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## Descriptions of two new Species of *Goniozus* Förster, 1856 (Hymenoptera: Bethyliidae) associated with insect induced plant galls from India

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### Abstract

Two new species of the genus *Goniozus* viz., *Goniozus inauditus* Santhosh **sp. nov.** and *G. kuriani* Santhosh **sp. nov.** associated with insect induced plant galls from South India are described. The parasitic relationship of *Goniozus* with the nonlepidopteran hosts living in the concealed habitats and their association with insect induced plant galls and its inhabitants are reviewed. The possible host range extension of *Goniozus* is commented.

**Key words:** *Goniozus*, plant galls, nonlepidopteran hosts, South India.

### Introduction

Bethyliidae are one of the three moderately large families in Chrysidoidea, include about 2,600 extant species in 100 genera worldwide with at least as many species remain undescribed (Azevedo *et al.* 2015). Bethyliids are mainly gregarious ectoparasitoids of larval Lepidoptera and Coleoptera (Polaszek & Krombein 1994; Berry 1998; Lanes *et al.* 2004) frequently reported as parasitoids against many of the potential crop pests and several species have been used in the establishment of biological control programs (Heimpel 1934; Gordh & Evans 1976; Polaszek & Krombein 1994). Bethylinae mostly parasitize lepidopteran larvae and all these hosts share a moderate degree of concealment, usually in living plant tissues, and typically include inhabitants of tree bark, stems of annual and biennial plants and trees, leaf rollers, leaf miners (Berry 1998).

*Goniozus* Förster, 1856 is a highly speciose genus, consists of 172 species worldwide (Gordh & Móczár 1990; Gordh & Witethom 1994; Krombein 1996; Terayama 1994, 2004, 2006; Xu *et al.* 2002; Santhosh & Narendran 2009; Lim & Lee 2012). *Goniozus* is represented by 53 species from Oriental region, out of which 37 were reported from Indian subcontinent (Santhosh & Narendran 2009; Lim & Lee 2012). The biology of *Goniozus* species is extending within the families of microlepidopterans (e.g. Gelechiidae, Oecophoridae, Pyralidae and Tortricidae) (Gordh & Móczár 1990) except one report of *G. microstigma* Melo & Evans has been reared from a brood cell of a crabronid wasp, *Microstigma xylicola* Melo, a predator of nymphal Thysanoptera (Melo & Evans 1993; Polaszek & Krombein 1994). Here, we describe two new species of *Goniozus* associated with the insect induced leaf galls from South India along with an account of host association within the concealed microhabitat.

### Material and methods

Leaf galls of *Memecylon umbellatum* Burm.f. (Fig 1A) (The Plant List 2015) and *Syzygium cumini* (L.) Skeels (Fig 1B) were collected from Sowpnabitta (Karnataka) and Trivandrum (Kerala) respectively. The galls were identified by using Mani (2000) and reared in 1000 ml glass beakers for the possible emergence of parasitoids.

The terms for integument sculpture follow Harris (1979) and most of measurements and morphological terms adopted in this paper follow Evans (1964) and Terayama (2006) and the abbreviation as follows: AOL, antero-posterior ocellar line; DAO, maximum diameter of anterior ocelli; EV, post-orbital distance measured as distance