



## Two new species of the genus *Cicadatra* Kolenati (Hemiptera: Cicadidae) from Pakistan

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### Abstract

Two new species of the genus *Cicadatra* Kolenati, *C. ashrafi* sp.n. and *C. tandojamensis* sp.n. are described from Pakistan. Male genitalia, timbals and opercula are described and illustrated as important diagnostic characters. Host affinity for one species is also provided. A key to the known species of Pakistani *Cicadatra* is also given.

**Key words:** *Cicadatra*, new species, taxonomy, fauna, Cicadidae, Pakistan

### Introduction

Pakistan is a country that contains parts of both the Indomalayan region of the Oriental and the Palaearctic ecozones. The Palaearctic ecozone covers major areas of the northern and western portion of the country while the Oriental ecozone extends over parts of the central and southern portions of the country including Sindh Province. Pakistan has been shown to have a great diversity of insects, including cicadas (e.g., Ahmed & Sanborn 2010), because the transitional ecozones between Iran, Afghanistan and India provide a distinct and varied group of species within the cicada fauna.

The Palaearctic genus *Cicadatra* Kolenati, 1857 has been found in all Palaearctic regions of Pakistan (Ahmed & Sanborn 2010). This genus exhibits a wide geographical distribution across the Palaearctic extending westward from Pakistan across the Middle East to Europe, North Africa and the Mediterranean region, northward to Russia and Georgia, and eastward to China and India (Ahmed & Sanborn 2010; Mozaffarian & Sanborn 2010). Distributional analyses for species of *Cicadatra* in the Middle East area have been made previously by some workers from Europe, Iran, and Pakistan (Ahmed & Sanborn 2010; China 1926; Distant 1888, 1904, 1906; Dlabola 1960, 1970, 1979, 1981, Dlabola & Heller 1962; Linnavouri 1962; Nast 1972; Melichar 1896). In more recent years, additional faunal checklists including discussions of the genus and new species of *Cicadatra* have been described from nearby Iran, the Mediterranean region and Pakistan (Ahmed & Sanborn 2010; Ahmed et al. 2010; Ahmed et al. 2012; Mozaffarian & Sanborn 2010; Mozaffarian et al. 2010; Simões et al. 2012; Mozaffarian & Sanborn 2013).

Identification of species of *Cicadatra* is challenging due to the variation of species within the genus and the similar general appearance of many species. More recent species descriptions have shown that the genitalia and timbal anatomy are useful structures to distinguish species and have become an integral part of new species descriptions. Some of the structures characteristic of the genus include the head being narrower than the mesonotum, the pronotum being wider than long with amplified lateral angles, the small timbal covers and small opercula and claspers which are species specific in form. The genus is distributed over much of Europe, North Africa, the Middle East and Asia (Ahmed & Sanborn 2010; Mozaffarian and Sanborn 2010) and is currently represented by nine species in Pakistan (Ahmed & Sanborn 2010, Ahmed et al. 2010, Ahmed et al. 2012) and 41 species worldwide (Sanborn 2014).

3. Supra-antennal plate, cruciform elevation, and costal margin tawny ..... *C. persica* Kirkaldy, 1909
- Supra-antennal plate and cruciform elevation black, costal margin castaneous ..... *C. gingat* China, 1926
4. Head castaneous ..... *C. raja* (Distant, 1906)
- Head black ..... .5
5. Radial and radiomedial crossveins not infuscated ..... .6
- Radial and radiomedial crossveins infuscated ..... .7
6. Pronotum castaneous marked with black, cruciform elevation black, male opercula overlapping medially, small marginal spot on hind wing ..... *C. sankara* (Distant, 1904)
- Pronotum dark ochraceous marked with black, cruciform elevation marked with ochraceous, male opercula almost meeting medially, hind wing hyaline ..... *C. karachiensis* Ahmed et al. 2010
7. Postclypeus black ..... *C. ziaratica* Ahmed et al. 2012
- Postclypeus tawny marked with castaneous, black or light brown ..... .8
8. Aedeagus with four spines ..... .9
- Aedeagus with more than or less than four spines ..... .10
9. Postclypeus marked with broad chestnut brown patch at base, radial and radiomedial crossveins lightly infuscated, pygofer broad, basal lobe of pygofer triangular, aedeagus with one long, two intermediate and one short spine, meracanthus pointed apically, timbal cover covering the greater part of the timbal ..... *C. ashrafi* sp. n.
- Postclypeus without patch at base, radial and radiomedial crossveins darkly and broadly infuscated, pygofer narrow, basal lobe of pygofer not developed, aedeagus with three short and one long spine, meracanthus rounded apically, timbal cover covering a small part of timbal. .... *C. tandojamensis* sp. n.
10. Postclypeus with transverse grooves black ..... *C. walkeri* Metcalf, 1963
- Postclypeus with medial castaneous or black stripe ..... *C. xantes* (Walker, 1850)

Because of many variations within species and the new species that continue to be described within the genus *Cicadatra*, a revision of the genus should be undertaken in the future to clarify the species within it.

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