

## A NEW SPECIES OF *ASIOPSOCUS* FROM PUEBLA, MEXICO (PSOCOPTERA: ASIOPSOCIDAE)

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### RESUMEN

Se describe e ilustra en este trabajo la nueva especie *Asiopsocus tehuacanus*. Constituye la cuarta especie que se conoce en el género, diferenciándose de las demás en detalles genitales de ambos sexos. Es la segunda especie de *Asiopsocus* registrada en México.

**Palabras Clave:** *Asiopsocus*, Puebla, México, Nueva especie.

### ABSTRACT

The new species *Asiopsocus tehuacanus* is described and illustrated. It is the fourth species known in the genus; it differs from the other three in genitalic details of both sexes. It is the second species of *Asiopsocus* recorded in México.

**Key Words:** *Asiopsocus*, Puebla, México, New species.

### INTRODUCTION

The species of *Asiopsocus* are strongly disjunct; the genus was erected to include a Mongolian species (*A. mongolicus* Günther, 1968), then Mockford & García Aldrete, 1976, described a second species that occurs in NW Mexico and SW U.S.A. (*Asiopsocus sonorensis*), and Lienhard (1981) described *A. meridionalis* from central Spain, and posteriorly recorded the same species from Oman (Lienhard, 1990). The purpose of this paper is to describe a fourth species of *Asiopsocus*, collected in the Valley of Tehuacán, Puebla, in southern México, a semiarid area, with high levels of endemism for plants, some 1800 km apart from the type locality of *A. sonorensis*, also a semiarid area near Nogales, Sonora. The situation that emerges from this distribution is that of two palearctic species (*A. mongolicus* and *A. meridionalis*) and two nearctic species (*A. sonorensis* and the described in this paper). The specimens for microscopic study were dissected in 80% alcohol and their parts were mounted in Euparal. Measurements of parts mounted were taken with a filar micrometer whose measuring unit is 1.36 microns for wings and 0.53 microns for other parts. Abbreviations for parts measured are

the following: FW: fore wing; HW: hind wing; F: femur; T: tibia; t1, t2: tarsomeres 1, 2; stt1: setae on t1; P4 : fourth segment of maxillary palp; f1... f10: flagellomeres 1...10; IO: minimum distance between compound eyes; D: antero-posterior diameter of compound eye; d: transverse diameter of compound eye; PO: d/D. The types are deposited in the Insect Collection, Zoology Department, Instituto de Biología, UNAM.

***Asiopsocus tehuacanus* n. sp.**

(Figs. 1-10)

