

Description of a new species of *Gryllotalpa* Latreille, 1802 (Orthoptera: Gryllotalpidae) from India and notes on phenotypic plasticity in the Oriental mole cricket, *Gryllotalpa gorkhana* Ingrisch, 2006

ASHOK KUMAR MEENA*, RAJAMANI SWAMINATHAN* & RAJENDRA NAGAR ¹

ICAR Emeritus Scientist Scheme, Department of Entomology, Rajasthan College of Agriculture, MPUAT, Udaipur (Rajasthan)-313001

¹KVK, Chandgothi, SKRAU, Bikaner (Rajasthan)-334006, India

*Corresponding authors.

Authors:

1) akmeenaentomology@gmail.com; <https://orcid.org/0000-0002-8856-0250>

2) udaiswami57@gmail.com; <https://orcid.org/0000-0002-4634-9721>

3) rajendranagar86@gmail.com; <https://orcid.org/0000-0002-9482-817X>

*Corresponding authors: E-mail: udaiswami57@gmail.com, akmeenaentomology@gmail.com

ABSTRACT

A new species of mole cricket, *Gryllotalpa punana* sp. nov., is described from Punana in Jaipur district of Rajasthan, India. The intra-specific morphological variation observed in body length and spacing of teeth on the stridulatory file on the tegmen, in the Oriental mole cricket *Gryllotalpa gorkhana* Ingrisch, collected from different locations of western India, is being reported for the first time with suitable line diagrams and plates.

INTRODUCTION

The cosmopolitan mole cricket genus, *Gryllotalpa* Latreille, 1802 is the most speciose in the family Gryllotalpidae and is characterized by having the fore tibiae with four dactyls (Chopard, 1969; Townsend, 1983; Ma & Zhang, 2011). At present, there are 68 species in the genus *Gryllotalpa*; of which, three are known from India, *Gryllotalpa orientalis* Burmeister, 1838, *Gryllotalpa ornata* Walker, 1869 and *Gryllotalpa krishnani* Arun Prasanna *et al.*, 2012 (Tan, 2016; Cigliano *et al.*, 2020). Phenotypic plasticity, the capacity of a single genotype to exhibit morphological variability in different environments, is common in insects and is reportedly often highly adaptive (Whitman and Agrawal, 2009). Phenotypic plasticity is found in many species of Orthoptera; especially, phase dimorphism (Sword *et al.*, 2000), sexual dimorphism (Hochkirch *et al.*, 2007), environmental heterogeneity (Dearn, 1990) and locust phase polyphenism (Song *et al.*, 2017). Phenotypic plasticity has also been reported in some of the morphological characters

used in traditional taxonomy (Nickle, 2003; Cadena-Castañeda, 2015a).

The Oriental species of the mole cricket genus *Gryllotalpa* (Gryllotalpidae) are generally very similar in morphology (Tan, 2016); however, on the basis of intra-specific morphological variation shown in the arrangement of teeth on the stridulatory file and their overall body size, two groups in the common Oriental mole cricket species, *Gryllotalpa gorkhana* Ingrisch, 2006 could be distinguished, deciphered in Figure 2 indicating the species collection sites.

MATERIALS AND METHODS

Specimens of the species described were borrowed from the Orthoptera collections maintained in the Dr. Kalyan Singh Kushwaha Insect Museum (Dr. Kalyan Singh Kushwaha Keet Sangrahalaya), Department of Entomology, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan, India. These mole crickets (Gryllotalpidae) were field collected during survey trips in three states: