

# NEW RECORDS OF DIARTHROPHALLIDAE (ACARINA) WITH THE DESCRIPTION OF THE HITHERTO UNKNOWN LARVAL STAGE

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Fig. 1-7

## SYNOPSIS

A small collection of Diarthrophallidae (Acarina) in the Coll. Samsinák in the Entomological Institute of the Czechoslovak Academy of Sciences in Praha has been submitted to the author by Dr. K. Samsinák. The specimens, seven in all, were collected from Passalid beetles from Brazil and India in the National Museum in Praha, all of which were of long standing.

Five of the specimens were from the vicinity of Sao Paulo, Brazil, all of which can be referred to known species. One of these however, is a larva of *Diarthrophallus duodecimpilosa* (Lomb.) and the first larval Diarthrophallid to be described.

The other two specimens from Coimbatore, India are a female and a larva of a new species, *Brachytremella epiphenus*, the first record of the family from India.

The specimens are all figured in detail and are to be returned to the Academy of Sciences in Praha.

## Family DIARTHROPHALLIDAE

The following small but extremely interesting collection of mites of the family Diarthrophallidae has been submitted to me for study and determination by Dr. K. Samsinák of the Biological Institute of Czechoslovakia and I tender to him my sincere thanks for the opportunity of so doing.

The specimens, seven in all, were recovered by Dr. Samsinák from old specimens of Passalid beetles in the collections of the National Museum in Praha. Five of them, all from beetles from the vicinity of Sao Paulo, Brazil can be referred to known species; one specimen however, is the first true Diarthrophallid larva to be described. The other two specimens are from a Passalid from Coimbatore, India, one

a female, the other a larva. These are the first Diarthrophallids to be described from India, and belong to a new species *Brachytremella epiphenus* sp. nov.

Genus **Diarthrophallus** Trägårdh

Trägårdh I. 1946. Ent. Meded., 24 (6), 371.

Type: *Uroseius quercus* Pearse et al, 1936.

**Diarthrophallus quercus** (Pearse et al.)

Fig. 1 A-C, 2 A-B

*Uroseius quercus* Pearse et al 1936, Ecol. Monogr., 6: 478, fig. 31-34.

*Diarthrophallus quercus* Trägårdh 1946, Ent. Meded., 24(6): 371-380, fig. 1-2, 4-5; Womersley 1961, Trans. Roy. Soc. S. Austr., 84: 11, 29-32, fig. 1A, 2A-B.

