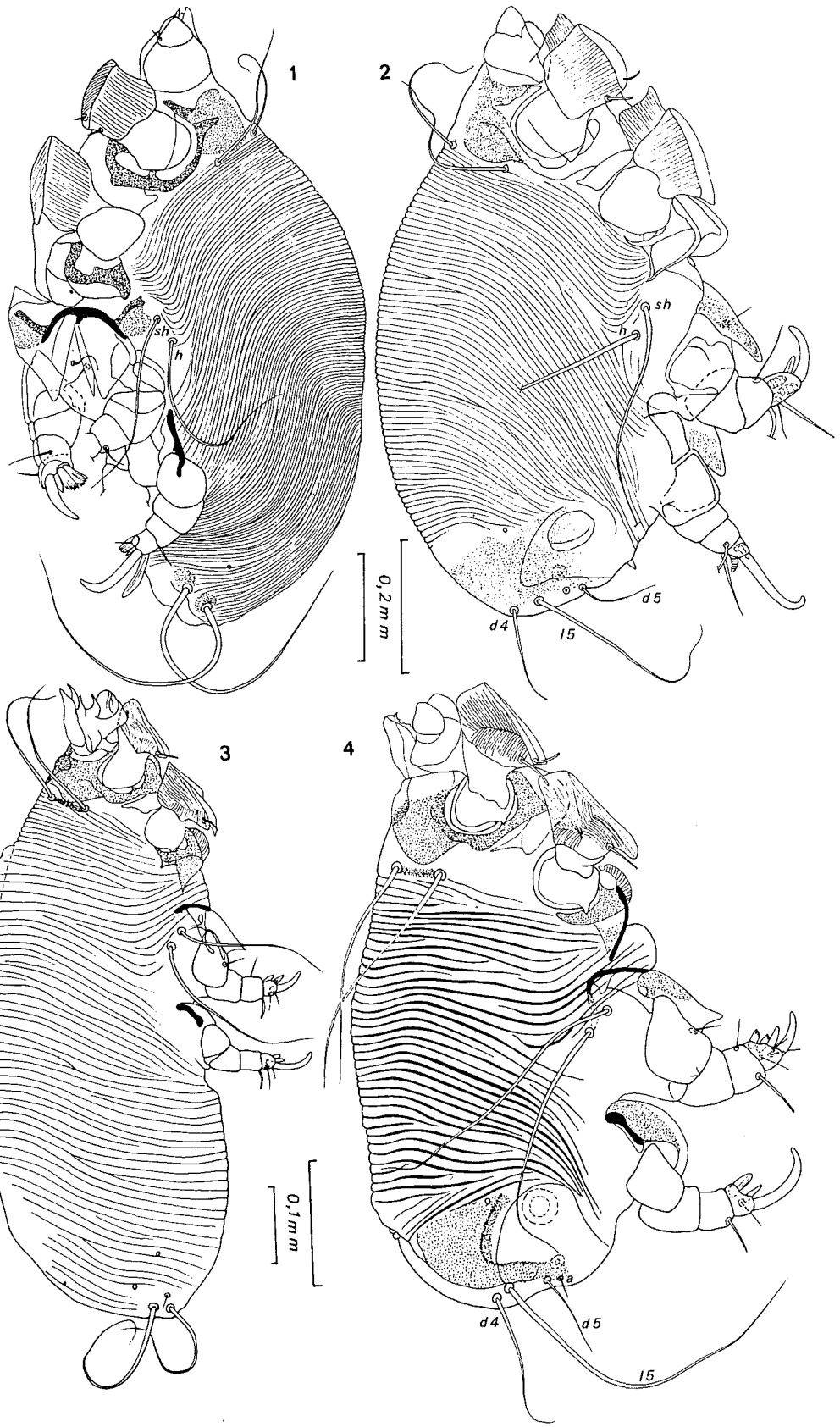
4. Apical spine (claw) of tarsus IV very finely attenuated at apex. Seta *d 4* very thin and 28-30 μm long ..... *P. philippinensis* Fain, 1976
- Apical spine of tarsus IV with a thick, rounded apex. Seta *d 4* variable 5

5. Seta *d 4* very thin and 30-40 μm long. Apical spines of tarsi III-IV slightly curved. Body 450μm long ..... *P. mops* Fain, 1970
- Seta *d 4* strong, 150 μm long. Apical spines of tarsi III-IV strongly curved. Body 320-400 m long ..... *P. tadarida* McDaniel & Lawrence, 1962

