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NEW RECORD OF SPECIES *CHRYSOPERLA FURCIFERA* OKAMOTO 1914 (NEUROPTERA: CHRYSOPIDAE: CHRYSOPINAE) IN MEDDLE OF IRAQ

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Abstract

New record a species *Chrysoperla furcifera* Okamoto 1914 of genus *Chrysoperla* Steinmann 1964 belongs to Subfamily Chrysopinae and to the Family Chrysopidae (lacewing) and to the suborder of Hemerobiiformia of order Neuroptera, the insects collected from Baghdad and Babylon province during the study at 2017-2018. The insects Indented by used taxonomic keys depended on morphological characters and male/female genitalia. The measurement were taken by ruler and using the digital image analysis program (Image J.), drawing body parts by used camera Lucida and picture by digital camera.

Key words : *Chrysoperla furcifera,* Chrysopidae: Chrysopinae, morphological characters, Neuroptera

Introduction

Insects belonged to order Neuroptera called as Greek chrysos, that means golden eye, and seems a copper eyes, the body and wings are mostly green or brownish green and called Green lacewing, or name as lacewing stink fly because the releasing of foul odor as protection behavior (Ross, 2000). The antenna shorter than body, the body smooth and narrow. Their wings with many veins like a net, mouth parts are specified to predation in larva. The frequency of sound caused runaway the enemy and it's a method to communication between the species, Because they have sound wave receivers (Hoell *et al.,* 1998).

There are 23 general and 423 species in all world. Eight genera and 55 species were recorded in United States and four of these genera were recorded in Canada and 10 species are known four genera and eight species were record in Britain (Brooks, 1990).

The adult lay eggs at along of life, and hatching to larvae that it's very avidity in feeding and feeding on another insects eggs and larvae and adult (Clausen, 1940).

The pupa oval in shape inside cocoon, the new adults walk about 1-2 hours then becomes completely adults for can flying and nutrition (Garland *et al.,* 2007). Insect wintering as eggs. The metamorphosis as Holometabola (complete metamorphosis) :(egg, larva, pupa, adult) with 1-4 generations/year.

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Materials and Methods

The Adult were collected from vegetable plants on December 24, 2018 from the field of Al-Musayyib/ in Babylon province near the river and collected from the orchards Al- ameriya / in Baghdad province on 12/10/ 2018, using light traps (220 Volts), (20 Watt). Bring up to the laboratory, killed the adult by freezing, matting on pin and a small parts on slides by use binuclear microscope, Insects Indented by used taxonomic keys, depending on morphological characters and described as in (Brook, 1994; Brook *et al.,* 1990; Ghosh, 2000; Bickley *et al.,* 1956**)** Use a digital camera to photograph insects and drawing the body parts by camera Lucida, and pictured by digital camera, The measurements of the body were taken by a role, and compare by the digital image analysis program (ImageJ,) (Al-saad & Albahidly, 2018) to compared it in both method. The date and placed was written on slides, this species is a new record in Iraq.

Results and Discussion

Taxonomic state

Order: Neuroptera Linnaeus 1758

Suborder: Hemerobiiformia

Family: Chrysopidae Schneider 1851

Subfamily: Chrysopinae Schneider 1851

Tribe:Chrysopini

Gener: Chrysoperla Steinmann 1964

Species: *Chrysoperla furcifera* Okamoto 1914

Genus: *chrysoperla* Steinmann, 1964

Adult: 9-14 mm in length a pale green in color becomes brown in winter.

Although the genus *Chrysoperla* is somewhat homogeneous in the characters, There is a variation in the marks on the head, sometimes head unmark, but usually carries a red or brown or black stripe on both sides of the clypeus.

Head: Eye width 1.8 - 2.6 mm, Antenna shorter than the fore wing, Antenna base is swollen and projected from the head**.**

Wings: two pairs of translucent wings like a net, which varies in length and width depending on species, These are wide and narrow, and the veins are colored green or black with gradient in color, have short sensory seta along of it, and the wing without colored signs, The radial RS usually meets with PSM and PSM meets with a direct or sub-cell im.

