

TROUPEAUIA PODICIS, N. SP. (ACARINA : ACARIDAE)
FROM PAKISTAN

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A new (hypopus) species (*Troupeauia podicis*) has been collected and described from Pakistan alongwith a comprehensive key, similarity matrix and phenogram.

INTRODUCTION

The stored grain and stored product mites occupy a highly specialized biome. They are considered of great economic importance as they are reported to infest and damage stored grain and their derivatives of all kinds, bulbs, tubers and dry fruits, etc. Food products especially cereals are infested and contaminated by these mites after a definitive period of storage.

Zakhvatkin (1941) erected the genus *Troupeauia* and designated *Tyroglyphus novus* Oudemans, 1907 as type species. He described 3 species, including 1 new species, on the basis of hypopi and provided a key for these species. Later, Fain (1976) redescribed *Troupeauia nova* (Oudemans) from Belgium.

Now the authors have collected and described 1 new species from Pakistan, thus making a total of 4 species in this genus. Due to lack of descriptive information about one species, a key, similarity matrix and phenogram of only 3 species have been prepared.

KEY TO SPECIES OF GENUS *TROUPEAUIA* (Hypopi)

1. Body smooth; all body setae minute — — — *T. nva* (Oudemans)
Body not smooth; not all body setae minute — — — 2
2. Rostrum well-defined; gnathosoma
bifurcated, arista long; sternum 2
(st2) meeting apodeme 4 (ap4) — — — *T. crabronis*
Rostrum not well-defined; Zakhvatkin
gnathosoma rounded anteriorly,
no bifurcation. arista small;
sternum 2 (st2) meeting apodeme 4 (ap4) — — — — *T. podicis*, n. sp.

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RESULTS

HYPOPUS :

DORSUM : Body 161 μ long, 101 μ wide. Body divided into propodosomal and hysterosomal shields. Propodosomal shield smooth, 27 μ long, 83 μ wide with a small rostrum antero-medially; setae *vi*, *ve* each 1 pair, 5 μ and minute, respectively; setae *sce* absent, *sci* 1 pair, simple, 28 μ long. Hysterosomal shield 132 μ long, 101 μ wide, dotted, transverse, broken striations anteriorly, longitudinal, broken striations laterally and transverse posteriorly along margins; 9 pairs setae. Setae *d1* minute, *d2* minute; *d4* minute, *hi* minute; *he* minute; *lp1* and *lp2* minute; *sae* 20 μ ; *sai* 9 μ . Setae *d3* and *la* absent. Hysterosomal shield anterior margin overlapping propodosomal shield posterior margin up to 18 μ , overlapping area with transverse, broken striations (Fig. 1A).

VENTER : Gnathosoma with fused pedipalpi, single segmented, 17 μ long, narrow medially, broadly rounded anteriorly, pointed posteriorly, 1 pair small arista, only 7 μ long, 1 pair small setae placed at anterior end (Fig. 1C). Apodeme 1 (*ap1*) Y-shaped continuing with sternum 1 (*st1*). Sternum 1 (*st1*) free, 31 μ long, tip bifid. Apodeme 2 (*ap2*) straight with slight curve at tip, free. Apodeme 3 (*ap3*) meeting apodeme 4 (*ap4*). Apodemes 4 (*ap4*) meeting medially, forming a straight line. Apodeme 5 (*ap5*) originating from trochanter IV meeting trochanter III forming a closed area of coxal field III. Sternum 2 (*st2*) bifid, not meeting apodeme 4 (*ap4*) but meeting apodeme 5 (*ap5*) anteriorly and genital shield posteriorly, making a closed coxal field IV (Fig. 1D). Dotted area medially on either sides of apodeme 4 (*ap4*). Coxal fields I and II open, III and IV closed. Metasternal setae (*mts*) 1 pair, small, in coxal field IV. Sternal shield separated from ventral shield by apodeme 4 (*ap4*). Ventral shield separated from genital shield by slightly convex line. Genital shield smooth, genital slit elongated, elliptical, 1 pair genital suckers. Coxal discs *di1* and *di2* reduced. Genital disc (*gdi3*) very small, away from genital slit, paragenital seta (*pr*) mesiad to genital disc (*gdi3*). Seta *hv* absent. Suctorial shield, 45 μ long, 31 μ wide, posterior margin broadly convex with radial striations, anterior margin deeply concave, 1 pair anterior suckers with radial striations, 1 pair anal suckers with marginal radial striations, 1 pair lateral and 1 pair posterior suckers, 2 pairs vestigial suckers, lateral and posterior suckers of equal size (Fig. 1B).

