

*Podapolipus komareki* Štorkán (Acari: Podapolipidae)  
from *Hylobius abietis* L. (Coleoptera: Curculionidae),  
redescription and designation of a lectotype

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(With 6 figures)

**Abstract**

*Podapolipus komareki* Štorkán, 1927 (Acari: Podapolipidae) is redescribed from *Hylobius abietis* L. (Coleoptera: Curculionidae) from Moravsky Svaty Jan (Slovakia). A lectotype for *P. komareki* is designated and the species is compared with related *Podapolipus* spp. from tenebrionid beetles.

**Introduction**

All podapolipid mites are parasites of insects. Podapolipid mites on curculionid and tenebrionid beetles are all ectoparasites and are under the elytra, at the bases of the metathoracic wings and on the dorsal surface of the abdomen.

Regenfuss (personal communication, 1972) quoted Samšiňák as believing that all of the type specimens of *Podapolipus komareki* Štorkán, 1927, collected in Czechoslovakia, had been lost. Regenfuss examined 300 *H. abietis* from Germany and found no *P. komareki*. A recent search of literature by Dastych revealed that Byers and Carney (1965) list 86 type specimens of *Podapolipus komareki* Štorkán in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, KS., U.S.A. Byers (personal communication, 1995) confirmed the existence of this material and provided specimens for study. Slide labels for these specimens bear the following information, "*Podapolipus komareki* Štorkán, Type, K.U. #1688, Moravsky Svaty Jan Slowakei, Sept. 1926, Julius Komarek, under elytron of *Hylobius abietus* (sic) PVA-L-P: Oct. 1959." Additional specimens were removed from museum specimens of *H. abietis* from Mendel Pass, Tyrol, Austria. It is the purpose of this paper to redescribe *P. komareki*, designate a lectotype and paralectotypes and compare *P. komareki* with related *Podapolipus* spp. from tenebrionid beetles.

Measurements were taken with the aid of a Wild phase contrast microscope with a drawing tube calibrated with a stage micrometer. Since setae are often bent or vertical or with very fine tips, setal measurements stated here are the longest setae that could be measured. Setae are at least as long as the measurements given. Setae designated as microsetae are not longer than the diameter of the setal alveolus. When a leg segment has the potential for 4 setae and only one

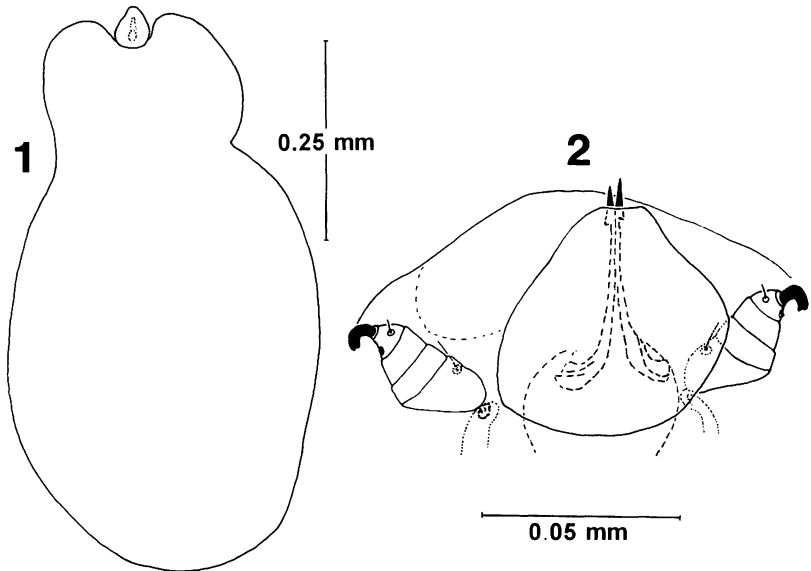
remains, the name chosen for the seta is the one closest to the position which would be occupied by a seta in the primitive condition. Terminology is based on that used by Lindquist (1986). All measurements in the text are in micrometers ( $\mu\text{m}$ ). Scales on drawings are in millimeters.

*Podapolipus komareki* Štorkán, 1927

Lit.: Naudo (1967), Regenfuss (1968), Feldman-Muhsam & Havivi (1972), Husband (1980, 1985, 1986, 1989), Husband and Baker (1992).

**FEMALE** (Figs. 1, 2)- Gnathosoma length 59, width 56. Cheliceral stylets 53, pharynx width 38, stigmatal opening on process dorsolateral to base of gnathosoma. Idiosoma length 700-1740, width 392-802, with two distinct anterior lobes. No plates *C*, *D*, *EF*, *H* or idiosomal setae. Posteroventral folds near genital opening. As many as 32 eggs with larval females visible inside egg shells may be observed inside one female. One pair of legs. Pretarsus I without claw or sucker. Tarsus I with hook-like seta *s*, an opposing knob-like seta *pv*" and dorsal seta *tc*". Femur I seta *l'* length 8.