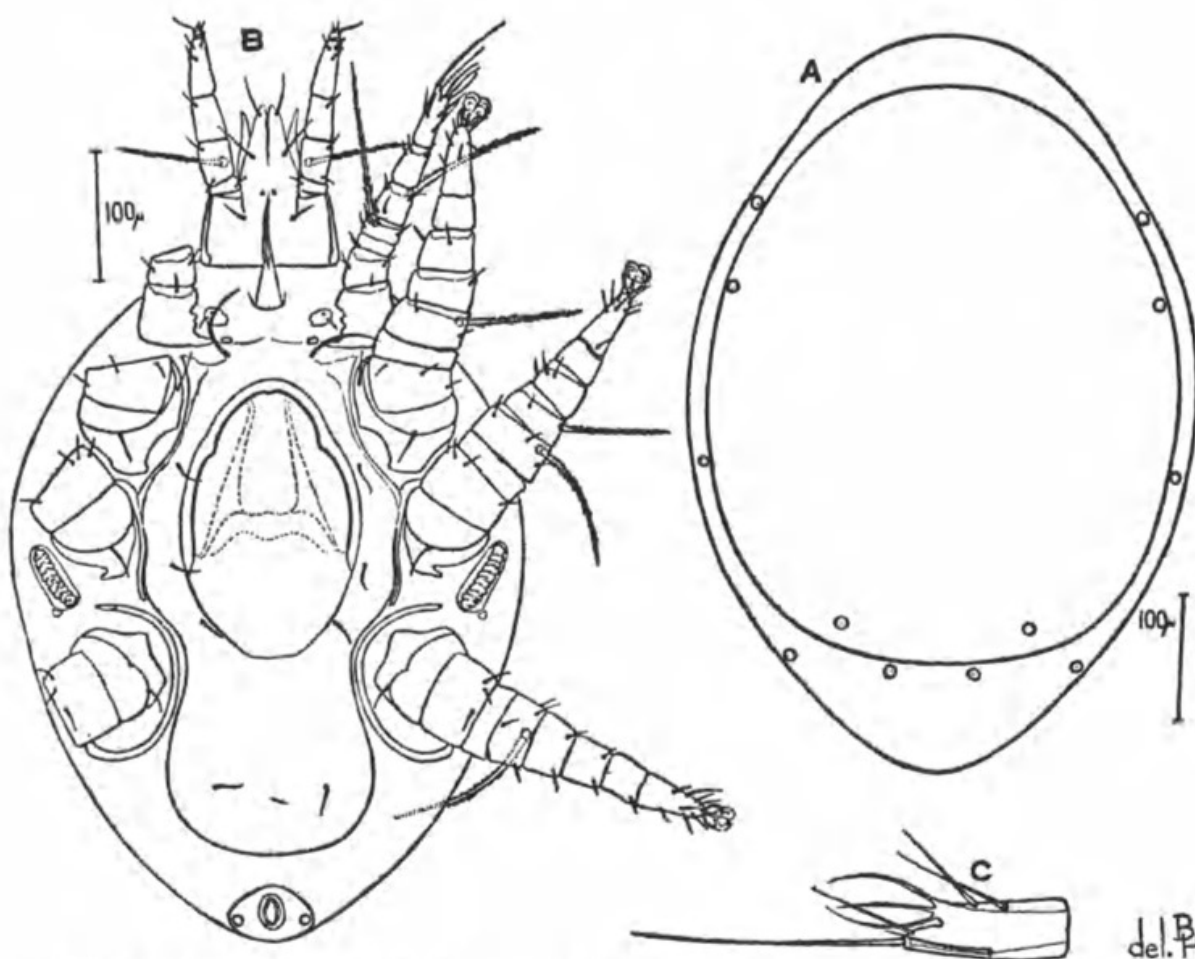


Fig. 1. A-C *Diarthrophallus quercus* (Pearse et al) female. A, dorsum; B, venter; C, tarsus of leg I. (Specimen from Coll. Samsinák.)

This species is represented in the collection by two specimens, one a female from a Passalid *Veturius cephalotes* from Sao Paulo, Brazil, the other a deutonymph from *Passalus (Petrejus)* sp., also from Sao Paulo. Both specimens are figured. The female, fig. 1 A-C, unfortunately lacks all the long dorsal setae; it measures  $573\mu$  (idiosoma) in length. The deutonymph, fig. 2 A-B measures  $386\mu$  in length.

