TWO NEW SPECIES OF GENUS *ACAROPSIS* (ACARINA : CHEYLETIDAE) FROM PAKISTAN

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TAXONOMY ABSTRACT : Two new species of the genus *Acaropsis* viz., *A. vitrus* and *A. platessa* have been described from Pakistan.

TAXONOMIE RÉSUMÉ : Deux nouvelles espèces d'*Acaropsis, A. Vitrus* n. sp. et *A. platessa* n. sp., originaires du Pakistan, sont décrites.

Genus *Acaropsis* was erected by MOQUIN-TANDON in 1863 and *Tyroglyphus mericourti* Lab., 1851 designated as its type- species. The species of this genus are predatory in nature and feed on harmful mites and small insects (SUMMERS and PRICE, 1970).

BAKER (1949) included 7 species in this genus. SUMMERS and PRICE (1970) reviewed the family Cheyletidae. They retained *mericourti, docta, sollers*, and *rufus* in this genus, transferred *kulagini* and *travisi* to other genera and synonymised *callida* with *sollers*. They provided key for 3 species but could not include *rufus* in this key due to lack of information. CORPUZ-RAROS and SOTTO (1977) described a new species in this genus. QAYYUM and CHAUDHRI (1979), RASOOL, CHAUDHRI and AKBAR (1980), AKBAR, RAHI and CHAUDHRI (1988) described 3, 1 and 1 new species in this genus from Pakistan.

Two new species described by the present authors in this genus from Pakistan make a total of 12 species and out these, 7 species are from Pakistan. A key for species from Pakistan and descriptions, of 2 new species, alongwith similarity matrix and phenogram are given in this research paper.

KEY TO SPECIES OF GENUS *ACAROPSIS* FROM PAKISTAN
(Females)

1. Dorsal setae 18 pairs .... *A. opsis* Rasool *et al.*
   Dorsal setae less than 18 pairs 2
2. Dorsal setae 17 pairs 3
   Dorsal setae 16 pairs 5
3. Palp claw with 2 basal teeth .... *A. orbis* Qayyum and Chaudhri
   Palp claw with 3 basal teeth 4
4. Peritreme with 5 links on each side .... *A. porta* Qayyum and Chaudhri
   Peritreme with 6 links on each side... ***A. vitrus*** n. sp.
5. Peritreme with 8 links on each side .... *A. clamo* Qayyum and Chaudhri
   Peritreme with 7 links on each side 6
6. Outer comb with 12 teeth; coxae II-IV with 1-2-2 setae; femur IV with 1 seta .. ***A. platessa***, n. sp.
   Outer comb with 14 teeth; coxae II-IV with 2-1-1 setae; femur IV without seta .... *A. shorkotiensis* Akbar *et al.*

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1. **Acaropsis vitrus**, new species
(Fig. 1 A-E)

FEMALE : Body 541 μm long (without gnathosoma), 343 μm wide. Stylophore with broken, longitudinal striations, 182 μm long. Palp tarsus outer comb-like seta with 17 teeth. Seta corresponding to inner comb of other genera is acicular, pointed, without teeth or fine barbs. Superior adoral setae 1 pair, 26 μm long, inferior adoral setae 1 pair, 39 μm long, superior longer than inferior adoral seta by 13 μm. Palp-claw with 3 basal teeth. Peritreme with 6 links on each side (Fig. 1 B). Two dorsal body shields, propodosomal and hysterosomal, with dim broken striations. Eyes, 1 on each side, not encircled by concentric striations. Dorsal setae 17 pairs including 1 pair humeral setae; setae narrow, spatulate, barbed (Fig. 1 E). Humeral seta long, acicular, barbed. Propodosomal shield trapezoidal, 5 pairs marginal and 3 pairs median setae. Hysterosomal shield with 5 pairs marginal and 1 pair median setae. Remaining 3 pairs, includind 1 pair humeral setae, on membrane, each on a separate platelet (Fig. 1 A).

Legs I-IV measuring 354 μm, 260 μm, 270 μm, and 312 μm in length, respectively. Length ratio : leg I/idiosoma = 0.7. Setae and solenidia on legs I-IV segments : Coxae 2-1-2-2, trochanters 1-1-2-1, femora 2-2-2-1, genua 3-2-2-2, tibiae 6-5-4-4, tarsi 9-8-7-7. Solenidion *wi* on tarsus I 39 μm long; guard seta not observed. Ventral seta 52 μm long, serrated (Fig. 1 C). Pre-genital and genital setae 2 pairs and 3 pairs, respectively. Anal setae 3 pairs, outer simple, 2 inner serrated (Fig. 1 D).