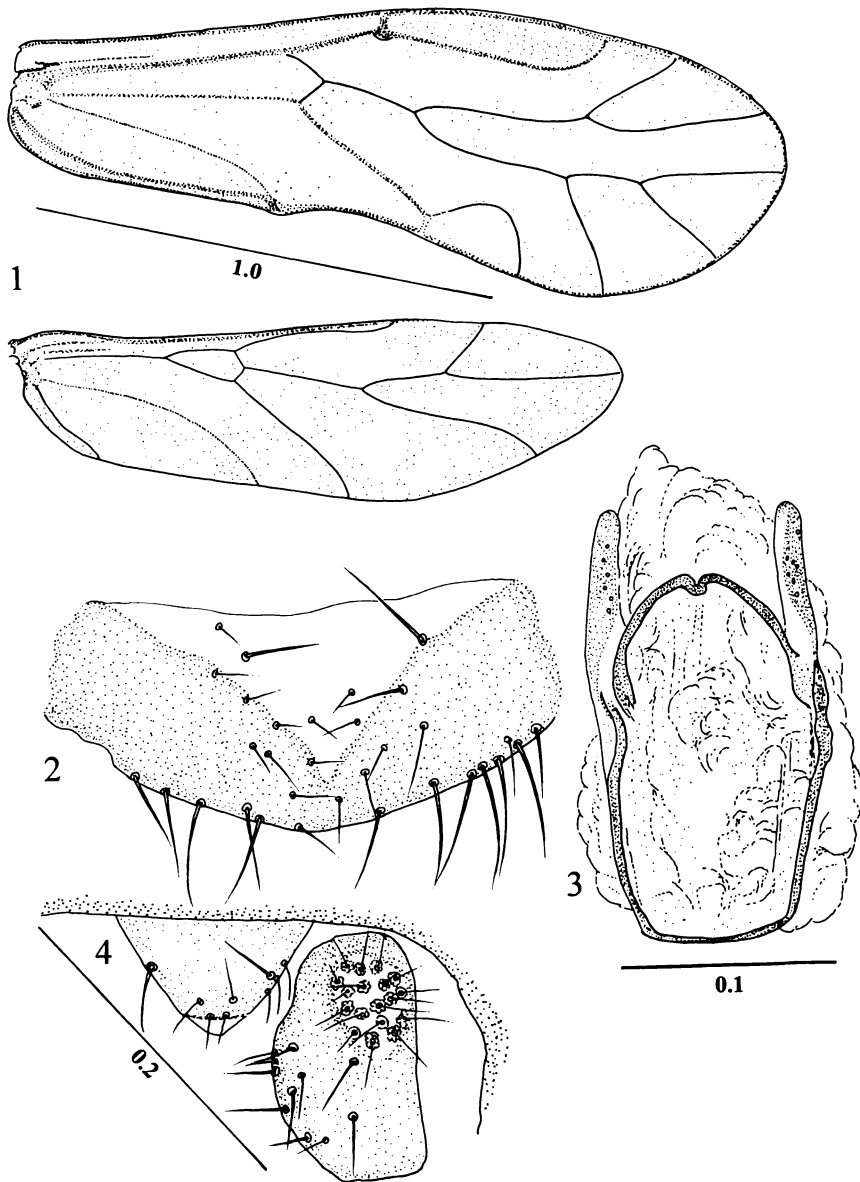
**Description.**

**Female:** Color (in 80% alcohol). Body pale brown, compound eyes black, ocellar spots dark brown. Antennae and maxillary palpi brown. Abdomen dorsally beset with rounded, white subcuticular plaques.

**Morphology** ♀. General body shape essentially as described for *A. meridionalis*, *A. mongolicus* and *A. sonorensis*: apterous and with globose abdomen. Fore and hind wings indicated by outpocketings of meso and metaterga. Ocelli indicated by three minute pigment spots. Lacinal tip as illustrated in Fig. 5. Pigmented bands of labrum (Fig. 6) slightly extended mesally on posterior ends (in the male, the two bands connected posteriorly). Subgenital plate (Fig. 8) rounded posteriorly, setose; pigmented arms as illustrated. Gonapophyses (Fig. 10) reduced to one pair of valvulae, possibly v2 + v3. Spermatheca (Fig. 7) round, small (duct not discernible), spermapore with broad pigmented rim (Fig. 7). Epiproct (Fig. 9) broad, setose, straight anteriorly, posteriorly rounded. Paraprocts (Fig. 9), elongate, setose as illustrated; sensory fields with four trichobothria on weakly defined basal rosettes.

