



The tetrastichine wasps (Hymenoptera: Chalcidoidea: Eulophidae) associated with galls on *Erythrina* species (Fabaceae) in South Africa, with the description of five new species

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Abstract

Five new tetrastichine eulophid species are described from both sexes from South Africa: *Quadrastichus ingens*, *Q. gallicola* and *Q. bardus* induce leaf, petiole and shoot galls on indigenous *Erythrina* species (Fabaceae); *Aprostocetus nitens* and *A. tritus* are parasitoids of the *Quadrastichus* species; *Q. bardus* and *A. nitens* are also recorded from Tanzania and comments are provided on *A. exertus* La Salle, known from Tanzania and South Africa as a parasitoid of *Q. erythrinae* Kim and *Q. ingens*. A key is provided for the separation of the six eulophid species now known from South Africa.

Key words: Hymenoptera, Eulophidae, *Quadrastichus*, *Aprostocetus*, description, galls, *Erythrina*, Fabaceae

Introduction

There has been considerable interest in the chalcidoids that are associated with galls on *Erythrina* species (Fabaceae), commonly known as coral trees, following the recent discovery of *Quadrastichus erythrinae* Kim (Eulophidae: Tetrastichinae), an aggressive invasive gall inducer of these trees (e.g. Kim *et al.* 2004, Yang *et al.* 2004, Uechi *et al.* 2007, La Salle *et al.* 2009). *Quadrastichus erythrinae*, which in all probability is native to East Africa from where specimens are at hand (in Australian National Insect Collection), was first recorded from Mauritius and Singapore in 2002 and has since spread rapidly through certain parts of Asia and the Pacific, including the Hawaiian islands, and, most recently, to Florida on the North American continent (Gates & Delvare 2008). *Quadrastichus erythrinae* induces galls on the leaves, petioles and twigs of several species of coral tree, resulting in devastating tree losses wherever it is found (Gates & Delvare 2008).

A recent search for natural enemies of *Q. erythrinae* by various research groups has resulted in the discovery of at least 12 chalcidoid species, mostly eulophids, that are associated with *Erythrina* galls in West and East Africa (see “The eulophid fauna associated with *Erythrina* galls in Africa” below) in addition to five undescribed Southern African species, the existence of which has been known for many years. Although little is presently known about the relationships and interactions of most of these wasps, some will undoubtedly be shown to be of potential importance as biocontrol agents in their role as primary parasitoids of the gall inducing species.

In this paper we treat the South African fauna, which comprises the following five new tetrastichine species, namely *Quadrastichus ingens*, *Q. gallicola*, *Q. bardus*, *Aprostocetus nitens* and *A. tritus* in addition to *A. exertus* La Salle, which is being described in a companion paper by La Salle *et al.* (2009). These species are described from extensive material which has been reared in association with all six of the indigenous species of *Erythrina* found in South Africa and that has accumulated in the South African National Collection of Insects over many years. Based on this extensive material we are of the opinion that, in all probability, the six