MALE : Not known.

Type : Holotype female, collected 2 km. N. Sialkot from wheat sample, *Triticum aestivum*, on 8.IX.1982 (AHEER, AKBAR & CHAUDHRI) and deposited in Acarology Research Laboratory, Department of Agri. Entomology, University of Agriculture, Faisalabad, Pakistan.

Remarks : This new species *Acaropsis vitrus* comes closer to *Acaropsis porta* Qayyum and Chaudhri but can be separated due to the following points :

1. Peritreme with 5 links in *porta* but 6 links on each side in this new species.

2 Propodosomal shield with 4 pairs marginal setae in *porta* as against 5 pairs in this new species.

3. Hysterosomal shield 2 pairs marginal setae in *porta* but 5 pairs in this new species.

4. Dorsal setae 4 pairs on membrane in *porta* whereas 3 pairs on membrane in this new species.

2. **Acaropsis platessa**, new species
(Fig. 2 A-E)

FEMALE : Body 530 μm long (without gnathosoma), 374 μm wide. Stylophore with broken, longitudinal striations, 171 μm long. Palp tarsus outer comb-like setae with 12 teeth. Seta corresponding to inner comb of other genera is acicular, pointed without teeth or fine barbs. Superior adoral setae 1 pair, 36 μm long, inferior adoral setae 1 pair, 55 μm long, superior longer than inferior by 19 μm. Palp-claw with 3 basal teeth. Peritreme with 7 links on each side (Fig. 2 B). Two dorsal body shields, propodosomal and hysterosomal, with broken striations. Eyes, 1 on each side, not encircled by concentric striations. Dorsal setae 16 pairs including 1 pair humeral setae, narrow, spatulate, barbed (Fig. 2 E). Humeral seta long, acicular, barbed. Propodosomal shield trapezoidal with broken, dim striations, 5 pairs marginal and 2 pairs median setae. Hysterosomal shield with broken striations, 4 pairs marginal and 2 pairs median setae. Remaining 3 pairs setae including humeral seta and 1 pair visible pores on membrane, each seta on a separate platelet (Fig. 2 A).

Legs I-IV measuring 312 μm, 239 μm, 260 μm and 312 μm in length, respectively. Length ratio : leg I/idiosoma = 0.6. Setae and solenidia on legs I-IV segments : Coxae 2-1-2-2, trochanters 1-1-2-1, femora 2-2-2-1, genua 3-2-2-2, tibia 6-5-4-4, tarsi 9-8-7-7. Solenidion *wi* on tarsus I 39 μm long ; guard seta not observed. Ventral seta 55 μm long, serrate (Fig. 2 C). Pre-genital and genital setae 2 pairs and 3 pairs, respectively. Anal setae 3 pairs, outer simple, 2 inner serrated (Fig. 2 D).

MALE : Not known.

