

# A DESCRIPTION OF THE FEMALE IPHISEIUS ACARIDOPHAGUS COLLYER (ACARINA : PHYTOSEIIDAE) AND OF TROPACARUS BAKERI N.SP. (ACARIDAE) AND THEIR ASSOCIATION TOGETHER

ELSIE COLLYER

Entomology Division, D.S.I.R., Nelson.

## SUMMARY

A description is given of the female of *Iphiseius acaridophagus* Collyer, and of the female and male of *Tropacarus bakeri* n.sp., with which it is always associated.

### *Iphiseius acaridophagus* Collyer 1964

*I. acaridophagus* was described from a single male specimen, and more material is now available. The terminology of setae follows that of Pritchard and Baker (1962).

**Female:** Dorsal shield smooth and heavily sclerotised; the lateral membrane is also sclerotised, and fused with the dorsal shield which is domed in shape so that some distortion occurs when the mite is slide-mounted, and some setae although on the 'dorsal' area take up a ventral position. The body measurements are those of the dorsal area visible when the mite is not compressed beneath a cover slip: length  $480\mu$ , width  $330\mu$ . Sixteen pairs of setae on the dorsal shield: nine in the lateral row, two mediolaterals, three dorsocentrals and one pair each of verticals and clunals; also two pairs of sublateral setae on the sclerotised lateral membrane. The first pair of dorsocentral setae are absent; the third pair of dorsocentrals are relatively long ( $37\mu$ ), equal in length to the verticals; the fourth pair are  $26\mu$  in length. The lengths of other setae are: L1  $33\mu$ , L2  $25\mu$ , L3  $49\mu$ , L4  $119\mu$ , L5  $25\mu$ , L6  $41\mu$ , L7  $16\mu$ , L8 minute, L9  $155\mu$ , M2  $112\mu$ . The basis of L3 is nearer to L4 than it is to L2. L4, L9 and M2 are stout, and in some cases slightly barbed as in the male holotype.

The ventrianal shield is  $224\mu$  wide and  $200\mu$  long (sclerotised and reticulated, with three pairs of preanal setae and a pair of pores. The sternal plate is broader than long, with two pairs of sternal setae; the other two pairs of sternal setae are situated on separate sternal platelets. Three pairs of ventrolateral setae, the ventrocaudal setae absent. Two short macrosetae on genu and tibia of leg IV as in the male. The spermatheca is figured (Fig. 1C).

**Diagnosis:** Setae L4, L9 and M2 stout, sometimes slightly barbed, roughly equal length. L3 twice as long as L2, the base nearer to L4 than L2. D1 absent; D3 relatively long, equal to the verticals. Ventrocaudal setae absent. Two pairs of sternal setae on sternal shield in female, the other two pairs on individual metasternal platelets.