**MALE** (Figs. 3, 4)- Gnathosomal length 31-39, width 33-40, dorsal setae 8, ventral setae 6-11; pharynx width 8-12. Cheliceral stylets 17-18, with slight hook near apex.



Figs 1, 2. *Podapolipus komareki* Štorkán, 1927: 1 - female dorsum; 2 - female, gnathosoma and legs.

Idiosoma- Length 118-160, width 118-142. Idiosomal setae  $v_1$ ,  $v_2$  and  $sc_1$ ,  $m$  (= microsetae),  $sc_2$  45-54. Prodorsal shield narrows anteriorly. Aedeagus anterior to prodorsal plate, length 9-12, mid width 9-12. Setae  $c_1$  6-7,  $c_2$  5-6, setae  $d$  4-, plates  $C$ ,  $D$  fused. Venter with apodemes well developed, apodemes 1 meet at sternal apodeme, apodemes 2 not extending to sternal apodeme. Legs- Pretarsus I with 1 claw; II, III without claws. Solenidion *omega* 7-9, tibial solenidion *phi* 4-5. Femur I seta  $I'$  5-7,  $I''$  15-22. Genu II seta  $v_1$  4-5. Tibia I spine-like seta  $v'$  10-12, seta  $d$  25-32. Tarsus II seta  $pv'$  8-10. Tarsus III  $pv''$  18-20,  $pv'''$  7-8, seta  $tc''$  68-77, spine-like setae  $tc'$  5-6,  $u'$  8-10. Coxal plates I, II fused to each other, separate from fused coxal plates III;  $1a$  3-6,  $2a$  4-5,  $3b$  3-5. Leg setation for femur, genu, tibia, tarsus (including solenidia and spine-like setae); 3-1-6-8, 2-1-4-5, 0-1-4-5.

LARVAL FEMALE (Figs. 5, 6)- Gnathosomal length 40-63, width 45-66, dorsal setae 32-36, ventral setae 12-17, palp setae 4-7; pharynx width 9-12. Cheliceral stylets 36-45, twisted near apex and with slight hook.

Idiosoma- Length 140-160, width 117-134. Setae  $v_1$  3-4,  $v_2$  3-5,  $sc_2$  67-84. Plates  $C$  and  $D$  separate; setae  $c_1$  7-9,  $c_2$  5-7,  $d$  10-12,  $f$  3-4; distance between setae  $d$  24-28, between setae  $f$  30-31. Setae  $h_1$  150-157,  $h_2$  0. Ventral apodemes 1 meeting sternal apodeme medially. Coxae III separate, setae  $1a$  5,  $2a$  5-6,  $3b$  5-7. Legs- Leg setation as in male. Pretarsus I with 2 claws; II, III without claws. Femur I setae  $I'$  5-7,  $I''$  26-37,  $v''$  8-10. Tibia I solenidion *phi* 5. Tarsus I solenidion *omega* 8-10, seta  $tc'$  13-16,  $tc''$  16-18. Two pretarsal I claws. Tibia III seta  $d$  35-41, tarsus III seta  $tc'$  5-6,  $u'$  8,  $tc''$  63-68.