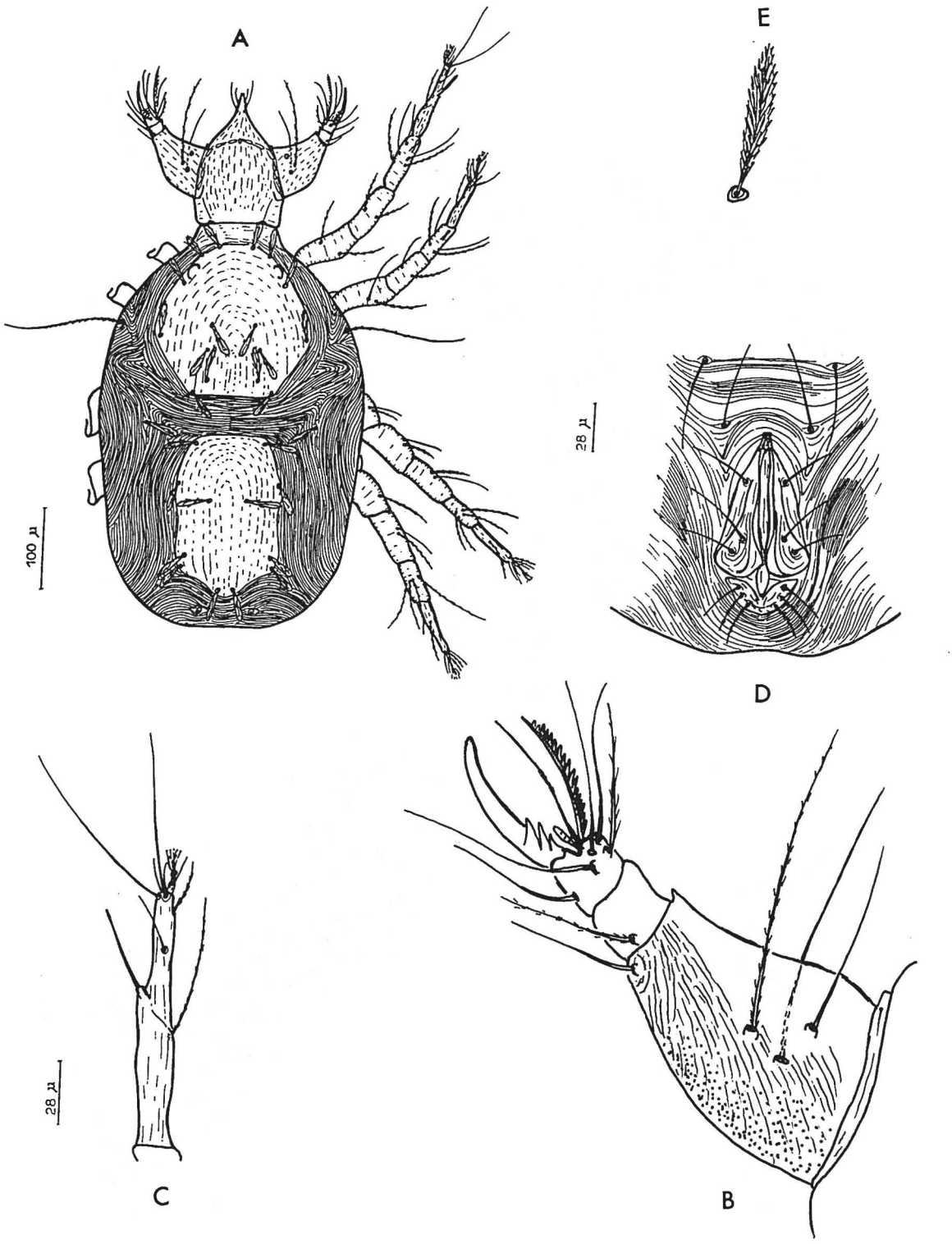

FIG. 1 : *Acaropsis vitrus* n. sp.
A. — Dorsal side. B. — Pedipalp. C. — Tarsus I. D. — Genito-anal region. E. — Dorsal seta.