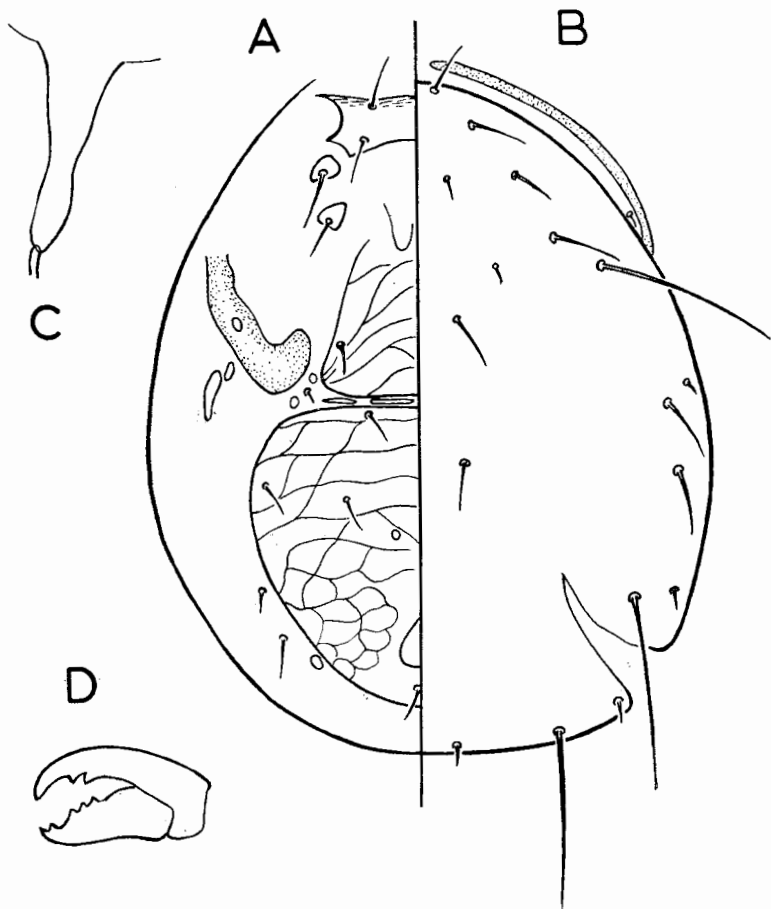


Fig. 1. *Iphiseius acaridophagus* female: A, ventral; B, dorsal; C, spermatheca; D, chelicera.

**Discussion:** This species belongs to the genus *Iphiseius* as defined by Pritchard and Baker (1962), but they referred their species to two subgenera *Iphiseius* (*Iphiseius*) and *I* (*Trochoseius*). *I. acaridophagus* has features of both subgenera; the absence of the first pair of dorsocentral setae and of the ventrocaudal setae would place it in *I. (Trochoseius)*, but the postscutum has a pair of well-developed dorsocentral setae which they consider to be a characteristic of *I. (Iphiseius)*. Chant and Baker (1965) ignore subgeneric divisions as being misleading, and leave *Iphiseius* as a well-defined genus. Chant (1965) defines *Iphiseius* in greater detail, and this makes *I. acaridophagus* exceptional in the absence of ventrocaudal

setae, and in that only two pairs of sternal setae are on the sternal shield. Nevertheless, it should obviously be included in this genus.

**Type material and locality:** Allotype, female: from leaf of *Ixerba brexioides*, above Lake Waikaremoana, North Island, New Zealand, about 3000', 23 April, 1965. Paratypes: two female and one male, *Rubus* sp. (bushlawyer), Lake Waikaremoana, 2500', 20 April, 1965; one female, *Nothofagus menziesii*, Lake Rotoroa, Nelson Province, 2 January, 1965; one female, *Phymatodes scandens*, Abel Tasman National Park, Nelson Province, 14 July, 1966; one male and one nymph, *Melicytus ramiflorus*, on sea coast Stephen's Bay, Nelson Province, 13 January, 1965; one female and immatures, *Rhipogonum scandens*, Kaihoka Lake, Nelson Province, 3 October, 1965; one female, *Metrosideros perforata*, Abel Tasman National Park, Nelson Province, 14 July, 1966.

All material is slide mounted. The allotype and first three paratype slides are in the collection of Entomology Division, Nelson; the last three paratype slides are deposited in the British Museum (Natural History).

#### ***Tropacarus bakeri* n.sp.**

Figs. 2, 3.

Cunliffe (1964) erected a new genus for *Tropacarus mumai*, a mite found in the Congo, India and North, Central and South America. Dr. E. W. Baker has compared material from New Zealand with types of *T. mumai*, and confirms that there are consistent differences between the two species although they closely resemble each other. Mites of both species have two conspicuous posterolateral brown spots, in addition to various dark inclusions in the gut.

**Female:** Body length 450 $\mu$ , width 310 $\mu$ . The four pairs of whip-like setae, sce, he, lp and d4 are shorter than the body length excluding chelicerae, and approximately equal to body width (Fig. 2). Tarsi I-IV are illustrated in Fig. 3A-D, the reduction in numbers of setae is not as extreme as in *T. mumai*.