LEGS : Strong and stout, I-IV measuring 54 μ , 44 μ , 33 μ and 33 μ in length, respectively (trochanter base to tarsus tip). Setae and solenidia on legs

I-IV segments : Coxae 0-0-0-0, trochanters 1-1-1-0, femora 1-1-0-1, genua 3-3-0-0, tibiae 3-3-2-2, tarsi. 11-7-6-7. Tarsi I and II 18 u and 18 μ long, respectively. Seta *vF* on femora I, II and IV 14 μ , 14 μ and minute, respectively, absent on femur III. Seta *e* on tarsi I-IV measuring 20 μ , 15 μ , 22 μ and 22 μ in length, respectively. *mG* on genua I and II lancet-like, each 5 μ ; *hT* on tibiae I and II lancet-like, each 8 μ . Seta 9 on genu I a solenidion, a small spine on genu II. Tarsi I and II each with a solenidion *wI* 7 μ each. Dorsal seta 9 on tibiae I and II 36 u and 20 u long, respectively. Seta *bx* simple, 13 μ long. Tarsi I-IV provided with 2 leaf-like + 1 cup-shaped; 2 leaf-like; 1 spoon-shaped; 1 spoon-shaped; 1 spoon-shaped setae, respectively (Fig. 1 B).

TYPE : Holotype hypopus and 7 paratypes, collected 30 km. S. Faisalabad (99/R.B.) from 'gram bhusa' (chaffed gram straw) on 20. ix. 1980 (Ashfaq and Chaudhri) and deposited in Acarology Research Laboratory, Department of Entomology, U.A.F.

REMARKS : This new species is closely related to *Troupeauia crabronis* Zakhvatkin but the following points separate them.

1. Rostrum well defined in *crabronis* but not well defined in this new species.
2. Gnathosoma bifurcated and terminating into a long arista in *crabronis* but rounded anteriorly and terminating into a small arista in this new species.
3. Sternum 2 (*st2*) meeting apodeme 4 (*ap4*) in case of *crabronis* but not meeting apodeme 4 (*ap4*) in this new species.
4. Apodeme 3 (*ap3*) not meeting apodeme 4 (*ap4*) in *crabronis* but meeting apodeme 4 (*ap4*) in this new species.
5. Suctorial shield posterior margin without radial striations in *crabronis* but with radial striations in this new species.

DISCUSSION

The phenogram of species of genus *Troupeauia* is presented in figure 2. Species *podicis* collected from 'gram bhusa' (chaffed gram straw) shows a phenetic similarity of 40% with *nova*, a species collected from wasp nest. This low magnitude of phenetic affinity evidently indicates a clear divergence of habitat adaptation. A still lower (30%) percentage of similarity between the taxa *crabronis* and the pair *podicis* and *nova* further indicate that the sample is rather aberrant and is not of substantial size to bring out more definitive associations.

