

The First Record of *Ero aphana* (Araneae: Mimetidae) in EgyptMaryham Adel Rezk Sawers<sup>1\*</sup>, Shahira Mohamad Onsy El-Bishlawy<sup>2</sup>,  
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## Abstract

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This investigation presents a new record, *Ero aphana* (Walckenaer, 1802) (Araneae: Mimetidae) in the Egyptian fauna. It was found in the Experimental Station of the Faculty of Agriculture, Cairo University, Giza Governorate, Egypt on grapefruit trees (*Citrus paradise*) on October 1, 2018. Six Specimens; one male and five Juveniles of *E. aphana* were collected and identified. In addition, notes on the description, environmental conditions and collection data of this species are given. Photos of general habitus and palpal organ of the male and measurements of leg segments are illustrated.

**Keywords:** Araneae, Mimetidae, *Ero aphana*, new record, Egypt

## Introduction

Mimetids are generally recognized by the characteristically modified prolateral spination of tibiae and metatarsi I and II, in which a series of short spines, the most distal in each series are the longest, are interspersed among a series of much longer spines (Platnick & Shadab, 1993). They are small to medium-sized araneomorph spiders; three tarsal claws; cribellate; entelegyne; eight eyes; chelicerae with peg teeth (Jocqué & Dippenaar-Schoeman, 2006). They are best known for their araneophagic, or spider eating behavior. Pirate spiders deliberately enter the webs of other spiders, usually Araneidae (orb-weavers) or Theridiidae (comb-footed spiders), using a behavior known as aggressive mimicry (Harms & Dunlop, 2009). Family Mimetidae (Simon, 1881) represented by 159 species in 8 genera (World Spider Catalog, 2022). In Egypt, this family is represented by 2 species from 2 genera, *Ero* C. L. Koch, 1836 and *Mimetus* Hentz, 1832 (El-Hennawy, 2017a). The spider genus *Ero* is characterized by: legs of equal length, prosoma nearly same width and length (Nentwig *et al.*, 2022). Cephalothorax strongly convex, high in the middle and sloping steeply posterior to fovea; chelicerae without conspicuous heavy bristles; clypeus height barely less than length of median ocular quadrangle. *Ero* is sometimes mistaken for a member of the family Theridiidae (Barrion & Litsinger, 1995). The male palp of spider species *Ero aphana* (Walckenaer, 1802) can be distinguished by the cymbium; oval, flat, retrolaterally with hook-like process. Conductor with a prolateral furrow, additionally round at the end. (Nentwig *et al.*, 2022; Thaler *et al.*, 2004). Paracymbium, extending retro laterally, forming a vertical branch, bearing two dorsal humps and a ventral blade, without distal branch. Embolus, originating at proximal end of tegulum, semicircular, distally twisted (Thaler *et al.*, 2004).

Opisthosoma dorsally with 4 shallow tubercles on the back (Baba *et al.*, 2017; Nentwig *et al.*, 2022).

The aim of the current investigation is to provide new data on the spider fauna (with images of the adult male and its palpal organ) in Egypt, which is still limited.

## Material and Methods

New record of *Ero aphana* (Walckenaer, 1802) was found in the Experimental Station of the Faculty of Agriculture, Cairo University, Giza Governorate, Egypt. The present study is based on the material collected on October 1, 2018 from the lower leaves of grapefruit trees (*Citrus paradise*) by beating net (30°01'15.1"N 31°11'49.2"E). The recorded weather data including air and soil temperature (°C), relative humidity (%) and wind speed (m/s) were obtained from the Central Laboratory for Agriculture Climate (CLAC), Agriculture Research Center (ARC), Giza, Egypt. Six specimens, one male and five juveniles of *E. aphana* were collected during the period March 2018-February 2019.

Identification was made according to previously published descriptions, drawings and photographs (El-Hennawy, 2017b; Simon, 1932; Thaler *et al.*, 2004) and confirmed by El-Hennawy and Knoflach (Personal communication). Photographs and measurements were obtained using Novel stereomicroscope (4.5×20) equipped with a Toup Cam (Ver. 3.7), 18MP camera. Adult male of *E. aphana* was preserved in the collection of the Plant Protection Research Institute, Giza, Egypt.

The measurement of the spider body was divided into carapace and abdomen. The measurements of the legs were divided to segments as follows: femur, patella, tibia, metatarsus and tarsus. The diameters and distances between eyes were calculated. All measurements were taken in millimeters with the aid of Compu Eye, LSA program (Bakr, 2005). Specimen's identification for the palpal organ

was taken under a stereomicroscope from different angles (pro-lateral, ventral and letro-lateral). According to its taxonomic importance, palpal organ was preserved in eppendorf tubes (1.5 ml) and its male specimen in glass vial contained 70% alcohol and 5% glycerin with a label which included collection data (number, date, place and host).