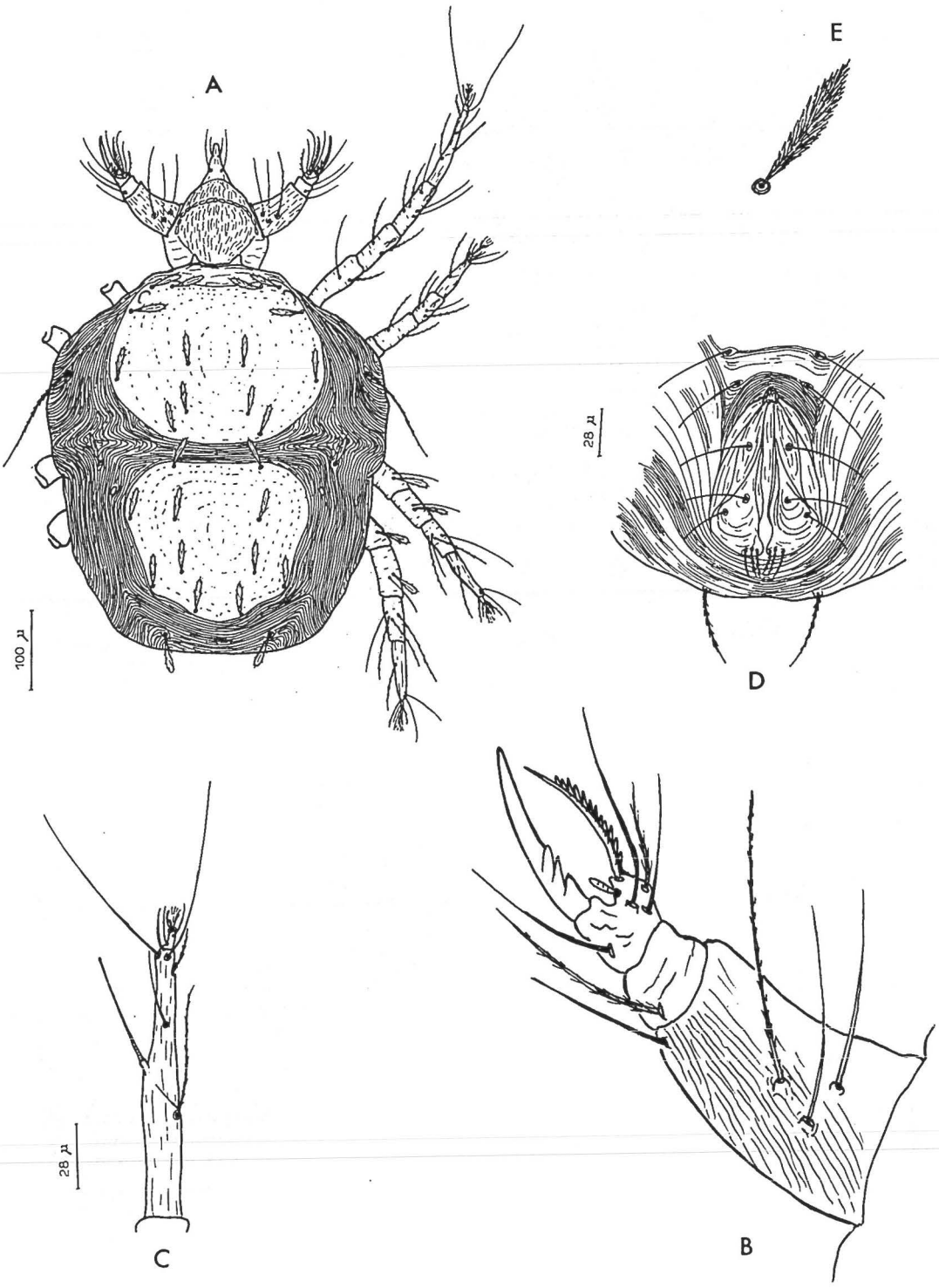

FIG. 2 : *Acaropsis platessa* n. sp.
A. — Dorsal side. B. — Pedipalp. C. — Tarsus I. D. — Genito-anal region. E. — Dorsal seta.

Type : Holotype female, collected 1 km. E. Qutabpur from wheat sample, *Triticum aestivum* on 20.x.1982 (AHEER, AKBAR & CHAUDHRI) and deposited in Acarology Research Laboratory, Department of Agri. Entomology, University of Agriculture, Faisalabad, Pakistan.

Remarks : This new species *Acaropsis platessa* comes closer to *Acaropsis clamo* Qayyum and Chaudhri but the following points separate them :

1. Peritreme with 8 links on each side in *clamo* but 7 links in this new species.
2. Dorsal setae 4 pairs on membrane in *clamo* but 3 pairs on membrane in this new species.
3. Outer comb with 14 teeth in *clamo* but 12 teeth in this new species.
4. Hysterosomal shield with 2 pairs marginal and 3 pairs median setae in *clamo* as against 4 pairs and 2 pairs, respectively, in this new species.

DISCUSSION

The phenogram (Tables I, II and Fig. 3) of species of the genus *Acaropsis* depicts the highest similarity (85.71 %) between the species pairs *platessa-shorkotiensis* whereas species *vitrus* join this pair at 57.14 % level of affinity. The species *porta-clamo* and *orbis-opsis*, in pairs, show the affinities of 78.51 % and 64.29 %, respectively among the component species of the pairs.

The species *platessa* collected from divergent ecological habitant of Sialkot (sub-mountaneous) and Qutabpur (arid plains) yet show a high affinity, with *shorkotiensis* also from arid plains of Pakistan, which could be attributed to the occurrence of generic characters. The joining of *vitrus* to this pair could be an attribute of similar ecological habitats they dwell. The species *clamo* although from Charrapani (3 500', Murree Hills) yet shows a high affinity (78.51 %) with *porta*, from arid plains

TABLE I. — Comparison of characters in species of genus *Acaropsis* Moquin-Tandon.