**Male:** Smaller than the female; body length 340 $\mu$ , width 280 $\mu$ . On tarsus IV the second disc is placed just within the distal half of the segment (Fig. 3E).

**Diagnosis:** The four pairs of whip-like setae of *T. bakeri* are shorter than the body length, whereas in *T. mumai* they are longer. The reduction of tarsal setae is not as extreme in *T. bakeri*, for example there are two setae on tarsus III compared with none in *T. mumai*. In the male the two tarsal discs on tarsus IV are slightly more widely separated than those in *T. mumai*.

**Type material and locality:** Holotype female and male: *Carpodetus serratus*, Fringed Hill, Nelson, 1500', 18 June, 1966. Paratypes: two females, *Olearia avicenniaefolia*, Fringed Hill, Nelson, 18 June, 1966; females and males, *Nothofagus menziesii*, Lake Roto-

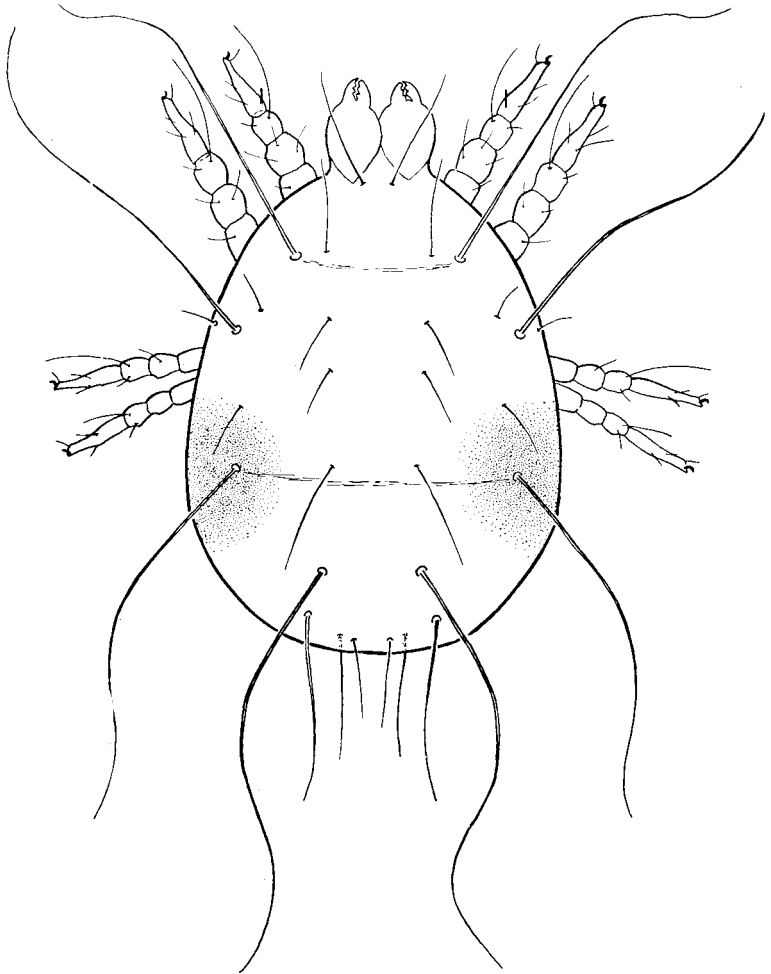


Fig. 2. *Tropacarus bakeri* female dorsal.

roa, Nelson Province, 10 October, 1964; female, *Pennantia corymbosa*, Abel Tasman National Park, Nelson Province, 14 July, 1966; one female, two males and one immature, *Melicytus ramiflorus*, Kaiteriteri, Nelson Province, 21 September, 1965; one female and male, *Phymatodes scandens*, Kaiteriteri, Nelson Province, 21 September, 1965.