## Results and Discussion

### Taxonomy

Egypt's climate for the autumn of 2018 was characterized with an average temperature of 24.60°C, relative humidity (R.H.) 58.68%, wind speed 1.81 m/s and soil temperature of 25.53°C.

**Male description:** The body was generally pale yellow in appearance. This species has a medium sized body with a total length of 2.62 mm. Cephalothorax with a total length of 1.19mm and width of 1.11mm. Abdomen with a total length of 1.43mm and width of 1.61 mm.

**Carapace:** Oval with median and lateral brown bands.

**Eyes:** There are two rows of eight heterogeneous eyes. Lateral eyes are touching each other, similar to members of the family Theridiidae (Sundevall, 1833). The ocular measurements were as follows: anterior median eyes (AME) = 0.07 mm; anterior lateral eyes (ALE) = 0.09 mm; posterior median eyes (PME) = 0.10 mm; posterior lateral eyes (PLE) = 0.08 mm. Inter-pupillary distance (IPD) are measured as follow: AME-AME = 0.05 mm; AME-ALE = 0.06 mm; PME-PME = 0.06 mm; PME-PLE = 0.07 mm. The distance between the posterior median eyes is smaller than it is between the posterior median and the posterior lateral eyes. Both rows of eyes are slightly curved, but the anterior row is more curved than the posterior (mostly straight) (Figure 1).



**Figure 1.** Ocular area, posterior row of eyes.

**Sternum:** Pale yellow mottled with brown marks.

**Chelicerae:** light brown.

**Legs:** pale colored mottled with brown bands, first and second legs are spinier than third and fourth legs (Figure 2).

The measurement of tarsus for each leg was taken without the claw. The measurements of the leg segments of *E. aphana* are (Walckenaer, 1802) shown in Table 1.

**Palpal organ:** Cymbium is well-developed, detail featured, oval and retrolaterally with hook-shaped structure as for

earlier reports (Baba *et al.*, 2017; Harms & Harvey, 2009; Thaler *et al.*, 2004). The tibia of the palp had spines (Figure 3).

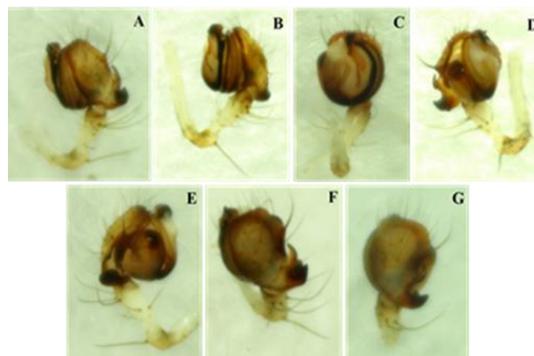
**Dorsum of abdomen:** Pale yellow patterned with brownish markings with four small rounded projections (Walckenaer, 1802) (Figure 4).



**Figure 2.** Conspicuous row of spines on leg I and II in the male of *Ero aphana*.

**Table 1.** Measurements of leg segments of *Ero aphana* male in millimeters (mm).

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total Length
I	2.02	0.51	2.10	1.29	1.08	3.18
II	1.52	0.39	1.45	0.96	0.84	5.16
III	0.96	0.34	0.75	0.44	0.47	2.96
IV	1.29	0.37	0.99	0.59	0.47	3.71



**Figure 3.** *Ero aphana*- right pedipalp. (A & B) Letro-lateral, (C) Ventral, (D & E) Pro-lateral, (F & G) Cymbium.



**Figure 4.** *Ero aphana* male habitus-dorsal spider view.

**Distribution:** *Ero aphana* was reported to occur in Europe, Macaronesia, North Africa, Turkey, Caucasus, Russia, Kazakhstan, Iran. More recently, it was introduced to St. Helena, Réunion, Japan (Ryukyu island), China, Philippines, Australia (Queensland, Western Australia) (World Spider Catalog, 2022).

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## الملخص

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تقدّم هذه الدراسة تسجيلاً جديداً للنوع *Ero aphana* (Walckenaer, 1802) التابع للعائلة (Mimetidae) من رتبة العناكب (Araneae) في البيئة المصرية؛ حيث تمّ رصده على أشجار الجريب فروت داخل محطة التجارب الزراعية التابعة لكلية الزراعة، جامعة القاهرة، بتاريخ 1 أكتوبر/تشرين الأول، 2018. تمّ جمع وتعريف 7 عينات، شملت ذكراً واحداً وستة أفراد غير كاملة النضج، للنوع العنكبوتي المذكور؛ فضلاً عن تقديم ملاحظات عن وصف هذا النوع، الظروف البيئية للمنطقة، وبيانات جمع العينات. تمّ إرفاق صورة للشكل العام للنوع، والملمس الذكري، وقياسات عقل الأرجل.

كلمات مفتاحية: تسجيل جديد، مصر، *Araneae*, *Mimetidae*, *Ero aphana*.

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