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Three new species of *Dasyhelea* Kieffer and new record of *D. flaviformis* Carter, Ingram and Macfie (Diptera: Ceratopogonidae) from the Deltaic Proper of Gangetic West Bengal, India

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Abstract

Three new species of biting midges belonging to the genus *Dasyhelea* Kieffer are described as a result of the extensive entomological surveys in the Deltaic Proper of Gangetic West Bengal, India. Adult and pupal stages of *Dasyhelea* (*Dasyhelea*) *multiforamina* **sp. nov.** and *D.* (*Sebessia*) *bulbosa* **sp. nov.**, and all the life stages of *D.* (*Pseudoculicoides*) *aprojecta* **sp. nov.** are described. *Dasyhelea* (*Prokempia*) *flaviformis* Carter, Ingram and Macfie is also recorded first time from the Oriental region as only adult stage. They are described, illustrated and photomicrographed. A short note on bionomics of the four species is provided. The subgeneric placement of seven species previously described from India and keys to the Indian species of *Dasyhelea* based on male and female are also furnished.

Key words: *Dasyhelea*, new species, new record, immature, *Sebessia*, *Prokempia*, *Pseudoculicoides*, Key, Oriental Region

Introduction

Dasyhelea Kieffer, 1911a is a large and complex genus of Ceratopogonidae with diverse morphology and biology. It is widely dispersed and recorded in all biogeographical regions except Antarctica (Grogan & Wieners 2006). To date about 642 species described from all over the world including approximately 140 species of *Dasyhelea* from the Oriental Region. A sum of 28 species is reported from India till now (Borkent 2016; Brahma *et al.* 2016; Brahma & Hazra 2018). Although subgeneric division of the genus is not widely adopted by the majority of taxonomists, here the described species have been placed in different subgenera, following Dominiak (2012). The present paper describes three new species belonging to the subgenera *Dasyhelea* s. str., *Pseudoculicoides* Malloch, 1915 and *Sebessia* Remm, 1979 in addition to first record of *Dasyhelea* (*Prokempia*) *flaviformis* Carter, Ingram & Macfie, 1921 from India. The subgeneric placement of seven previously known Indian species is made. Notes on bionomics of the three new species and one newly recorded species and identification key to the Indian species of the genus *Dasyhelea* (both male and female) are provided.

Material and methods

Larvae and pupae were sorted out from the rotten banana stems located adjacent to the paddy field and pond. They were reared in glass vials measuring 5 cm long and 2.5 cm in diameter containing 0.7–0.8 ml of dechlorinated underground water and chopped rotten banana stem fibres in room temperature. The opening of each vial was plugged with non-absorbent cotton. The growth of each larva was observed daily until its eclosion to adult and was preserved in 70% alcohol. The adult midges were collected with the aid of fabricated light trap of 8W CFL lamp with suction fan at the bottom. The adult midges and pupal exuviae were slide-mounted after Wirth & Marston (1968).

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