Fig. 1

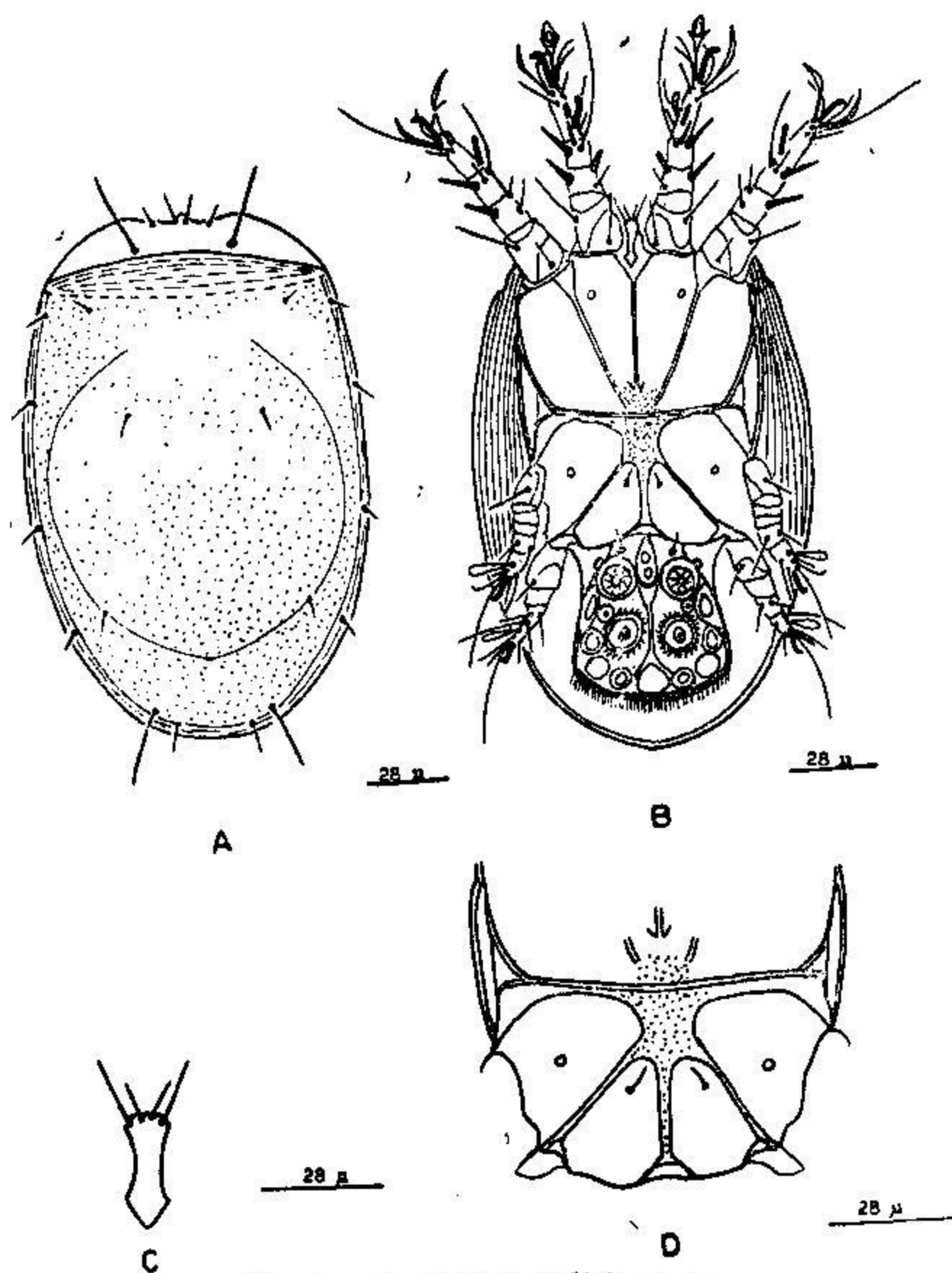


Fig. 1. *Troupeauia podicis*, n. sp.

A.....Dorsal side.
C.....Gnathosoma.

B.....Ventral side.
D.....Coxal apodemes

Table I. *Comparison of characters in species of genus Troupeauia Zakhvatkin*

CHARACTERS	<i>nova</i>	<i>crabronis</i>	<i>podicis</i>
Idiosoma L : B = 1.6 : 1	+	—	+
Propodosoma smooth	+	—	+
Hysterosoma smooth	+	—	—
Hysterosomal setae minute	+	—	—
Hysterosomal shield overlapping propodosomal shield	+	—	+
Gnathosoma bifurcated distally	—	+	—
Gnathosoma with a long arista	+	+	—
Gnathosomal setae placed in middle of gnathosomal length	+	—	—
Sternum 1 (<i>st 1</i>) bifid posteriorly	—	—	+
Sternum 2 (<i>st 2</i>) meeting apodeme 4 (<i>ap4</i>)	+	+	—
Apodeme 2 (<i>ap2</i>) S-shaped	÷	—	—
Apodeme 3 (<i>ap3</i>) meeting apodeme 4 (<i>ap4</i>)	+	—	+
Ventral shield not separated from genital shield	+	—	—
Suctorial shield posterior margin without radial striations	+	+	—
Suctorial shield . . . posterior and lateral suckers of equal sizes	+	—	+
Metasternal seta present	+	—	+
Metasternal seta in coxal field III	+	—	+
Genital slit elliptical in shape	—	—	+
Seta <i>ba</i> thickened distally	+	—	—
Seta ϕ on tibia I = sensory rod of tarsus I	—	+	—

Table II. *Matrix showing percentage of similarity in species of genus Troupeauia Zakhvatkin*

	<i>nova</i>	<i>crabronis</i>	<i>podicis</i>
<i>nova</i>	XX		
<i>crabronis</i>	25	XX	
<i>podicis</i>	40	35	XX

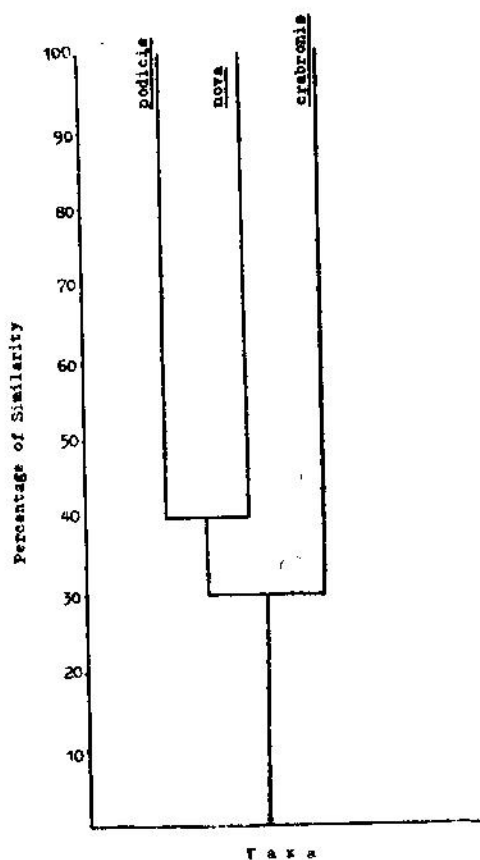


Fig. 2. Phenogram of species of genus *Troupeauia* Zakhvatkin

The only conclusion that could possibly be drawn from such a low levelled phenogram would be that the taxa are plesiomorphic but removed from ancestral lineage.

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