Legs: Not marked but provided by spines, The tarsi with five segment and carried a pair of claws where the different forms at base**.**

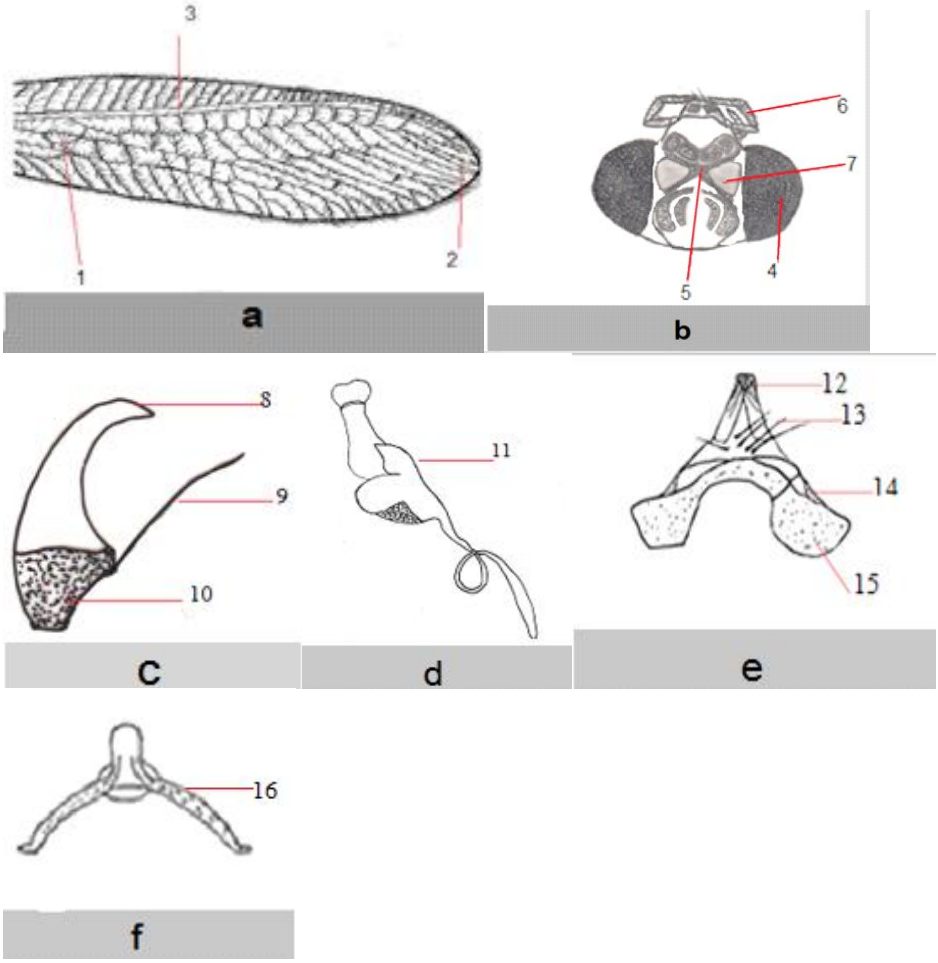
The larva. Spindle shape, The body contains a short and soft bristles, The mandible and maxillary large and extended for Predatory absorption.

Some of the adults are predatory and feeding on insects and some of them feed on pollen flowers, attracted to light at night and dark.

This genus included over 36 species in the world (Brooks, 1990), the species *Chrysoperla furcifera* was new record in Iraq at this study.

Species: *Chrysoperla furcifera* okamoto 1914

Synonym



Figs: a: 1-cell im 2-Rs-randial sectors 3- setae veins. **b**: 4- compound eyes 5- x-mark between antennae. 6-texture 7- basal of antenna **c**: 8-hind tarsal claw 9- setae 10- basal claw **d**: 11-@& subgenitale **e**: Gonarcus ((12-apex tapering to point 13- gonosetae 14- arcessus 15-boot shaped lateral plate)) **f:** 16- tignum, dorsal h: 17- adult.