CHARACTERS	*orbis*	*porta*	*clamo*	*vitrus*	*platessa*	*opsis*	*shorkotiensis*
1. Palp claw with 2 teeth	+	–	–	–	–	+	–
2. Outer comb with 15 teeth	+	+	–	–	–	–	–
3. Peritreme with 6 links	+	–	–	+	–	+	–
4. Dorsal shields smooth	+	+	+	–	–	+	+
5. Dorsal setae 17 pairs	+	+	–	+	–	–	–
6. Propodosomal shield setae 7 pairs	+	+	+	–	+	–	+
7. Propodosomal shield median setae 3 pairs	+	+	+	+	–	–	–
8. Propodosomal shield lateral setae 4 pairs	+	+	+	–	–	+	–
9. Hysterosomal shield median setae 2 pairs	+	–	–	–	+	+	+
10. Hysterosomal shield lateral setae 2 pairs	–	+	+	–	–	–	–
11. 4 pairs setae on membrane	+	+	+	–	–	+	–
12. Tarsi I-IV with 9-8-7-7 setae	+	+	+	+	+	–	–
13. Paragenital setae 1 pair	+	+	+	–	–	+	–
14. Anal setae all serrated	–	–	+	–	–	–	–

TABLE II. — Matrix showing percentage of similarity in species of genus *Acaropsis* Moquin-Tandon.

	orbis	*porta*	*clamo*	*vitrus*	*platessa*	*opsis*	*Shorkotiensis*
orbis	XX						
porta	71.42	XX					
clamo	50.00	78.57	XX				
vitrus	42.86	42.86	35.72	XX			
platessa	35.72	35.72	42.86	64.29	XX		
opsis	64.29	35.72	42.86	35.72	42.86	XX	
shorkotiensis	35.72	35.72	42.86	50.00	85.71	57.11	XX

(Gujranwala). Similarly the species *orbis* though a dweller of plain areas yet exhibits 64.29 % affinity with *opsis* from Behrain 4 000', Swat Valley.

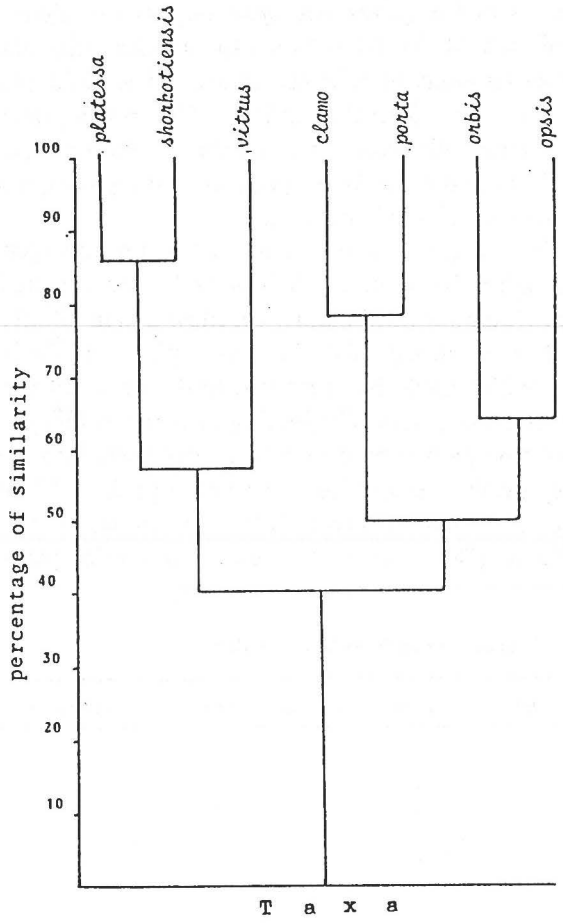

FIG. 3 : Phenogram of species of genus *Acaropsis* Moquin-Tandon.

The inference which could be drawn from the affinities is that the ability of the species of this genus to adapt to different ecological habitats yet sharing of numerous characters, reflect the adaptive amplitude of the species of this genus to diverse climatic conditions and occurrence of stable generic characters in the members.

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