



## Research Article

Review of the genus *Diglyphus* Walker, 1844 (Hymenoptera: Eulophidae) in IraqZainab Mansowr<sup>1</sup> , Majid Jafarlu<sup>2</sup> & Hossein Lotfalizadeh<sup>3</sup>

1- Department of Biology, College of Science, University of Basrah, Iraq

2- Department of Plant Protection, Faculty of Agriculture, Urmia University, Urmia, Iran

3- Department of Plant Protection, Agricultural and Natural Resources Research of East-Azerbaijan, AREEO, Tabriz, Iran

**Abstract.** *Diglyphus* Walker, 1844 (Hymenoptera: Eulophidae) has previously been recorded in Iraq, with two species registered in the region: *D. isaea* Walker, 1838 and *D. crassinervis* Erdős 1958. During a survey conducted in Basrah Governorate, Southern Iraq, specimens were collected from alfalfa fields (*Medicago sativa* L.) using a sweep net and yellow pan traps in 2022. In this study, two species were identified: *D. isaea* Walker, 1838 and *D. sabulosus* Erdős, 1951. The latter is a new record for the fauna of Iraq. An illustrated key for identifying *Diglyphus* species in Iraq, along with notes on diagnostic characters and photographs are provided. A distribution map of the species in Iraq is also presented.

## Article history

Received: 29 June 2024

Accepted: 22 December 2024

Published: 05 January 2025

Subject Editor: Mar-Ferrer Suay

Corresponding author: Zainab Mansowr

E-mail: [zainab.mansowr@uobasrah.edu.iq](mailto:zainab.mansowr@uobasrah.edu.iq)DOI: <https://doi.org/10.61186/jesi.45.1.1>

**Keywords:** *Diglyphus*, Eulophidae, Eulophinae, Iraq, new record

## Introduction

Basrah Governorate is one of the most important and fertile agricultural regions in Iraq. It is the third largest city in the country and is located in southern Iraq near the Iran–Iraq border (Fig 1). The region is famous for growing several crops, with date palms and alfalfa being the most important. Basrah has a semi-arid climate for most of the year and is consistently one of the hottest cities in Iraq. In the summer, temperatures exceed 53 °C in the shade, whilst those in winter range between 28 °C and 11 °C. The average annual rainfall in Basrah is 169 mm (Al-Mayah *et al.*, 2016).

Alfalfa (*Medicago sativa* L.) holds substantial economic value and has played an important role in the survival of humans and animals for thousands of years. Alfalfa is a crucial component in a complex food chain (Chaudhary *et al.*, 2020; Nimaan, 2021). This plant is also known as an ‘insectary’ due to the large populations of beneficial insects that reside within it (Putnam *et al.*, 2001). Alfalfa attracts various natural enemies, with parasitoid wasps from the family Eulophidae (Hymenoptera: Chalcidoidea) being amongst the most important (Lotfalizadeh *et al.*, 2015; Jafarlu *et al.*, 2022; Mansowr *et al.*, 2024). This family is the most diverse group in the superfamily, comprising more than 6000 species across 328 genera in four subfamilies (UCD Community, 2023). However, only a few papers have addressed Iraqi Eulophidae (Al-Azawi, 1967 & 1971; Bouček & Askew, 1968; Swailem *et al.*, 1975; Abdul Rassoul, 1976; Awadallah *et al.*, 1979 a, b; Hassan, 2012; Mansowr *et al.*, 2024). The subfamily Eulophinae Förster, 1856 (Hymenoptera, Eulophidae) is the largest group within this family (UCD Community, 2023).

The genus *Diglyphus* Walker, 1844 (Hymenoptera: Eulophidae), with worldwide distribution, includes 41 known species, 31 of which are found in the Palearctic region (UCD Community, 2023). This genus can be recognised by the following combination of morphological features: a body with metallic tints in most parts (Figs. 2A, 3A); antenna in both sexes with two funiculars and no branches (Figs. 2B,C, 3B,C); clypeus with an entire anterior margin; and a scutellum with two notauli, which are mostly incomplete and faint, or curved to meet the anterior margin of axillae (Fig. 2C). Species of the Genus *Diglyphus* are important primary ectoparasitoids of leaf-mining pests from the family Agromyzidae (Insecta: Diptera) in alfalfa fields (Spencer, 1973; Lotfalizadeh *et al.*, 2015; Jafarlu *et al.*, 2022). Members of this genus are primarily found infesting several economically important crops, including alfalfa, broccoli, cabbage and tomato, where pesticides definitely were not used for insect control (Carvalho *et al.*, 2014). Therefore, they have shown promise as control agents in pest management strategies for common pests on cultivated ornamentals and vegetables (Heinz & Parrella, 1989). Thus far, two species of this genus, *Diglyphus crassinervis* Erdős, 1958 and *D. isaea* Walker, 1838, have been