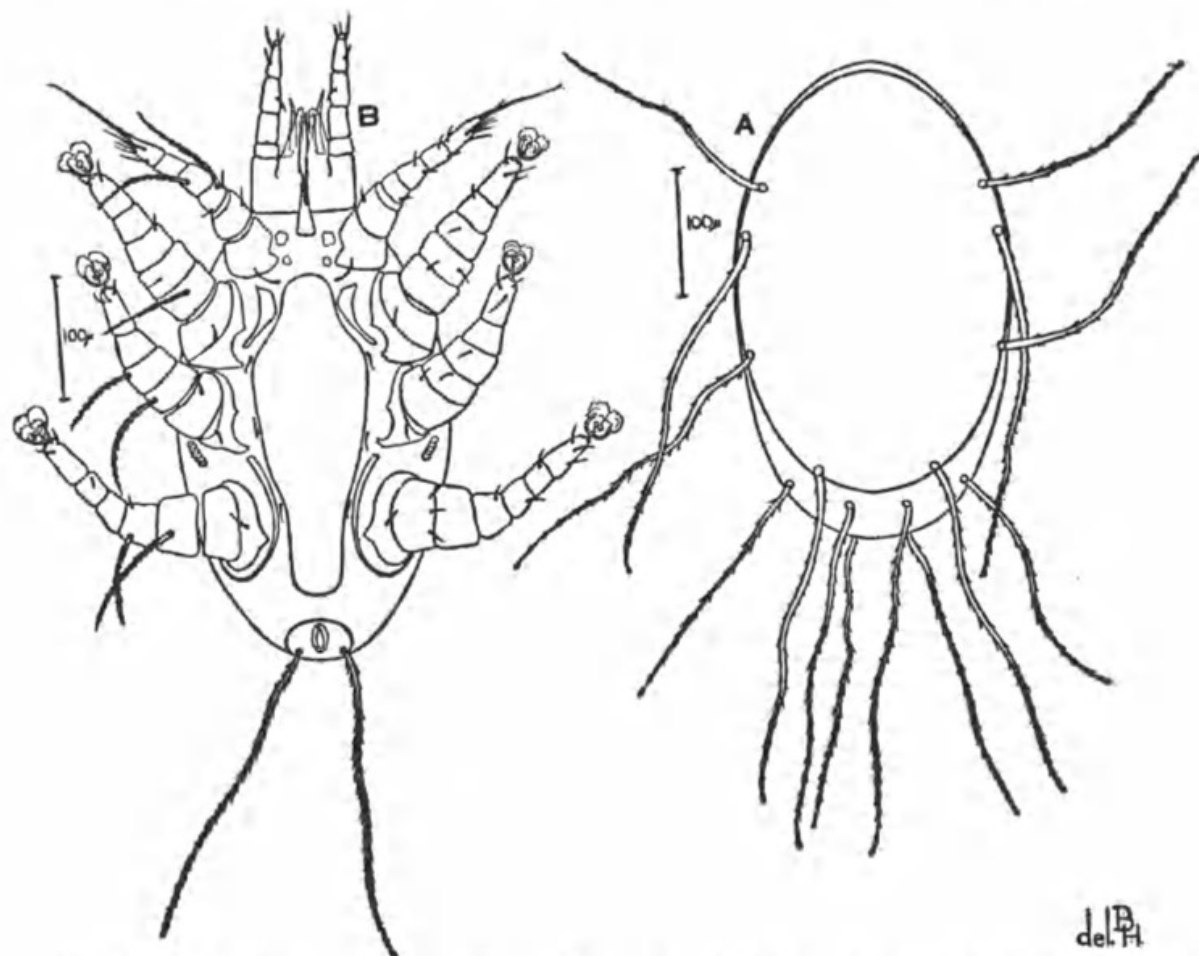


Fig. 2. A-B *Diarthrophallus quercus* (Pearse et al) deutonymph. A, dorsum; B, venter. (Specimen from Coll. Samsinák.)

***Diarthrophallus duodecimpilosa* (Lomb.)**

Fig. 3 A-B, 4 A-B, 5 A-B

*Passalobia duodecimpilosa* Lombardini 1938, Mem. Soc. ent. ital., 17(1): 48, fig. V, VII.

*Diarthrophallus simitis* Trägårdh 1946, Ent. Meded. 24(6): 380-384, fig. 6-7.

*Diarthrophallus duodecimpilosa*, Womersley 1961, Trans. Roy. Soc. S. Aust., 84: 32-34, fig. 3 A-G.

Three specimens in the collection are referred to the species; one, a deutonymph was from the Passalid, *Veturius cephalotes* (ex Col. Nicker) and just labelled "America", but as this beetle is a South American species, it was most likely from the vicinity of Sao Paulo, Brazil, as with the host of the female of *D. quercus*. Of the other two specimens, both of which are from *Passalus* (*Phoronaeus*) *clypeo-marginatus* from Brazil, one is a tritonymph, the other, the hitherto first larval Diarthrophallid to be described. The tritonymph, fig. 3 A-B measures  $433\mu$  (idiosoma) in length, and the deutonymph, fig. 4 A-B,  $445\mu$ . The larva is described as follows:

*Larva morphotype*, fig. 5 A-B. Idiosoma  $249\mu$  long,  $192\mu$  wide; gnathosoma  $81\mu$  long.

*Dorsum*: Fig. 5 A, with only two pairs of long slender ciliated and apically capitate setae, the anterior pair at about the mid-length of the idiosoma and  $316\mu$  long, the second pair subposterior and marginal to  $220\mu$  long. The dorsal shield covers most of the dorsum and is somewhat truncate posteriorly.

