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## A review of the family Eulophidae (Hymenoptera: Chalcidoidea) of Egypt, with thirty three new records

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### Abstract

A checklist of Eulophidae (excluding Entiinae) is presented based primarily on a total of 155 specimens collected from 23 localities in Egypt during the period of April 2012 to June 2014, mostly by sweep net. Altogether, 55 species in 22 genera and 3 subfamilies (Entedoninae, Eulophinae and Tetrastichinae) are recorded, of which 6 genera (*Di cladocerus* Westwood, *Euplectrus* Westwood, *Entedon* Dalman, *Neotrichoporoides* Girault, *Sigmophora* Rondani and *Sympiesis* Förster) and 33 species (60%) are newly reported for Egypt. The valid name and world distribution of each species are given; local distributions and host records for species previously recorded from Egypt are also given. Most of the species have a distribution characterized as Palaearctic, Afrotropical, or Indo-Malayan. About 4% are cosmopolitan in distribution.

**Key words:** Parasitic wasps, Eulophinae, Entedoninae, Tetrastichinae

### Introduction

Eulophidae is a diverse family of small parasitic wasps (usually 0.5–2.0 mm) belonging to the superfamily Chalcidoidea (Hymenoptera). Worldwide, Eulophidae includes more than 5000 described species in 443 genera (Noyes 2015). Members of this family are distinguished from other chalcidoid families most readily by the presence of four segmented tarsi in both sexes and a short, straight protibial spur (as opposed to a larger, curved spur in most other chalcidoids) (Schauff *et al.* 1997).

Eulophidae are either ectoparasitoids or endoparasitoids and mostly parasitize the larvae of other insects, specifically those belonging to the orders Lepidoptera, Coleoptera, Diptera and Hymenoptera. They are environmentally and economically important (Yefremova 2007), and some species are considered as important biological control agents for a wide spectrum of pest insects. Insect species belonging to more than 100 families in 10 orders are recorded as hosts (Talebi *et al.* 2011), as well as eggs of spiders in silken egg sacs (LaSalle 1990, 1994), eriophyid mites in galls (Taylor 1909; Vereschagina 1961) and nematodes (van den Berg *et al.* 1990). A number of eulophids are parasitoids of insects concealed in plant tissue, such as leaf miners, wood borers, leaf rollers and gall makers.

The position of Egypt in the faunal regions of the world is a rather unusual one because it has characteristics of both the Palaearctic and Afrotropical regions. The Nile, with its large delta, is responsible for many of the