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A NEW SPECIES OF *ACHETA* F., *A. KHANPURENSIS* (ORTHOPTERA: GRYLLIDAE)WITH SPECIAL REFERENCE TO ITS TEGMEN AND MALE GENITALIA FROM KHANPUR, PUNJAB, PAKISTAN

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ABSTRACT

A new species of *Acheta* F. is described from Khanpur, Punjab Pakistan with special reference to its tegmen and male genitalia. Earlier, only the cosmopolitan species, the common house cricket *Acheta domesticus* (L.) was known from Pakistan. The tegmen and male genital components of the new species are compared here not only with that of *A. domesticus* but also with its allies from Asia as noted under introduction.

Key-words: *Acheta khanpurensis* n.sp., male genitalia, tegmen, Khanpur, Punjab, Pakistan

INTRODUCTION

Khalifa (1950) stated that *Aceta domesticus* (L.) from Asia became cosmopolitan. *A. domesticus* (L.) in Europe was considered as native but Ghouri (1961) discussed the origin of *Acheta* from Africa or South eastern Asia. Twenty Seven names of American *Acheta* are available almost entirely on the basis of their morphological characters (Rehn and Heberd 1915). Randell (1964) classified the genus *Acheta* on the basis of the size of spermatophore and stated that the genital components are equally distinctive.

The external morphology of male genitalia of Orthoptera was described in detail by Snodgrass (1935), Tuxen (1956) and Chopard (1969).

Alexander (1957) redescribed the taxonomy of different species of *Acheta*. Gorochov (1993) worked on 9 species of the genus *Acheta* on the basis of their tegmen and genital components from Saudi Arabia, in which fivetaxa were described as new species.

Recently Ahmad and Khan (2015) redescribed *A. Domesticus* from Pakistan with reference to its tegmen including venation and male genital components.

MATERIALS AND METHODS

A. kharpurensis were collected from different areas of Khanpur, Punjab with the help of sweeping net and light trap techniques in different crop and grassy fields. To study its dorsal region the whole specimen was softened, using a desiccator and later starched and pinned properly. Photographs were taken with the help of Nikon cool Pix 5400 digital camera. To study the tegmen and genitalia the specimen was boiled in 10% KOH solution for 5 minutes. Then it was washed with water and its tegmen was detached from thoracic region with the help of fine forceps, later mounted on a clean slide with a cover slip. Male genitalia was dissected from the abdominal region and placed on a cotton thread for taking photographs, immersed in glycerin with the help of the above camera. The structures were preserved with glycerin in a micro vial.

The identification of the present taxon was confirmed by the courtesy of Dr. Libin Ma, Northeast Normal University, Changchun, China.

Material Examined:

Holotype Pakistan, Punjab; Khanpur, on grass, 24-03-2012, leg, Abdul Majeed, deposited in BMNH, London. Paratypes 10 ♂♂, 16 ♀♀, other data same as holotype; lodged in authors' collection and BMNH, London.

RESULTS

Colouration: (Fig. 1) General body colour blackish brown. Head blackish with a few brown vertical stripes on its occiput. One brown band was present at its frontal rostrum.

Tegmen: (Fig. 2) Apical field with seven rows of cells, apical margin round with one diagonal vein, median, straight, joining to chord by five short cross veins. Chords four, 1st and 2nd round, 3rd curved, 4th straight. Five oblique veins complete, round at middle, starting near basal end of stridulatory file. Lateral field having eight sub-cubital veins, regular, straight with equal distance. Mirror of large size, rectangular, divided by a curved vein, forming one large quadrate cell, covering ½ of mirror region. Diagonal vein long, joining to chord by five short cross veins. Three median veins, joining each other at anterior region, two cubital veins present, parallel to each, having equal distance, unbranched.

Fig.. 1. Entire dorsal view of *Acheta khanpurensis* n.sp.

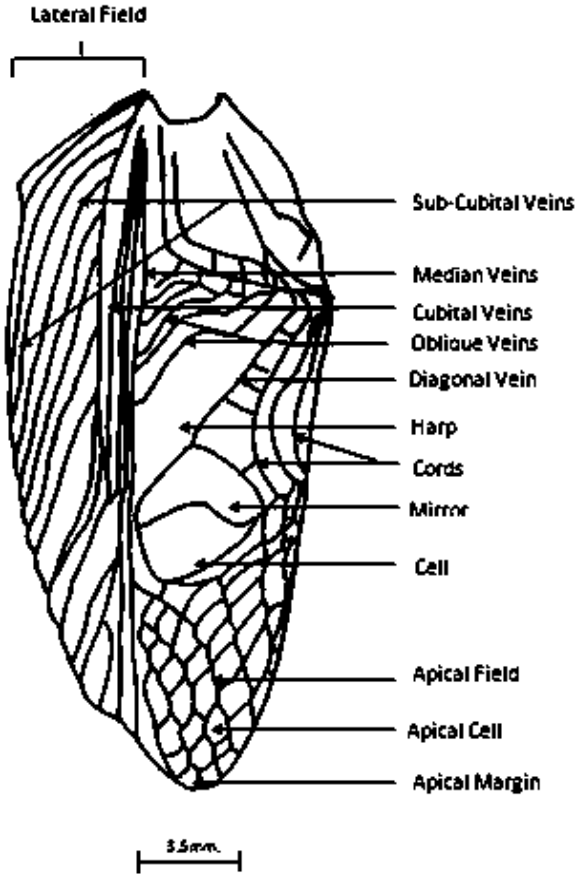

Fig.. 2.Tegmen.