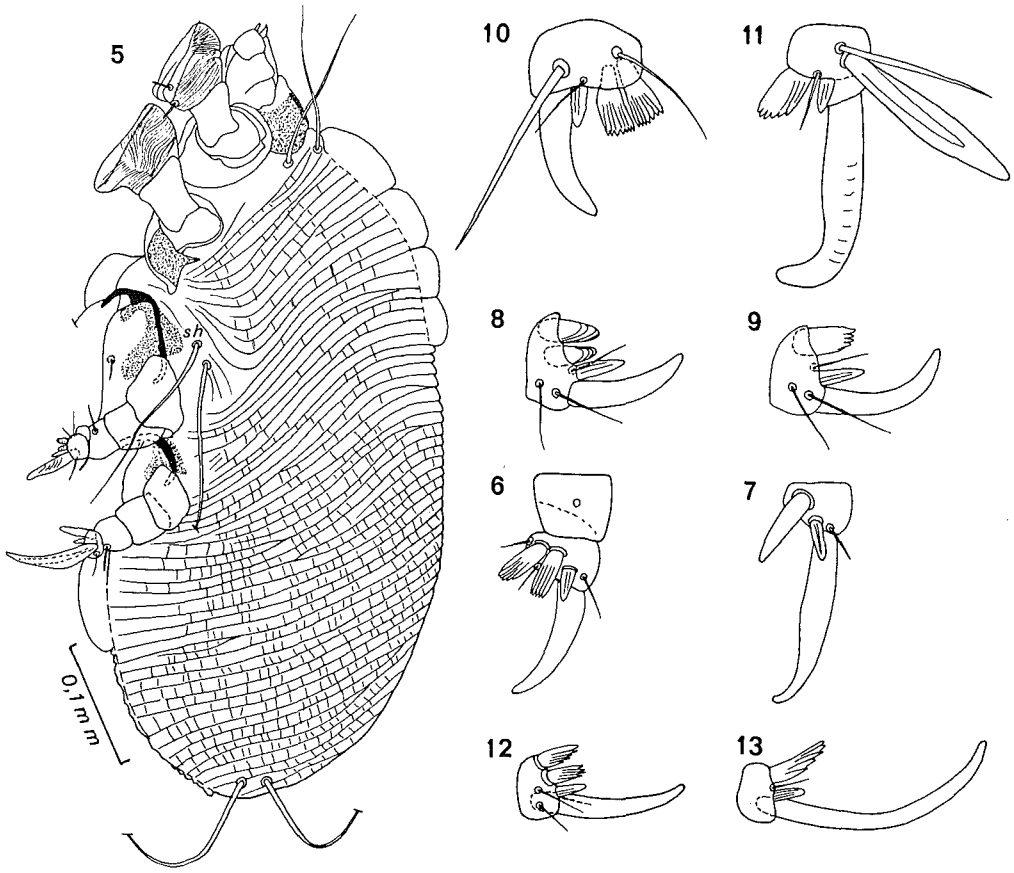
DESCRIPTION OF THE SPECIES

1. *Parakosa asiatica* Fain, 1976

FEMALE (Figs. 1, 10, 11)—Holotype 1210 μm long and 540 μm wide. There are 110 dorsal striations in midline. Setae *sc i* and *sc e* situated on soft cuticle. Setae *sc e* 300 μm, *sc i* 250μm, *h* 450μm, *sh* 400μm. Setae *d 5* and *l 5* very long. There are no other setae on idiosoma dorsally or laterally. Dorsal shield very short. Tarsus III with a thick apical spine slightly curved and 82 μm long, 2 large ridged spines, 2 simple thin setae, it is one thick, stiff, seta and an ambulacral peduncle without sucker. Tarsus IV with a longer (150 μm) apical curved spine, one long (120μm) flattened lanceolate spine (18 μm wide), 1 stiff seta, 1 thin simple seta, 1 thick ridged spine and the ambulacral peduncle.



Figs. 1-2: *Parakosa asiatica* Fain—1, holotype female; 2, allotype male.
Figs. 3-4: *Parakosa indica* Fain—3, holotype female; 4, allotype male.