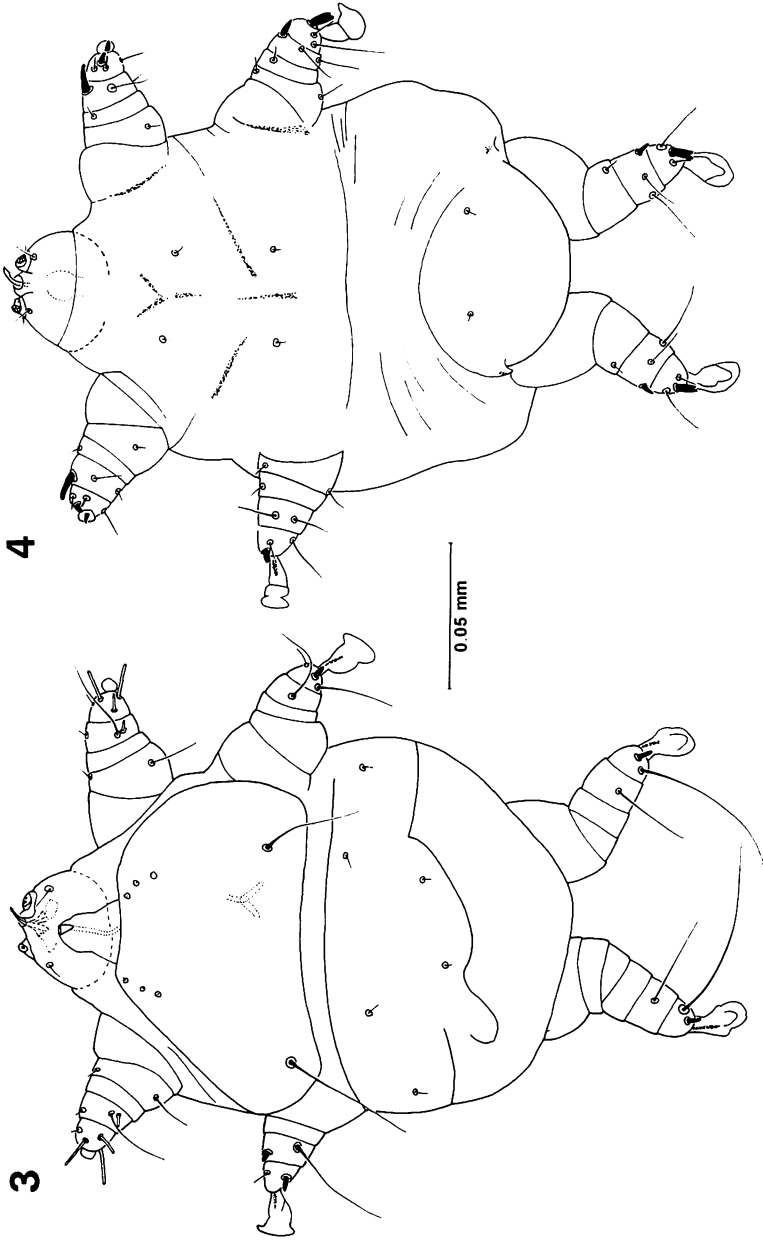
EGG- Length 168, width 112.

TYPE DATA: Lectotype larval female: Moravsky Svaty Jan (Slovakia, former Czechoslovakia), from under elytra of *Hylobius abietis* Linnaeus (Curculionidae) collected September 1926 by Julius Komárek. Deposited in the Snow Entomological Museum, University of Kansas, Lawrence, KS, U.S.A. (K.U. #1688-1). Paralectotypes: 14 males, 17 females, 54 larval females, same data as lectotype. Additional specimens examined; 8 females, 9 males, 8 larval females, 2 vials with *P. komareki* from *H. abietis*, Austria, Tyrol, Mendel Pass, 4400', coll. G.C.C., no date of collection. Three slides with paralectotypes (female, male, larva) and three with specimens from Austria (2 females, male) are housed at the Zoological Museum Hamburg (ZMH: Reg. No. A38/95 and A39/95, respectively).