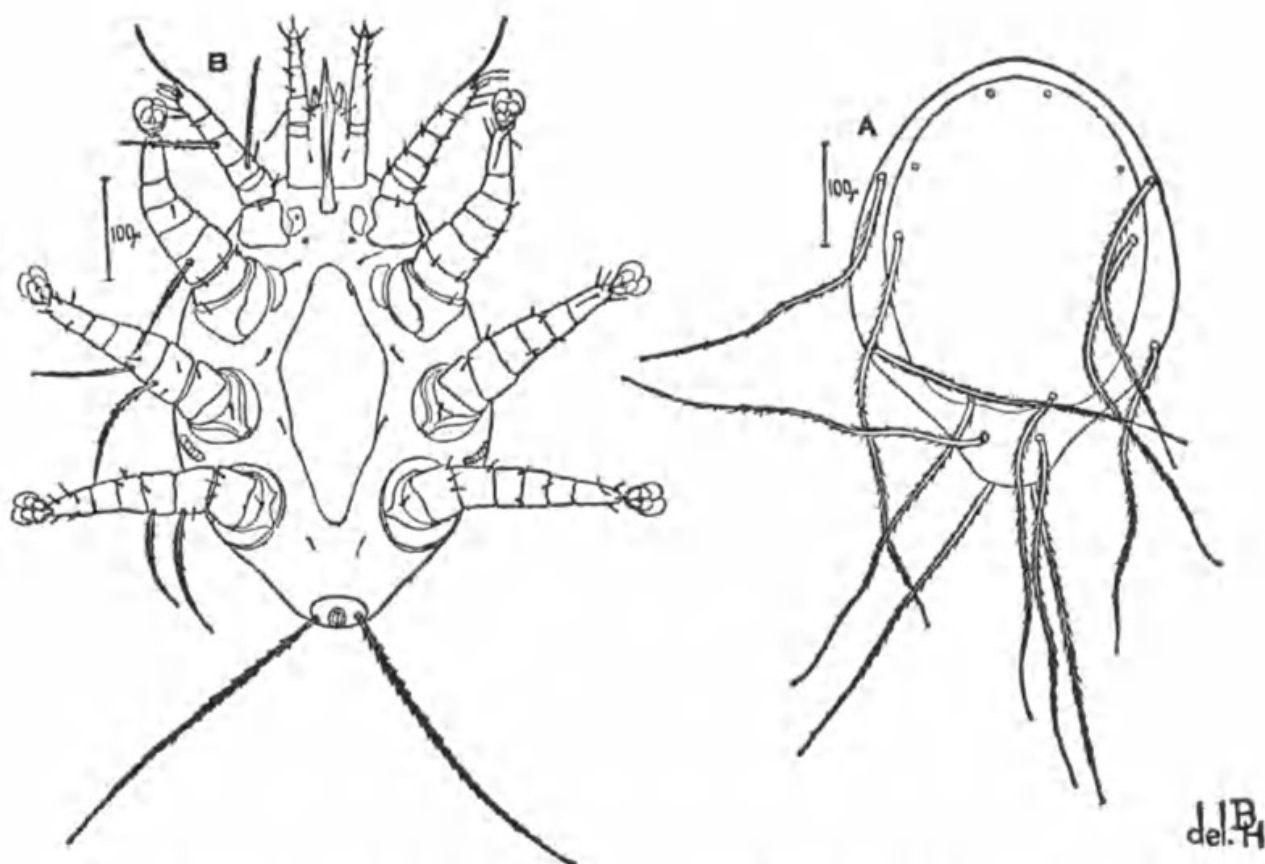


Fig. 3. A-B *Diarthrophallus duodecimpilosa* (Lomb.) tritonymph. A, dorsum; B, venter. (Specimen from Coll. Samsinák.)

