



On the biology of *Ceratopemphigus zehntneri* Schouteden (Hemiptera: Aphididae), a gall-forming aphid on *Ligustrum robustum* subsp. *walkeri* (Oleaceae), in Sri Lanka

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Abstract

Observations on the biology, ecology, galls and associated insects of *Ceratopemphigus zehntneri* Schouteden (Hemiptera: Aphididae), a gall-forming aphid on *Ligustrum robustum* subsp. *walkeri* (Oleaceae) in Sri Lanka, are presented. Stages of gall formation and details of different stages of the aphid are illustrated. The implications for biological control of *L. robustum walkeri* in Mauritius and La Réunion are discussed.

Key words: biological control; primary host; secondary host; gall feeding; *Palpita annulata*

Introduction

The genus *Ceratopemphigus* and species *zehntneri* were described from Sri Lanka, based on nymphs and alate females from large galls on an unknown shrub “possibly a *Pistacia*” (Schouteden 1905). An interesting feature of this genus is that immature aphids have a pair of forwardly-projecting, conical, horn-like projections on the front of the head between the antenna bases, resembling those of aphids in the tribe Cerataphidini, subfamily Hormaphidinae. Yet this is an example of convergent evolution, as *Ceratopemphigus* has other features that clearly place it in a different subfamily, the Eriosomatinae, of which *Pemphigus* is the best-known and largest genus. The name of the genus was therefore aptly chosen.

Doncaster (1956) and Ghosh (1984) subsequently provided more detailed descriptions of the alate female and nymph of *C. zehntneri*, based on specimens sent to the British Museum (Natural History) that had been collected in Sri Lanka on *Brunfelsia uniflora* (Solanaceae). This is an unlikely host for a galling aphid, so the aphids had probably wandered from some other plant. Much more recently, galls of *Ceratopemphigus* were rediscovered in China and the host was identified as *Ligustrum sinense* (Oleaceae) (Qiao & Fang 2007). Their paper includes a description of an apterous female.

Here we report that the true host of *C. zehntneri* in Sri Lanka is *L. robustum* subsp. *walkeri*. The discovery was made in the course of a survey for potential biological control agents for this plant, which has been introduced into the Mascarene Islands of La Réunion and Mauritius and has become highly invasive (Lavergne *et al.* 1999; Lorence & Sussman 1986, 1988). Apterous, alate and immature stages were collected that agree well with the descriptions of this species from Sri Lanka and from China. We record some observations on the biology of the aphids and the development of the galls.

Our observations

Aphid biology. We found this aphid associated with large galls on *L. robustum walkeri*. It forms colonies of a hundred or more within a hollow gall, feeding on its internal surface. The nymphs are covered with white