

A NEW SPECIES OF *TARSONEMUS* (ACARINA : TARSONEMIDAE)
FROM CULTIVATED MUSHROOMS

BY

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MORETON (1958) reported the discovery of a Tarsonemid mite damaging sporophores of cultivated mushrooms (*Agaricus bisporus*) on a commercial farm in Kent. The mites caused superficial browning at the base of the sporophore and severed the mycelial attachments so as to leave only a small basal knob of tissue. This type of damage has been recognized by growers for some years but the mites have not previously been identified. Examination of Moreton's material shows that it represents a new species. In the United States four *Tarsonemus* species — *waitei* Banks, *randsi* Ewing, *confusus* Ewing (BEER, 1954) and *floricolus* Canestrini (SCHAARSCHMIDT, 1959) have been recorded from mushrooms. A key separating these species from *T. myceliophagus*, here described, is appended. The terminology adopted is that used by LINDQUIST and BEDARD (1961) for morphological structure and definition of measurements.

***Tarsonemus myceliophagus* n. sp.**

Female : (Figs. 1 & 2) Body short and broadly oval, broadest at a point one third of body length from posterior end. Legs short and stout, the second pair as long as the first ; fourth pair very short with coxae widely separated.

Apodemes I weakly developed anteriorly but more strongly so at their point of junction, the latter being widely separated from anteromedian apodeme. Anteromedian apodeme is thus interrupted for one quarter of its length between junction of apodemes I and a point between the condyles of coxae II ; conspicuous thickenings on apodeme at this point and between apodemes II ; indistinctly forked at junction with transverse apodeme. Apodemes II curved posteriorly and separated from anteromedian apodeme by distance equal to interruption in latter. Transverse apodeme with two small anterior projections in line with coxal setae II. Anterior fork of posteromedian apodeme separate and indistinct, terminating

anteriorly on a level with apodeme III, median and posterior thickenings on remainder of apodeme. Apodeme III not reaching coxal setae III. Apodeme IV longer than III, separated from posteromedian apodeme. Posterior extremity of apodeme III in line with termination of posteromedian apodeme.

Pseudostigmatic organ with elongate, oval apex three times as long as pedicel. Coxal and sacral setae present and backwardly directed but coxal setae III directed posteromedially. Vertical setae four-fifths length of capitulum, scapular setae equal in length to leg II. External humeral setae only slightly longer than internal. Internal lumbar setae as long as sacral setae.

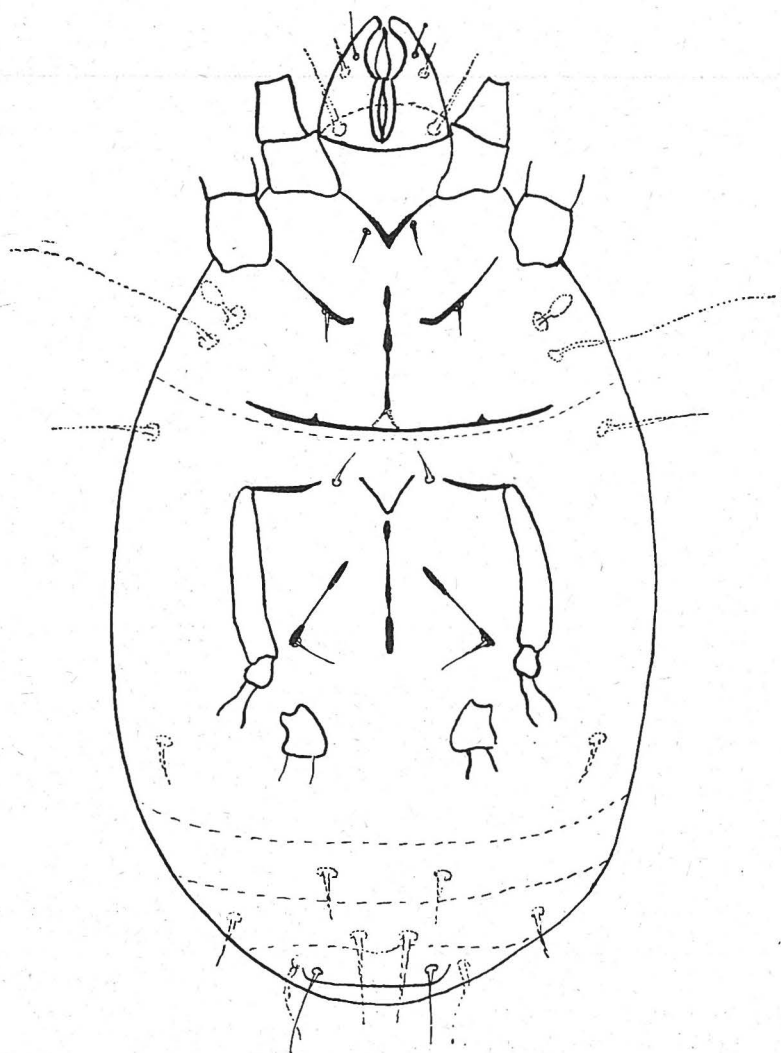


FIG. 1. — Female *Tarsonemus myceliophagus* n. sp. ventral view, dotted lines represent dorsal setation.