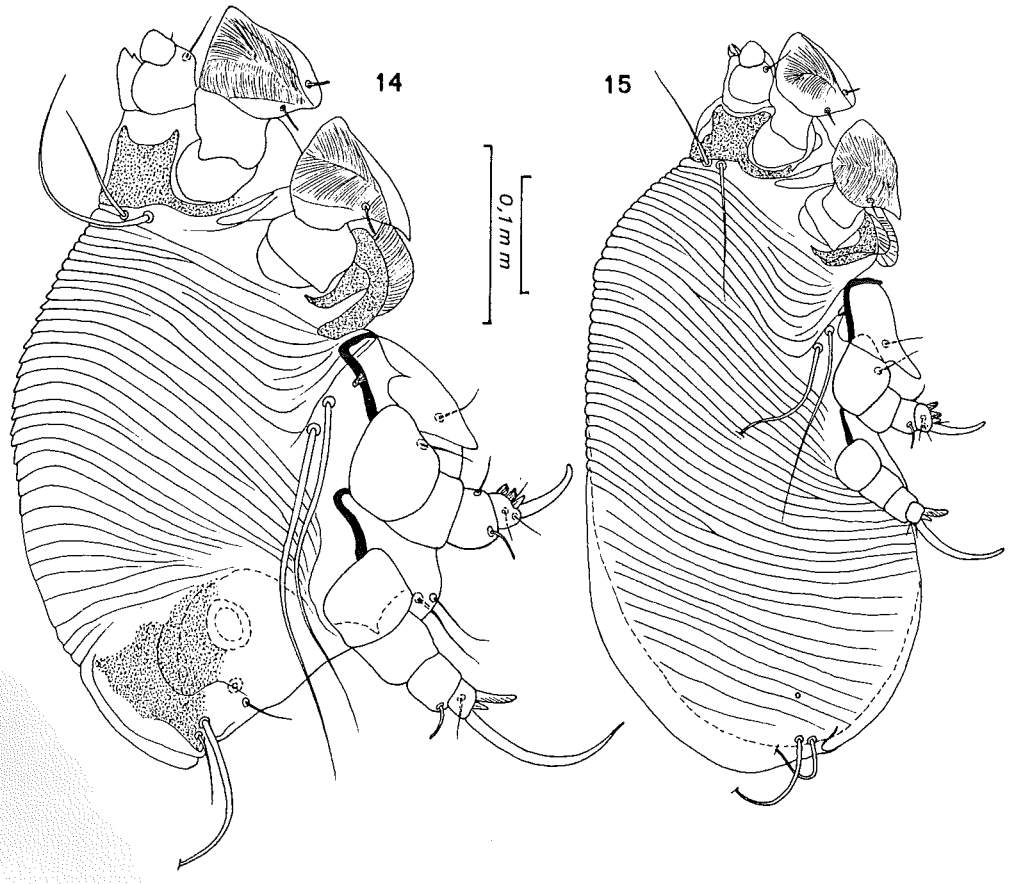
Figs. 5-7: *Parakosa mormopterus* Fain—5, holotype female, lateral view; 6, tibia and tarsus III ventrally in a paratype female; 7, tarsus IV ventrally in a paratype female. Figs. 8-9: *Parakosa indica* Fain (holotype female)—8, tarsus III ventrally; 9, tarsus IV ventrally. Figs. 10-11: *Parakosa asiatica* Fain (paratype female)—10, tarsus III ventrally; 11, tarsus IV ventrally. Figs. 12-13: *Parakosa philippinensis* (allotype female)—12, tarsus III ventrally; 13, tarsus IV ventrally.

MALE (Fig. 2)—Allotype 870μm long 510μm wide. Shield and setae *sc i, sc e, h* and as in female. Tarsus III as in female. Tarsus IV as in female except that the large flattened seta is lacking. Opisthonotal shield small. Setae *d 4, l 5* and *d 5* 110μm, 330μm and 90-100μm long respectively.

HOST AND LOCALITY—Holotype and 4 paratype females, allotype male and 2 paratype nymphs (male), from *Tadarida* (*Chaerephon*) *johorensis*, Pulai, Kelantan, Malaya. Bat in the collection of BM n° 73. 632. 5. All the mites were attached to the big hairs in the posterolateral region of the back.

