



Taxonomic and biological notes on *Cardiastethus affinis* and *C. pseudococci pseudococci* (Hemiptera: Heteroptera: Anthocoridae) in India

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Abstract

Cardiastethus affinis and *C. pseudococci pseudococci* were recognized in Kerala State, southern India: the latter is recorded from India for the first time. It is found that *Cardiastethus affinis* is associated with *Orthaga exvinacea* (Lepidoptera: Pyralidae) and *C. pseudococci pseudococci* is associated with *Opisina arenosella* (Lepidoptera: Xylorictidae). Revised diagnoses and illustrations of both species are given. Biological notes for Indian species of *Cardiastethus* and a key to the three local species of the genus are provided.

Key words: Heteroptera, Anthocoridae, *Cardiastethus affinis*, *Cardiastethus pseudococci pseudococci*, taxonomy, new record, biological control, hosts, India

Introduction

Cardiastethus Fieber, 1860 is a cosmopolitan genus in the family Anthocoridae, with approximately 45 described species (cf. Péricart 1972; Lattin & Stanton 1993). Eight species occur in Asia. Of these, *C. affinis* Poppius, 1909 and *C. exiguus* Poppius, 1913 have been recorded from India (Muraleedharan 1975; Muraleedharan & Ananthakrishnan 1978; Nasser & Abdurahman 1990). The species of *Cardiastethus* have attracted the attention of researchers who work in agro-ecosystems because they may include potential bio-control agents against major agricultural pests. In fact, *C. exiguus* has been studied extensively as an effective predator of coconut palm pest in India (cf. Nasser & Abdurahman 1990, 1993, 1996, 1998). The second author found that *C. affinis* is associated with *Orthaga exvinacea* (Lepidoptera: Pyralidae) which infested mango leaves, and *C. pseudococci pseudococci* Wagner, 1951 is associated with *Opisina arenosella* (Lepidoptera: Xylorictidae) which infested coconut leaves during her continuous investigations in the northern parts of Kerala State, southern India.

Since many species of this genus are superficially similar to each other, as well as the species of *Orius*, it is sometimes difficult to accurately identify them. To establish modern taxonomic research for such natural enemies, adequate taxonomic study on the genus *Cardiastethus* is very much required. The purpose of this paper is to provide the useful morphological characters for distinguishing two species of *Cardiastethus* found in the agro-ecosystems in India. Herein, we provide revised diagnoses and illustrations of both species, which are based on the specimens from India. The biological notes are discussed for Indian species of *Cardiastethus*. A key to distinguish the three Indian species of the genus known from agro-ecosystems is given.