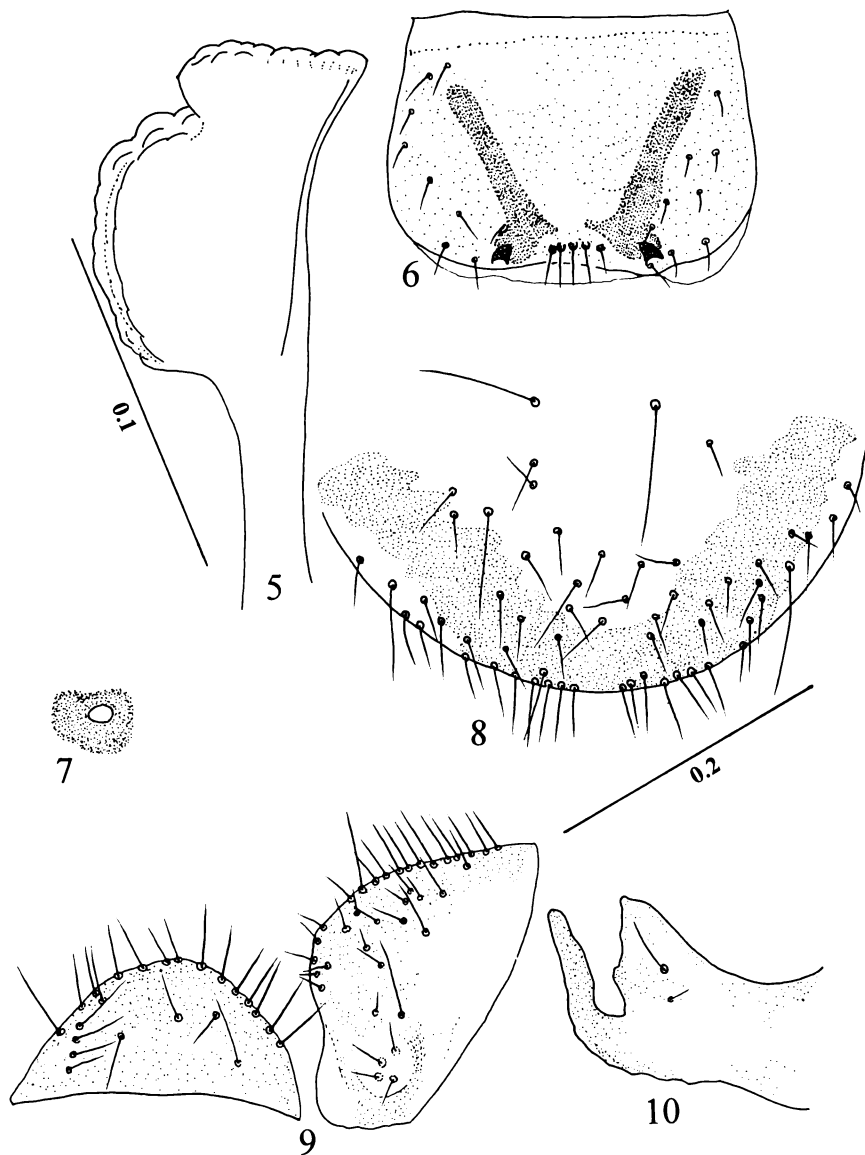
**Measurements.**(in microns): F: 359; T: 567; t1: 178; t2: 90; stt1: 14; P4: 111; f1: 144; f2: 122; f3: 120; f4: 106; f5: 69; f6: 80; f7: 63; f8: 71; f9: 61, f10: 63; IO: 336; D: 106; d: 78; IO/D: 316; PO: 073.

**Male.** Color (in 80% alcohol). Body pale brown. Compound eyes black, ocellar interval dark brown. A slender brown band between each compound eye and ocellar group. Antennae brown. Maxillary palpi and legs pale brown. Meso and metathorax brown with tergal lobes slightly darker. Pleural sulci reddish brown, well defined. Wings hyaline, veins brown. Abdomen creamy white. Genital segments brown.



Figures 1-4

*Asiopsocus tehuacanus* n. sp. Male. 1) Fore and hind wings; 2) Hypandrium; 3) Phallosome; 4) Epiproct and right paraproct. Figs. 2 and 4 same scale. Scale in mm.



**Figures 5-10**

*Asiopsocus tehuacanus* n. sp. Female. 5) Posterior end of lacinia; 6) Labrum and surrounding pigmented area; 7) Spermapore; 8) Subgenital plate; 9) Epipect and left paraproct; 10) Gonapophyses. Figs. 6, 7, 9 and 10 to scale of Fig. 8. Scales in mm.

**Morphology** ♂. Wings (Fig. 1) slender. Pterostigma of fore wing elongate, R-M fusion long. Areola postica small. Hind wing as illustrated. Hypandrium (Fig. 2) broad, setose, pigmented area as illustrated. Phallosoma closed (Fig. 3); lateral parameres apically blunt; aedeagal arch slightly concave in the middle; endophallus as illustrated. Epiproct (Fig. 4) approximately conical in outline, setae on distal half. Paraprocts (Fig. 4) broad, slightly elongate, setose; large sensory fields with 18-19 trichobothria on weakly defined basal rosettes.

**Measurements.** (in microns): FW: 1667; HW: 1303; F: 380; T: 674; t1: 220; t2: 90; stt1: 15; P4: 113; f1: 328; f2: 289; f3: 265; f4: 197; IO: 238; D: 115; d: 86; IO/D: 2.06; PO: 0.74.

**Type Locality.** MEXICO: Puebla. 500m of Salinas las Chiquitas, km. 25, Hwy. Tehuacán-Huajuapán, 1300 m, 22. II. 1995, on trunk of *Bursera* sp., J. A. Casasola, holotype ♂, allotype ♀. Same locality, 19. IV. 1995, beating branches of *Bursera* sp., J. A. Casasola, paratype ♀, 1 nymph.