2. *Parakosa indica* Fain, 1976

FEMALE (Figs. 3, 8, 9)—Holotype (larvigerous) 810μm long, 285μm wide. Opisthosoma relatively long (40% of the total length of body). Prescapular shield very short. The *sc i* and *sc e* setae are situated on a narrow punctate band, they are approximately 200μm long. There are about 50 distinct dorsal striations in the midline. Setae *sh* at least 150μm, the *h* are 200 long. Setae *l 5* about 250μm, *d 5* 200μm long. Tarsus III with an apical slightly curved spine



Figs. 14-15: *Parakosa philippinensis* Fain—14, holotype male; 15, allotype female.

36 μm long, 3 simple setae, 2 large ridged spines and an ambulacral peduncle. Tarsus IV with an apical spine 45μm long, 3 simple setae, 1 large ridged spine and an ambulacral peduncle. The ambulacral peduncles of tarsi III are distinctly longer than the ventral ridged spines.

MALE (Fig. 4)—Allotype 586μm long, 240μm wide. Prescapular shield and setae *sc i* and *sc e* as in female. Cuticular striations relatively thick. Setae *h* and *sh* very long and thick. Setae *d 4* 100μm long, *l 5* 250μm, *d 5* 75μm. There is a short *a* seta (15μm). Tarsi III-IV as in female except that there is only 1 simple seta on tarsus IV.

HOST AND LOCALITY—Holotype and 6 paratype females, allotype and 2 paratype males from *Otomops wroughtoni*, Parapede Cave, Tallewady, India. Bat in the BM, n° 13.1.19.1-8. Holotype in BM. The mites were attached to the big hairs of the feet.

3. *Parakosa mormopterus* Fain, 1976

FEMALE (Figs. 5-7)—Holotype 588μm long and 270μm wide. Setae *sc i* and *sc e* situated on soft cuticle. There are about 50 dorsal complete striations, counted in the midline. Behind these complete striations there are a few number of incomplete very oblique striations. Setae *sh* and *h* thick, *sh* is 180μm long, *h* is incomplete but at least 100μm long. Setae *d 5* and *l 4* strong, incomplete. Tarsus III bearing an apical spine slightly curved (39μm long), 2 thick ventral and ridged setae, 3 very thin setae and a short ambulacral peduncle. Tarsus IV with an apical seta slightly spindle-shaped, 65μm long, a ventral non-ridged conical spine 39μm long, 1 thin and short seta and a short ambulacral peduncle.

MALE—Unknown.

HOST AND LOCALITY—Holotype and 1 paratype female from *Tadarida* (*Mormopterus*) *beccarii*, Amboina. This animal is conserved in the BM, n° 10.7.25.17.19. Holotype in BM.

4. *Parakosa philippinensis* Fain, 1976

MALE (Fig. 14)—Holotype 390μm long and 240μm wide. Setae *sc i* and *sc e* situated on the soft cuticle. Setae *sh* at least 150μm, *h* 180μm. Opisthonotal shield 75μm long. Setae *d 4* very thin, 28μm; *l 5* strong incomplete but at least 100μm, *d 5* very thin and 25-28μm. Tarsus III with an apical curved spine 40-45μm long, 2 strong flattened and ridged spines, 3 thin and short setae and a short ambulacral peduncle. Tarsus IV with a long (92-100μm) apical spine very finely attenuated apically, a long (30μm) ventral ridged spine, 1 thin seta, a small ambulacral peduncle.

FEMALE (Figs. 12, 13, 15)—Allotype (larvigerous) 600μm long, 290μm wide. Setae *sc i* and *sc e* situated on soft cuticle, 90μm and 120μm long respectively. Dorsum with 32-36 striations in the midline. Setae *sh* 130μm, *h* 150μm. Setae *d 5* and *l 5* strong and long (incomplete). Tarsus III with a long (40μm) apical curved spine, 2 large flat and ridged ventral spines, 3 thin setae and an ambulacral peduncle. Tarsus IV with an apical spine 80μm, one flat ridged spine 25μm long, 1 simple seta and a short ambulacral peduncle.

HOST AND LOCALITY—Holotype male, allotype and 2 paratype females from *Rousettus amplexicaudatus* ; 3 paratype females from an unidentified bat. All the specimens from Corte Danao City, Cebu, Philippines, 1961. (Hosts n° SU 112, 116, 120). Holotype in BMH.

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