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A new parasitoid of the Erythrina Gall Wasp, *Quadrastichus erythrinae* Kim (Hymenoptera: Eulophidae)

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Abstract

Aprostocetus exertus La Salle (Hymenoptera: Eulophidae: Tetrastichinae) is described as a parasitoid of the invasive Erythrina Gall Wasp, *Quadrastichus erythrinae* Kim (Hymenoptera: Eulophidae: Tetrastichinae). The description is based on material originally collected in Tanzania and South Africa. This species is described because of its potential as a biological control agent against the Erythrina Gall Wasp.

Key words: Hymenoptera, Eulophidae, invasive species, *Quadrastichus*, parasitoid, *Aprostocetus*, *Erythrina*, Fabaceae

Introduction

Coral trees (Fabaceae: *Erythrina* spp.) are highly valued trees which are found throughout tropical regions of the world, with about 120 species in the genus (Mabberly 2008). They are used as ornamentals in landscaping, for windbreaks and for soil and water conservation, as well as playing an important role in folk traditions and indigenous medicine (Hartwell 1967–1971, List & Horhammer 1969–1979, Perry 1980, Rotar *et al.* 1986, Yang *et al*. 2004, Gates & Delvare 2008). The Erythrina Gall Wasp (EGW), *Quadrastichus erythrinae* Kim (Eulophidae: Tetrastichinae), induces galls on the leaves, petioles, twigs and shoots of several species of coral trees. It was first recorded from La Réunion, Mauritius and Singapore (Kim *et al.* 2004), has subsequently spread rapidly so that its range now includes Hawaii, Taiwan, Hong Kong, China, India, Thailand, American Samoa, Guam, Okinawa, Japan, Florida (USA) (Yang *et al*. 2004, Heu *et al.* 2006, Faiza *et al.* 2006, Uechi *et al*. 2007, Gates & Delvare 2008), and it has the potential for even greater range expansion in the future (Li *et al.* 2006). Severe EGW infestations can cause curling of young shoots, defoliation, and even death of afflicted trees (Yang *et al.* 2004, Heu *et al.* 2006). Its impact in Hawaii has been particularly devastating, where it is destroying and threatening with extinction the endemic species, *E. sandwicensis* O. Deg. (Gramling 2005). If it continues to spread in Japan, it could have a similar effect on the endemic *E. boninensis* Tuyama (Uechi *et al*. 2007).

The origin of EGW could only be speculated upon in earlier works (Kim *et al.* 2004, Yang *et al*. 2004,) but it is now clear that it is originally from East Africa. It was already known that a group of *Quadrastichus* species induced galls on *Erythrina* in Africa (van Staden *et al*. 1977, La Salle unpublished, Prinsloo pers. comm., Prinsloo & Kelly 2009). Foreign exploration undertaken by the Hawaii Department of Agriculture has confirmed that this group of *Quadrastichus* species which induce galls on *Erythrina* is larger than previously expected, with species throughout subtropical Africa. It has also confirmed that *Q. erythrinae* does occur naturally in Tanzania, where it has a complex of natural enemies which have potential for the biological control of this pest. One of these species, *Eurytoma erythrinae* Gates & Delvare, was recently described (Gates & Delvare 2008), and the description of another is being published in a companion paper (Prinsloo & Kelly, 2009). This paper describes a third potential biological control agent of EGW.

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