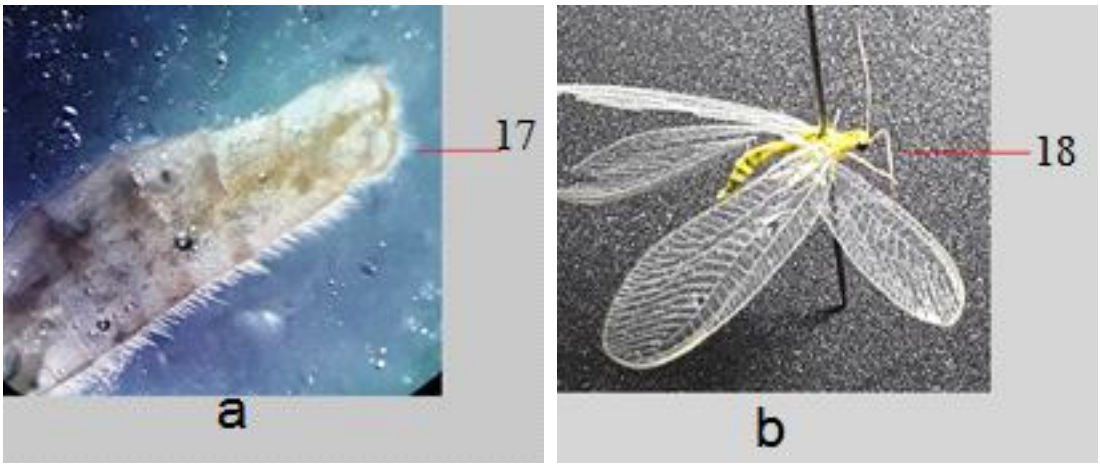


Photo: a: 17-apex @& abdomen **b:** 18-adult

Chrysoperla furcifera Okamoto, 1914; *Chrysopa furcifera* Okamot, 1914; *Chrysopa savioi* Navás, 1933; *Cintameva kulingensis* Navás, 1936; Chrysoperla *savioi* Navás, 1933; *Chrysopa kulingensis* Navás, 1936.

Adult female: 7.5-8.5mm. in length without wings and with wings at 14-15 mm in length, pale green in color with a yellow strip on body (Photo: b).

Head: 0.94 - 1 mm in length, 1- 1.03 mm in width, There are a mark like letter X on head between basal of antenna (Fig. b-5). Antenna length 8.5-9.8 mm, the basal segment swollen and projected near compound eye. The 2nd, 3rd less swollen, the sensory seta and spine on all segments of antenna, the tip as dark brown in color and pointed. Compound eye large and circular and golden or copper in color.

Wings: transparent**,** longer than body, fore wing 11.5-12.5mm. In length the hind wing 10.5-11mm in length. Radius vein short (0.6-1.6) mm, fore wing with cell (im) oval in shape and meet with cross radius veins (Fig. a). This as taxonomic characters for insect.

Hind legs: 4.4-5.2mm in length, The claw shape is a taxonomic characteristic (Fig. c). Tarsi with 5 segments carried a few of sensory sate. The last one carried 3 spines with dark brown in color.

Female genitalia: callus cercus round, subgenitale straight basally. 36 trichobothria. Spermatheca with shallow ventral impression, duct long (Fig. d and Photo: a).

Male genitalia: male resemble with female in color, 11.5-12.5 mm in length, Tergum of segment 9 extant to ward up the callus. Cerci oval in shape or clerical lip at segment 8+9 board. Spinelli absent. Few gonosetae (6-11) in central clump, Entoprocessus large, gonarcus with large boot shaped lateral plate, Tignum long Fig. (e, f).

Disruption: This species recorded in china and Hong Kong, The Chinese specimens with dark brown antennae and costal setae was generally longer in specimens from China and Philippines 1.2-1.6mm but specimens from Hong Kong and Japan 0.6-1mm. distribution Philippines and Taiwan.

The Damage: the larvae feed on a variety of small insect, since they are polyphagous they also feed on beneficial insects.

Material exam: Collected three adult during the study at 2017-2018 from Al-ameriya / Baghdad province using light traps and 3 adult appearance on 12/10/2018 and from Musayyib / Babylon date of appearance of the insect on 24/12/2018.

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