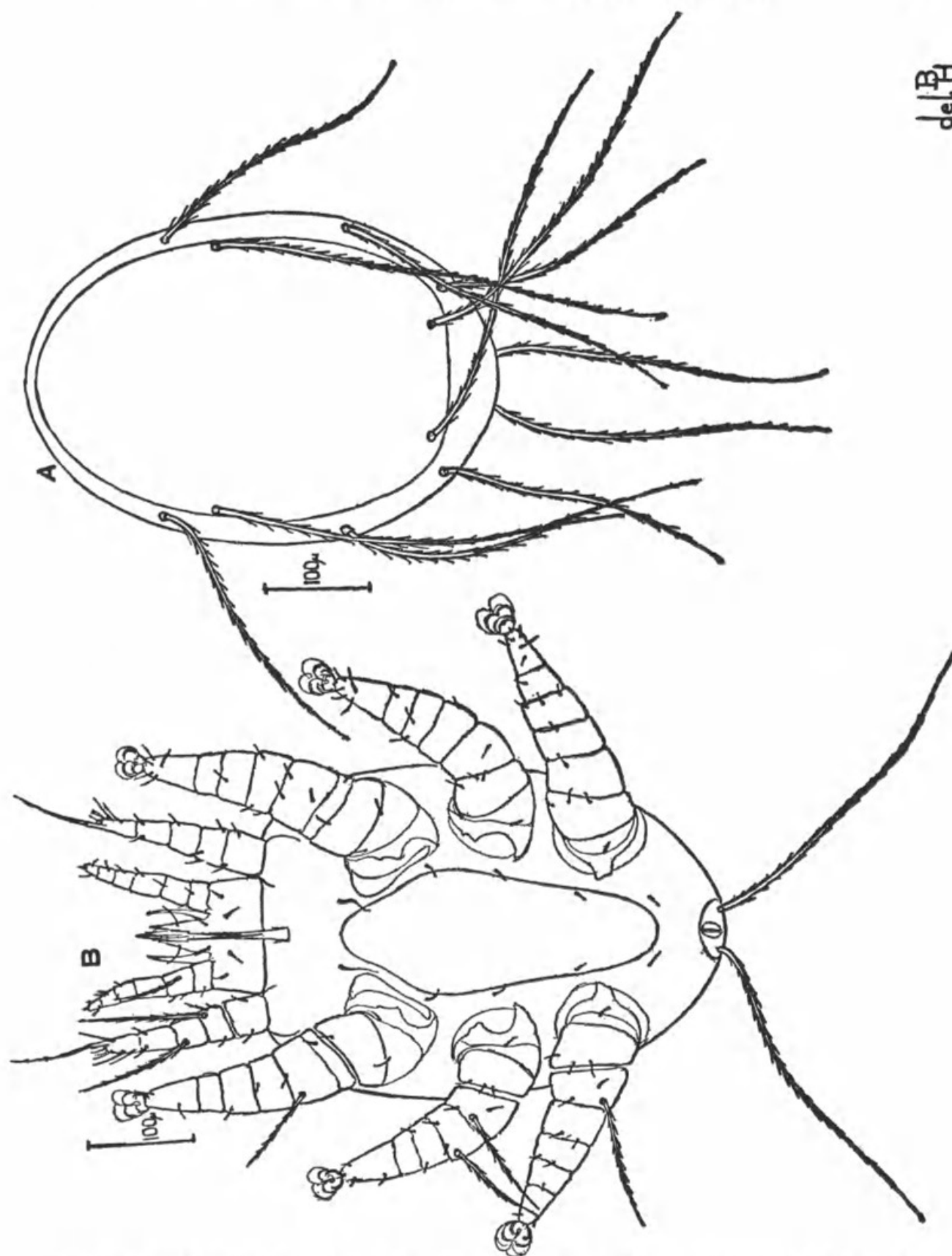


Fig. 4. A-B *Diarthrophallus duodecimpilosa* (Lomb.) deutonymph. A, dorsum; B, venter. (Specimen from Coll. Samsinák.)

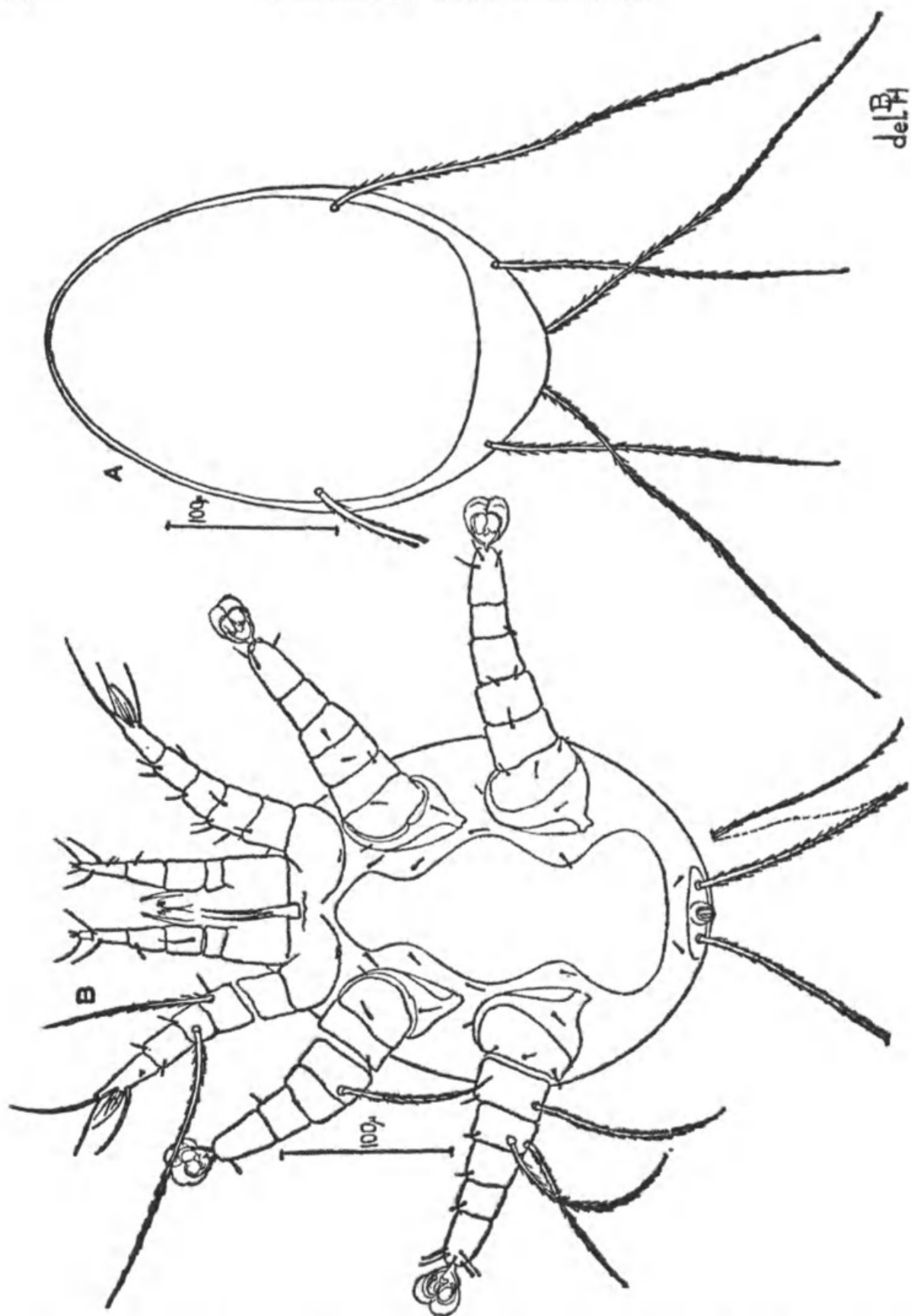


Fig. 5. A-B *Diarthrophallus duodecimpilosus* (Lomb.) larva. A, dorsum; B, venter (legs on left side shown dorsally). (Specimen from Coll. Samsinák.)