#### KEY TO THE SPECIES OF *ASIOPSOCUS*

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|----|--|--|
| 1  | Closed cell R-M-Cu on anterior half of hindwing large; aedeagal arch pointed, apex convex . . . . .  | 2  |
| 1' | Closed cell R-M-Cu on anterior half of hind wing small; aedeagal arch rounded, apex concave (Valley of Tehuacán, Puebla, México). . . . .  |  |
|    | . . . . . <i>Asiopsocus tehuacanus</i> n. sp.  |  |
| 2  | External parameres slightly curved inwards, slightly exceeding apex of aedeagal arch; endophallus small, not reaching anterior end of phallosome. . . . .                          | 3  |
| 2' | External parameres decidedly curved outwards, considerably exceeding the apex of the aedeagal arch; endophallus large, reaching anterior end of phallosome (Spain, Oman) . . . . . | <i>A. meridionalis</i> Lienhard                |
| 3  | Lacinial tip bearing a series of rounded denticles; pretarsal claw with a slender pulvillus; base of claw with a few microsetae (Northern Sonora, southern Arizona) . . . . .      | <i>A. sonorensis</i> Mockford & García Aldrete |
| 3' | Lacinial tip without a series of rounded denticles; pretarsal claw without a pulvillus; base of claw without microsetae (Mongolia) . . . . .                                       | <i>A. mongolicus</i> Günther                   |

#### DISCUSSION

*Asiopsocus tehuacanus* differs from the other species in the genus in that the aedeagal arch is unique, being wide and with a small median concavity (the arch is sharp angled and without an apical concavity in the other species). Another conspicuous difference is the rather small size of the closed cell in the proximal

half of the hind wing in *A. tehuacanus*; this cell is large and elongate in the other three species. The females of the four species of *Asiopsocus* have the same general facies: apterous and with a globose abdomen, showing also characters associated with neoteny, such as reduction in ocellar size, reduction or absence of paraproctal sensory fields, and reduction in the ovipositor valvulae. *A. meridionalis* and *A. mongolicus* have two pair of valvulae, and *A. sonorensis* and *A. tehuacanus* have the valvulae reduced to one pair. *A. meridionalis* lacks sensory fields in the paraprocts, while in *A. mongolicus* the sensoria have four small setae on weakly defined basal rosettes plus a large setae without basal rosette. In *A. sonorensis* there are two setae in the sensoria, while *A. tehuacanus* shows four small setae in the sensoria.

The phylogeny and the geographic distribution of Asiopsocidae have been dealt with by Mockford (1983); and it is briefly outlined as follows: the family consists of the genera *Pronotiopsocus*, known only from Amazonian Brazil, *Notiopsocus*, of neotropical and tropical African distribution (with one species in southern Florida), and *Asiopsocus*, presenting a bizarre distribution, with one species in Mongolia, one in Spain and Oman (palearctic), one in northern Sonora - southern Arizona, and one in southwestern Puebla (nearctic). In this scheme, *Pronotiopsocus* constitutes one lineage, and *Asiopsocus* - *Notiopsocus* represent its sister line. Following Mockford (1983), "The distribution of *Asiopsocus* suggests great antiquity. Its relationship to *Notiopsocus*... suggests origin as the northern vicariant in the... event which led to fragmentation of the common ancestor of those 2 genera. If this event coincided with the break up of Pangaea, one can presumably place it in time as... 203-192 my BP". The above thus provides an adequate explanation for the present distribution of the species of *Asiopsocus*. Mockford (1983) further indicates that the presence of *Notiopsocus* in México and southern Florida is probably explainable as part of a post-Pleistocene invasion of tropical South American insect species into southern North America.

#### ACKNOWLEDGEMENTS

This work was carried out during an undergraduate research seminar in the UAM-Iztapalapa directed by the first author and by Ma. del Carmen Herrera. We wish to thank José Alejandro Zavala, Pedro Luis Valverde and Fernando Vite of the Biology Department, UAM-Iztapalapa for their valuable help and support during the period of field work in Zapotitlán Salinas, Puebla (Valley of Tehuacán).

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*Received: June 16, 1995*

*Accepted: October 6, 1995*