This species has been found in various parts of the North Island, and in the north of the South Island, on the following host plants in addition to those cited above: *Rubus* spp. (bushlawyer);

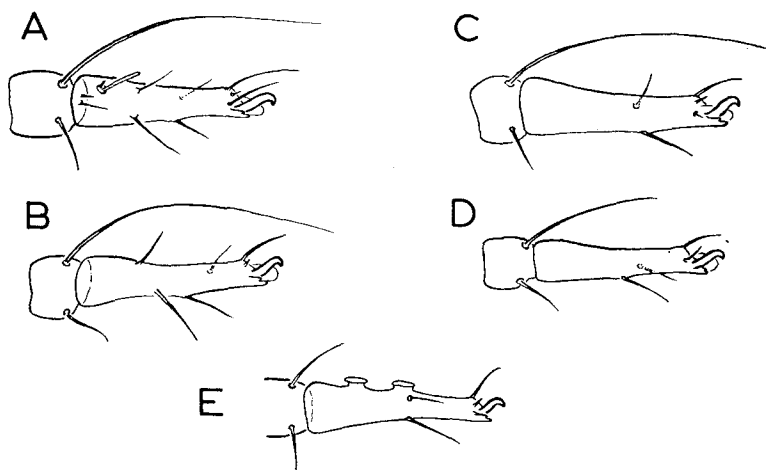


Fig. 3. *Tropacarus bakeri* female tarsus I-IV, A-D; male tarsus IV, E.

*Melicytus lanceolatus*; *Knightsia excelsa*; *Elaeocarpus dentatus*; *Hedycarya arborea*; *Griselinia lucida*; *Cyathodes juniperina*; *Rhipogonum scandens*; *Phymatodes diversifolium*.

All material is slide mounted. The holotype slide and first paratype are in the collection of Entomology Division, Nelson; the next two paratype slides are in the British Museum (Natural History); the final two paratype slides are in the U.S. National Museum, Washington, D.C.

**Habit:** This mite lives in compact colonies comprising a central cluster of eggs surrounded by immature and adult mites orientated with their bodies facing inwards; they are usually on the ventral leaf surface, often in slight hollows, and the groups are widely scattered. The size of the colonies varies, but over 200 individuals including eggs have been found together. Muma (1961) describes a similar habit for *T. mumai*, and states that they are fungal feeders.

#### Association of *I. acaridophagus* and *T. bakeri*

*I. acaridophagus* has in all cases been found in association with *T. bakeri*. The phytoseiid lays its eggs within the compact colony of *T. bakeri*, and rests in the colony alongside the acarid mites; the two species bear a superficial resemblance to each other, being globular, brown and shining with long setae. *I. acaridophagus* has been observed feeding on *T. bakeri* eggs, and presumably lives predaciously upon the acarid colony. Some groups have been found with numerous *I. acaridophagus* and reduced numbers of *T. bakeri*.

## REFERENCES

- CHANT, D. A., 1965: Generic concepts in the Family Phytoseiidae (Acarina: Mesostigmata). **Can. Ent.** **97**: 351-74.
- CHANT, D. A.; Baker, E. W., 1965: The Phytoseiidae (Acarina) of Central America. **Mem. ent. Soc. Can.** **41**, 56 pp.
- COLLYER, E., 1964: The occurrence of some mites of the family Phytoseiidae in New Zealand, and descriptions of seven new species. **Acarologia** **6**: 632-46.
- CUNLIFFE, F., 1964: *Tropacarus*, a new genus of Acaridae. **Proc. ent. Soc. Wash.** **66**: 181-3.
- MUMA, M. H., 1961: Mites associated with citrus in Florida. **Bull. Fla. agric. Exp. Stn.** **640**, 39 pp.
- PRITCHARD, A. E.; Baker, E. W., 1962: Mites of the family Phytoseiidae from Central Africa, with remarks on the genera of the world. **Hilgardia** **33**: 205-309.