Male Genitalia: (Figs. 3-5)

Epiphallus: In dorsal aspect almost rectangular in shape, longer than broad. Anterior border round at middle, lateral lobes broad and round.

Ectoparameres: Narrow, elongate, apical margins broad, bifurcate. Two long spine-like structures present at apical margin. At basal region divided into two projections, external anterior projection short, stout and broad. Whereas internal anterior projection long, narrow and soft. Endoparameres almost circular in shape through lateral view.

Spermatophore: Small, sac- like, rami narrow and curled in structure, slightly broad at base.

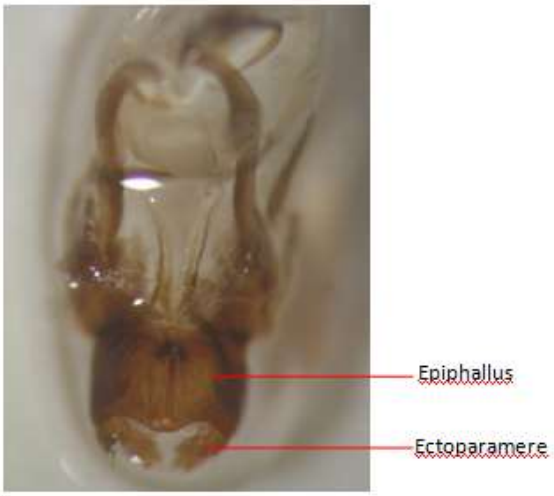

Fig. 3 *Acheta khanpurensis*n.sp.Male Genitalia, dorsal view.

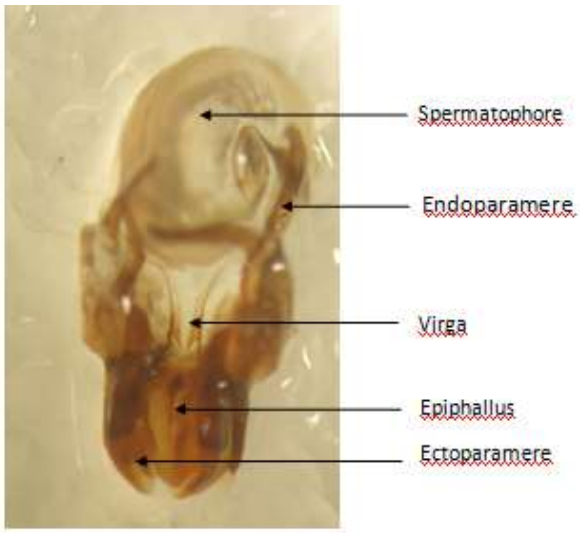

Fig. 4 *A. khanpurensis*, ventral view.

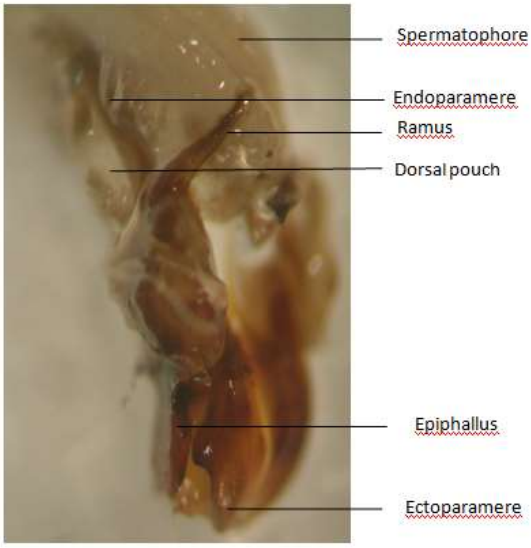

Fig. 5 *A. khanpurensis*, lateral view.

DISCUSSION

No other species of *Acheta* was described from Pakistan except *A. domesticus* by Ghouri (1961), which is distinguished from *A. khanpurensis* in a number of characters having four oblique veins, three complete, fourth incomplete, angular at middle. Apical margins oval. Mirror quadrate, median, cell also quadrate in shape, small, covering ¾ of mirror with diagonal vein medium in size, joining with chord by two short cross veins (Ahmad and Khan 2015) as compared to the characters of tegmen noted in in-*hand specimen* under the present results. The male genitalia with epiphallus at dorsal region square-shaped, as long as broad, lateral lobes sub-rounded, endoparameres almost J-shaped in lateral view with spermatophore large, broad as described in *A. domesticus*, under the results section by Ahmad and Khan (2015) whereas according to Gorochov (1993) *A. tercomanoides* Gorochov (1993) is different from *A. khanpurensis* having four oblique veins, mirror transverse, medium –sized and apical field rather long, broad whereas *A. angustiuscula* Gorochov (1993) has three oblique veins. Mirror undivided, large and transverse, apical field rather short. Snodgrass (1935), Tuxen (1956), Randell (1964) and Chopard (1969) described the structures of male and female genitalia of different species of family Gryllidae.

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