*Venter*: Fig. 5 B. Sternal shield  $200\mu$  long,  $48\mu$  wide between coxae II then contracting before widening to  $62\mu$  between coxae II and III and again contracting before expanding to  $96\mu$  posterior of coxae IV, its posterior margin is broadly rounded and fairly close to the margin of the anal shield; the sternal setae are all off the shield, two pairs between coxae II, one between coxae III, all are small and fine to  $17\mu$  long. Anal shield a transverse ellipse  $53\mu$  wide by  $11\mu$  deep, and furnished with two long slender apically capitate setae to  $300\mu$  long; there is a pair of short setae between the sternal and anal shields. Gnathosoma, chelicerae and palpi as in the later stages. Legs all rather thick and stout and directed forwards, I 6-segmented, tarsus apically bifurcate with long apical tactile seta, dorsally with a long strong and ciliated seta to  $200\mu$  on genu, and a rather shorter one on the femur, legs II and III 7-segmented, II with a long seta on telofemur, III with two long setae on telofemur and one on basifemur, tarsi of legs II-III with large pad-like ambulacra, without claws; legs I  $178\mu$  long, II and III  $200\mu$ . Peritreme entirely absent.

*Remarks*: This larva, the first true larval Diarthrophallid to be known is associated with *D. duodecimpilosa* only because it was from the same host, *Veturius cephalotes* from Brazil, as the deutonymph; it may however be that of *D. quercus*.

#### Genus *Brachytremella* Trägårdh

Trägårdh, I. 1946, Ent. Meded. 24(6): 384; Womersley H. 1961 Trans. Roy. Soc. S. Aust., 84: 11.

Type: *Brachytremella spinosa* Träg.

#### *Brachytremella epiphenus* sp. nov.

Fig. 6 A-B, 7 A-D

*Types*: Holotype female and morphotype larva in the "Col. Samsinák", a part of the collections of the Entomological Institute of the Czechoslovak Academy of Sciences, Praha.

*Localities*: Both female and larva from specimens of *Epiphenus stoliczkae* in collections of the National Museum of Czechoslovakia in Praha, from Coimbatore, India.

*Female holotype*: fig. 6 A-B. A broad oval shape, with idiosoma  $442\mu$  long and  $312\mu$  wide.

*Dorsum*: With the dorsal shield  $389\mu$  long, almost entirely covering the dorsum with the posterior margin truncate, furnished with two pairs of short tapering and apparently nude setae anterior