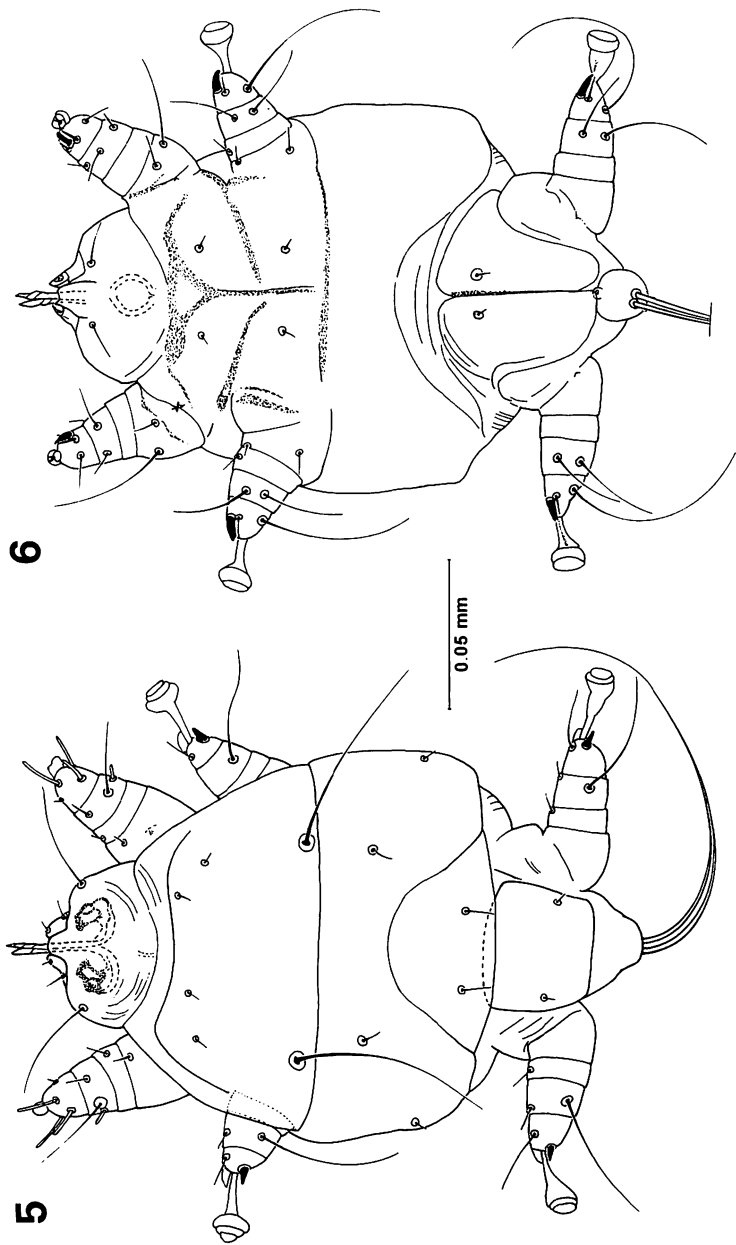
## Discussion

*Podapolipus reconditus* Rovelli & Grassi, 1888 was the first *Podapolipus* to be described. It is an ectoparasite of *Akis spinosa* (Coleoptera: Tenebrionidae). Twenty-one species have been described from Coleoptera (Tenebrionidae and Curculionidae), Orthoptera (Acrididae and Pyrgomorphidae) and Blattaria (Blaberidae). *Podapolipus komareki* is the only species of *Podapolipus* known to be parasitic on curculionid beetles.

*Podapolipus komareki* has characteristics of *Podapolipus* spp. described from beetles as defined by Husband (1980). Females have a pair of anterior idiosomal lobes, no idiosomal plates or setae, one pair of legs, tarsal seta  $s$  modified to form a claw, no sucker, a long femoral seta and cheliceral stylets not longer than the width of the gnathosoma. Female *P. komareki* have cheliceral stylets which exceed 50  $\mu\text{m}$  in contrast to stylets of 25-40  $\mu\text{m}$  in *Podapolipus* from tenebrionid beetles. Only one specimen of 8 specimens examined had stylets which were not broken. Husband (1980)



Figs 3, 4. *Podapolipus komareki* Štorkán, 1927: 3 - male, dorsum; 4 - male venter.



Figs 5, 6. *Podapolipus komareki* Štorkán, 1927: 5 - larval female, dorsum; 6 - larval female, venter.

was not correct in stating that female *P. komareki* lack femoral I setae nor in stating that males have divided prodorsal plates.

Male *P. komareki* have tibial I spine-like setae *v'* which are at least two times the length of tibial III setae *v'*. Males of *P. haramotoi* Husband, 1986 and *P. luzoni* Husband & Corpuz-Raros, 1989 also have long tibia I setae *v'* but European *Podapolipus* from tenebrionid beetles have shorter spine-like setae. Tibia III setae *d* are 32  $\mu\text{m}$  while tarsus III setae *tc''* exceed 70  $\mu\text{m}$ . This condition is similar to the condition in male *P. haramotoi*, *P. pacificus* and *P. luzoni*. These setae are nearly equal in *Podapolipus* from European tenebrionid beetles. *P. komareki* males do not have thin claws which are present in other *Podapolipus* from beetles. Tarsus III seta *pv'* is at least as long as the base of tarsus III in most *Podapolipus* spp.

Larval female *P. komareki* lack thin claws found on other *Podapolipus* from beetles. All *Podapolipus* lack seta *k* on tibia I. Cheliceral stylets of larval *P. komareki* are slightly hooked at apices and twisted distally as in Asian and American *Podapolipus* from beetles. Femoral II setae *l'* and *v''* are present in larval *P. komareki* as in other *Podapolipus* from beetles.

*Stigmacarus lukoschusi* Feldman-Muhsam & Havivi, 1977 was described from the same host as *P. komareki*, i.e. *Hylobius abietis*, collected in Italy. Additional *S. lukoschusi* and *P. komareki* have been collected from *H. abietis* in Tyrol, Austria. More than one genus of parasitic podapolipid mite on a given host species has been noted by Regenfuss (1968) and several others. The two mite genera differ in all stages and are not closely related.

### A c k n o w l e d g m e n t s

We are very appreciative of aid given by Dr. George Byers, University of Kansas, Lawrence, KS, U.S.A. Dr. Byers provided specimens, background information and comments on the manuscript.

### Z u s a m m e n f a s s u n g

Eine parasitische Milbe aus der Familie Podapolipidae, *Podapolipus komareki* Štorkán, 1927, wird wieder beschrieben und der Lectotypus designiert. Die Art wurde ursprünglich auf *Hylobius abietis* L. (Curculionidae) in Moravsky Svaty Jan (Slowakei) gefunden, ihr Typusmaterial galt bislang als verloren.

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