Single claw of leg I and paired claws of legs II and III strongly formed with large ambulacra. Setation leg I : femur and genu with three setae ; tibiotarsus with ten setae and two sensory clubs. Leg II, femur with three setae, genu with two and tibia with three setae but the tarsus bears five setae including one sensory club and one dorsal ventrodistal spine. Leg III, femorogenu with two setae, tibia and tarsus each with three setae. Leg IV, with four setae, apical segment with a straight subapical seta as long as free part of leg and with a very long whiplike apical seta ; subapical segment with one small proximal seta and one stout, straight subapical seta.

Body Dimensions : length 180-191 μ , width 105-118 μ .

Male : (Fig. 3) Apodemes I strongly united to anteromedian apodeme ; latter well developed but interrupted for about one quarter of its total length between apodemes II. Apodemes II curved posteriorly but separated at point of interruption in anteromedian apodeme. Posteromedian apodeme not bifurcate posteriorly. Genital capsule about as wide as long.

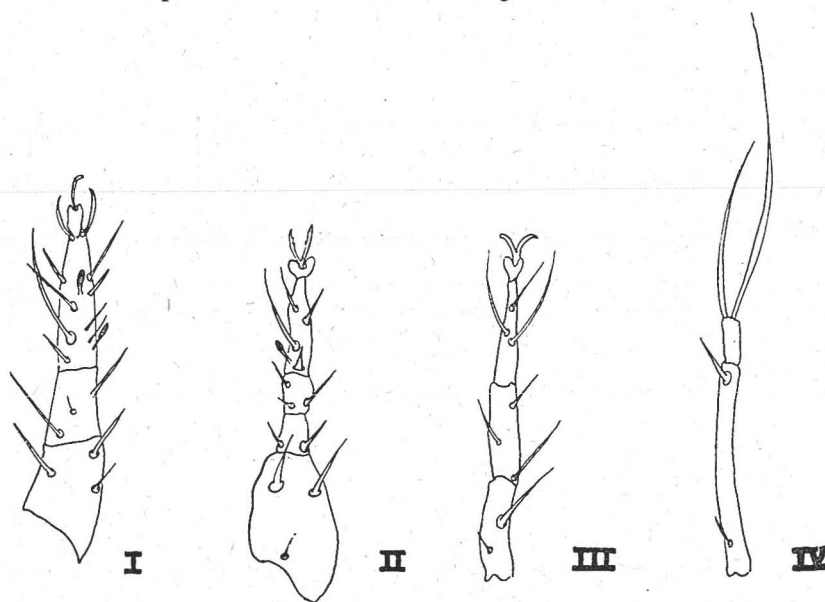


FIG. 2. — Female *T. myceliophagus* Setation Legs I-IV.

Posterolateral scapular setae shorter than anteromedial scapular setae, posterolateral vertical seta half the length of anteromedial vertical seta. Posteromedial seta of metapodosomal shield absent.

Leg I longer than leg II ; single claw of leg I and paired claws of legs II and III strongly formed. Leg setation : as in female except as follows : — Leg I : femur with one seta ; tibiotarsus with eleven setae and two sensory clubs. Leg II : femur with one seta, genu with three setae and tarsus with three setae and a sensory club. Leg III : femur with one seta, genu with three and tibia with four

setae. Leg IV : trochanter wider than long with one seta, femur stout and curved with three setae of which the inner distal seta is the longest ; tibia with one very long tactile and two minute setae and a long curved terminal claw.

Body Dimensions : length 128-137 μ , width 72-81 μ .