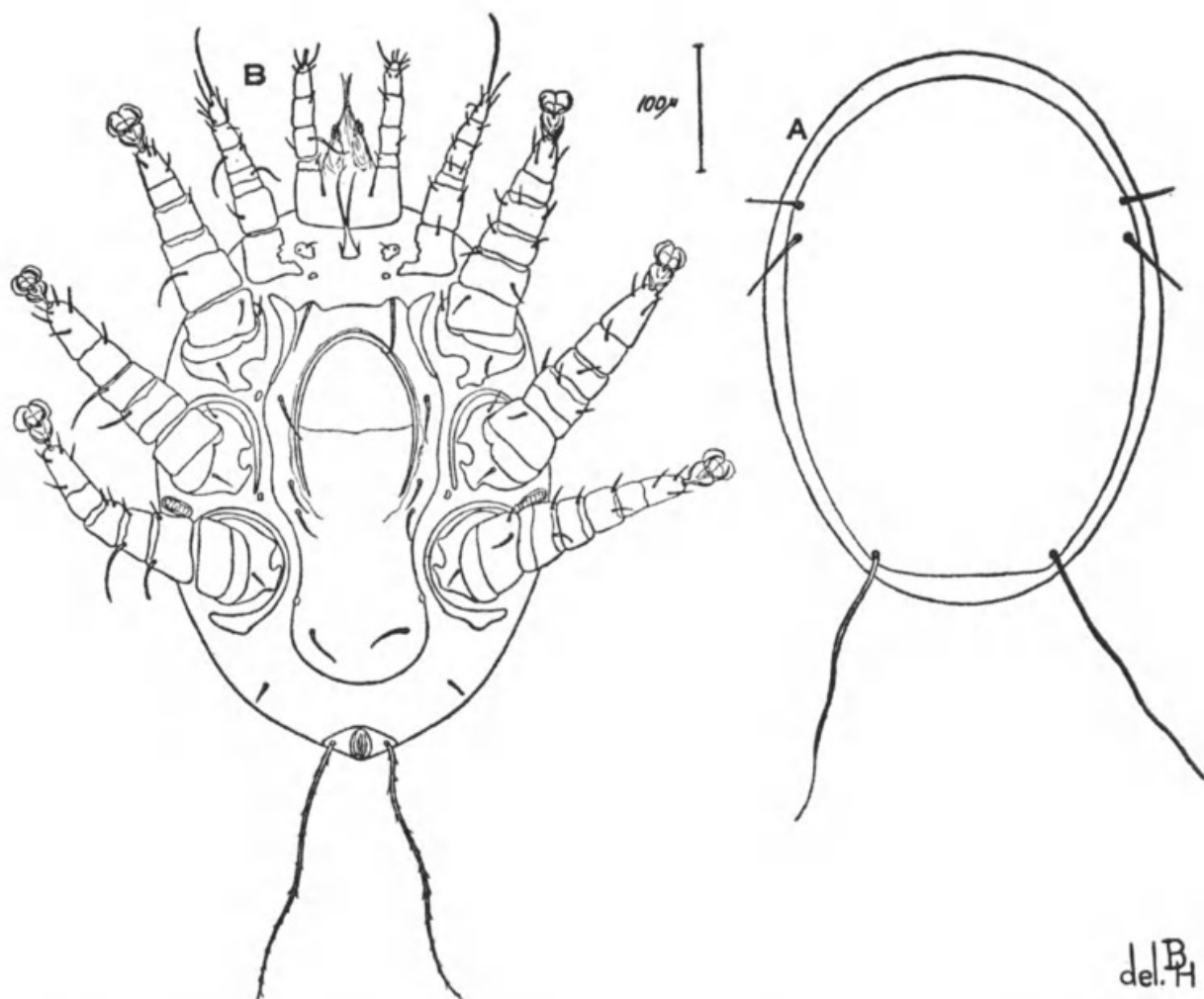


Fig. 6. A-B *Brachytremella epiphenus* sp. nov. female. A, dorsum; B, venter (legs on left side shown dorsally). (Specimen from Coll. Samsinák.)

of the mid-length, the anterior pair  $38\mu$  long, the other pair  $58\mu$  long, and at the postero-lateral corners of the shield with a long slender nude seta to  $216\mu$  long.

*Venter*: Sternal shield  $307\mu$  long extending well past coxae IV,  $144\mu$  wide at greatest width between coxae II and III, contracted between coxae II and again between coxae IV, with rounded posterior, furnished with 5 pairs of strong sternal setae, anterior pair  $38\mu$  long and between coxae II, second pair  $34\mu$  and third pair  $29\mu$ , these between coxae III, fourth pair of setae rather close to third but between anterior margins of coxae IV to  $24\mu$  long, fifth pair  $29\mu$  long and posterior of coxae IV. The genital shield is large, situated in the middle of the sternal shield between coxae II and III,  $144\mu$  long by  $96\mu$  wide and open posteriorly, or rather without a clear cut hinge line.



Endopodal shields distinct as figured. Anal shield small, transverse, with a pair of long slender setae to  $192\mu$  long and sparsely and shortly ciliated; on the cuticle and lateral on each side is a short fine seta. Gnathosoma as in the genus. Legs short and stout, directed forwards, I  $163\mu$  long, II  $221\mu$ , III  $230\mu$ , IV  $240\mu$ ; tarsus of leg I apically bifurcate, with terminal tactile seta, coxae fragmented as figured, tarsi of legs II-IV with large pad-like ambulacra without claws; the long dorsal setae on the femur and genu of legs II-IV relatively short. Peritreme short, in line with anterior margin of coxae IV.

*Larva, morphotype.* A rather smaller species than the larva of *D. duodecimpilosa* described above. Idiosoma  $268\mu$  long,  $165\mu$  wide; gnathosoma  $72\mu$  long.

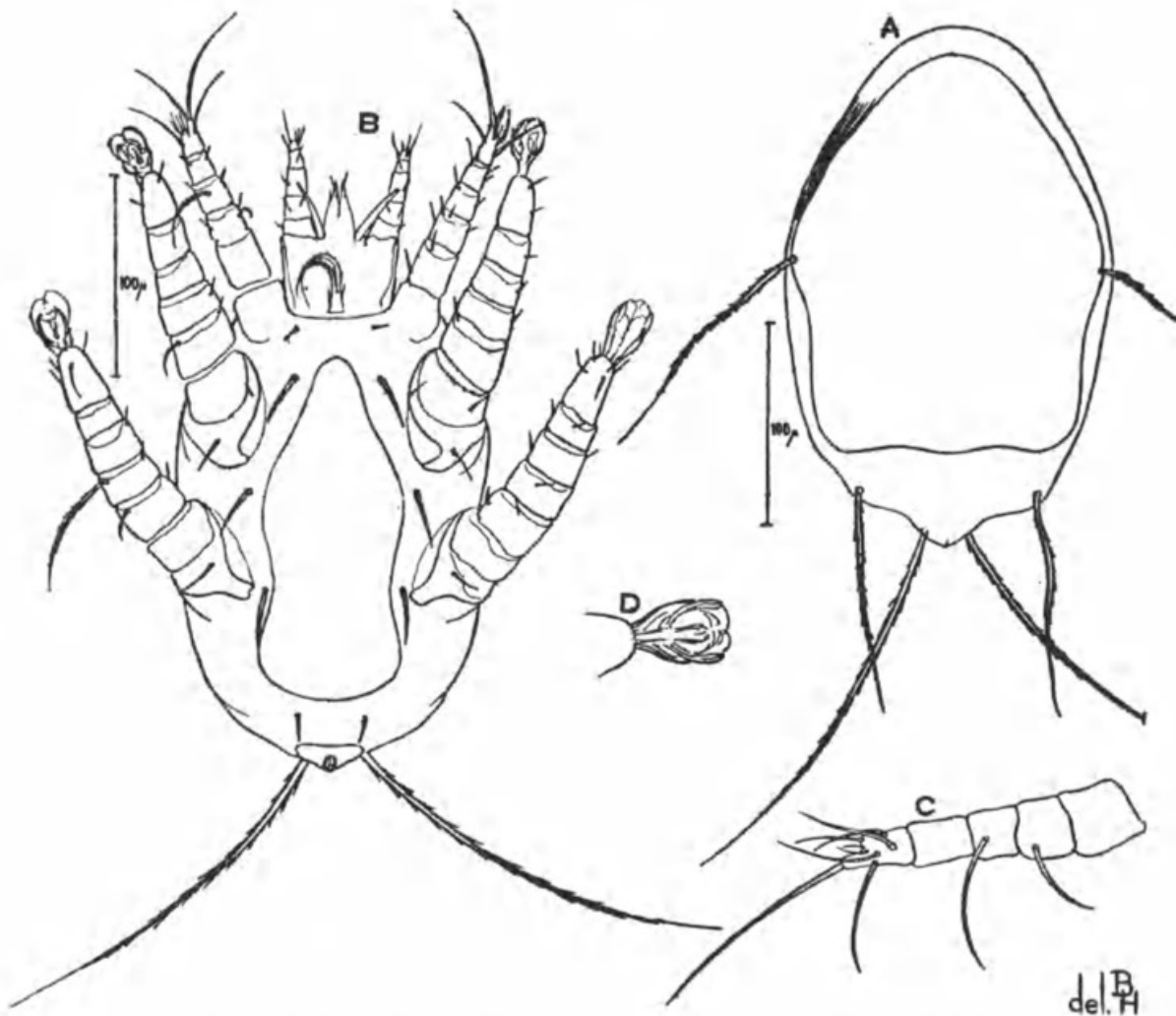


Fig. 7. A-D *Brachytremella epiphenus* sp. nov. larva. A, dorsum; B, venter (legs on left side shown dorsally); C, leg I; D, ambulacra of leg III. (Specimen from Coll. Samsinák.)

*Dorsum*: Fig. 7 A, with only two pairs of long slender ciliated and apically knobbed setae, the anterior pair at about the mid-length of the idiosoma,  $125\mu$  long, the second pair subposterior and marginal to  $115\mu$  long; the dorsal shield covers most of the dorsum except posteriorly, and its posterior margin is widely truncate and sinuous.

*Venter*: Fig. 7 B, as figured; sternal shield  $168\mu$  long,  $29\mu$  wide between coxae II, then gradually expanding to  $67\mu$  between coxae II and III, then contracting slightly before widening to  $72\mu$  behind coxae III, posterior margin broadly rounded and fairly widely separated from anal shield, with four pairs of sternal setae all situated off the sternal shield, setae I are small and fine and close to base of gnathosoma, II to IV are long,  $29\mu$ , and stout, a pair of medium setae between anal and sternal shields. Anal shield a transverse ellipse  $43\mu$  wide by  $11\mu$  deep, furnished with two ciliated capitate setae to  $192\mu$  long. Gnathosoma, chelicerae and palpi as in the preceding species. Legs all rather stout and directed forwards, I 6-segmented, II and III 7-segmented, tarsi of leg I apically bifurcate, with long apical tactile setae, the long seta on genu only  $33\mu$ , no very long setae on II, and only one to  $48\mu$  on telofemur of III; tarsi of legs II and III with large pad-like ambulacra without claws; leg I  $115\mu$  long, II  $182\mu$ , III  $192\mu$ .

*Remarks*: From the larva of the preceding species, *Diarthrophallus duodecimpilosa* (Lomb.), it differs strikingly in the smaller size, the less constricted sternal shield, and the very much stronger and stouter sternal setae II-IV.

### ACKNOWLEDGMENTS

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