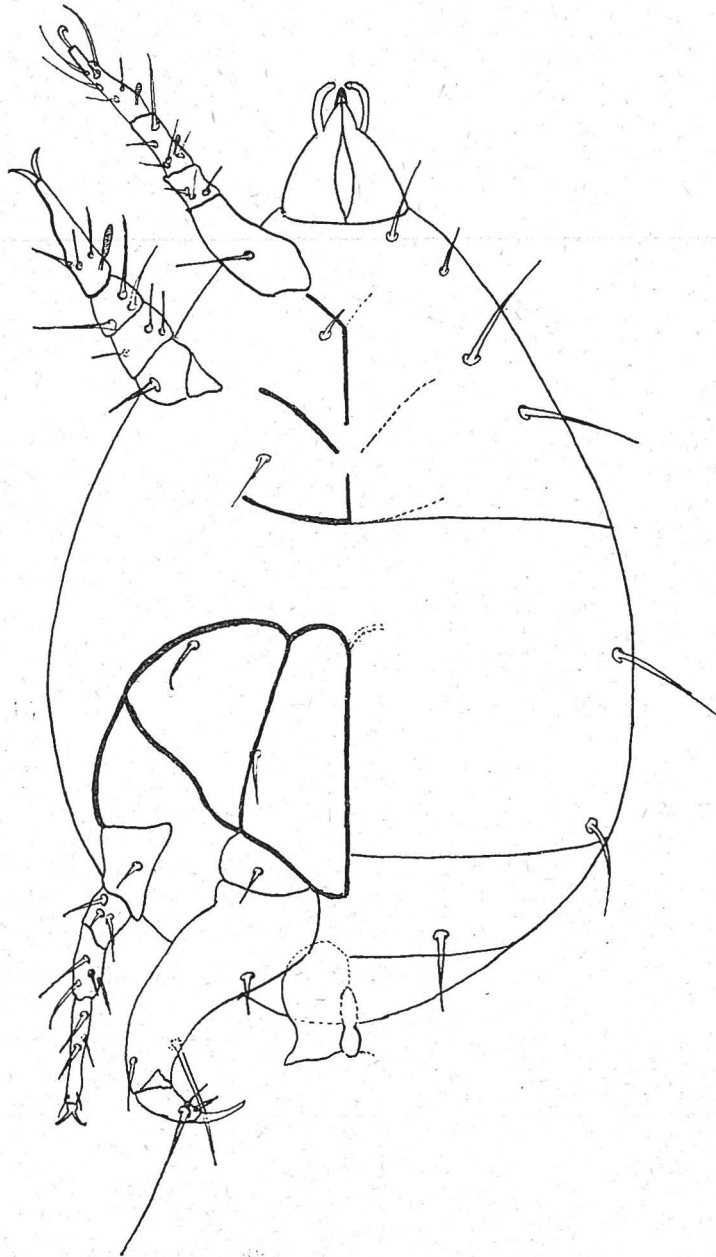


FIG. 3. — Male *T. myceliophagus* Left — Ventral View ; Right — Dorsal View.

Locality.

Holotype : female on mushrooms at Bilting, Kent (B. D. MORETON). Paratypes : three females ex mushroom compost, Bilting and three females Rustington, Sussex (N. W. HUSSEY). Four males including allotype, Rustington (N. W. HUSSEY). Specimens also found in compost from Lee Valley (Essex), Bath (Somerset) and Ballykelly (Ireland).

Holotype female in British Museum (N. H.) and paratypes in collection at Glasshouse Crops Research Institute, Littlehampton.

Taxonomic Relationships.

In Schaarschmidt's key to *Tarsonemus* females *T. myceliophagus* runs out to couplet 8 but is distinguished from *T. bifurcatus* Schaarschmidt by the shorter bifurcations of the anteromedian apodeme and the presence of a fork on the anterior portion of the posteromedian apodeme.

Key to TARSONEMUS species associated with cultivated mushrooms.

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|---|-----|---|-------------------------|
| 1 | (6) | Anteromedian apodeme joined to transverse apodeme. | |
| 2 | (5) | Anteromedian apodeme separated from junction of apodeme I. | |
| 3 | (4) | Transverse apodeme smooth | <i>T. waitei</i> |
| 4 | (3) | Transverse apodeme with two small anterior projections | <i>T. myceliophagus</i> |
| 5 | (2) | Anteromedian apodeme joined to junction of apodemes I | <i>T. randsi</i> |
| 6 | (1) | Anteromedian apodeme not joined to transverse apodeme. | |
| 7 | (8) | Apodeme III joined to posteromedian apodeme | <i>T. floricolus</i> |
| 8 | (7) | Apodeme III not joined to posteromedian apodeme | <i>T. confusus</i> |

Summary.

Tarsonemus myceliophagus n. sp. attacking the base of mushroom sporophores is described. A key separating the five *Tarsonemus* species known to be associated with mushrooms is presented.

REFERENCES

- BEER (R. E.), 1954. — A revision of the Tarsonemidae of the Western Hemisphere (order Acarina). *Univ. Kansas Sci. Bull.* 36. Pt. 2. (16) 1091-1387.
- LINDQUIST (E. E.) et BEDARD (W. D.), 1961. — Biology and taxonomy of mites of the genus *Tarsonemoides* (Acarina : Tarsonemidae) parasitizing eggs of Bark Beetles of the genus *Ips*. *Canad. Ent.* 93. 982-999.
- MORETON (B. D.), 1958. — Mushrooms damaged by Tarsonemid mites. *Pl. Path.* 7 (4), 152.
- SCHAARSCHMIDT (L.), 1959. — Systematik und Ökologie der Tarsonemiden. *Beitrage zur Systematik und Ökologie Mitteleuropaischer Acarinen* I Teil 2. Abschnitt 5. 715-823.