

First record of *Herpetogramma phaeopteralis* (Guenée, 1854) (Lepidoptera: Crambidae) from Iraq

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Abstract

The study was carried out to report the new recorded genus *Herpetogramma* (Crambidae: Lepidoptera). A full description of the genus including, larva, pupa, and adult (antennae, labial palps, proboscis, tarsal seta end as well as wing venation) was used. A program of ImageJ for measurement was also used. The aim of the current study was to diagnose the species *H. phaeopteralis* (Crambidae: Lepidoptera), which is first recorded attacking turf grass of a football stadium in Basrah province, Iraq and to update our knowledge with recently collected data on the fauna of Crambidae of Iraq.

Keywords: Crambidae, *Herpetogramma*, Iraq. Lepidoptera, New record.

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Introduction

More than 16,000 species of *Pylodidea* have been identified around the world so far (1). They were originally detected as serious pests of lawns and golf courses during the drought of 1928–1934, which impacted the majority of the United States. Bohart (3) has been found all over the world, especially in China, Korea, Gambia, Kenya, Madagascar, Mauritius, and Seychelles., Madagascar, Mauritius, Seychelles, South Africa, Sudan, and many other countries also recorded this pest (66 and 8). The adult stage is when you've reached your full potential. Snout moths (a term shared by the remainder of the Crambidae, subfamily Crambinae) are adults, and sod webworms, which are also known as webworms or grass webworms, are the larvae (10). The current research is the first attempt to investigate this genus in Basrah Province, Iraq, as there is no previous study has been reported.

Material and Methods

As a response to the attention received from the management office of Basrah football stadium, Iraq, which is located west of Basra Coordinates: 30°29'38"N 47°48'43" E. There was a big circle within the grass area that became dry and yellow. The Entomological team from the University of Basra has visited the stadium and collected a sample of soil and grass on 14/6/2019. The sample was placed in a plastic bag and brought to the laboratory (Figure 1).

In the laboratory, an investigation had been done for collecting the present pests (insects' larvae or others). These pests were identified either with compound eyes for the big organism or using the dissecting

microscope for small larvae. The collection was done three times, over 21 days. The investigation reflects that many larvae (live or dead) of different instars, were found. All larvae were picked up using fine forceps and preserved in a cap screw tube (9 × 3 cm) containing 75-80% alcohol and kept until use. Some of them (live one) were kept in a jar of (10 × 30 cm) containing some soil, forgetting adults.

Identification processes were carried out following Gerald (4 and 5) and the diagnosis was confirmed by Dr. Kadhim Saleh Hassana, College of Science, Basrah University, Basrah, Iraq. Program of ImageJ for measurement was used as well (2).



Figure 1: Big circle within the grass area, 1= Unaffected area 2= Affected area (Big circle), 3=Larvae during feeding.

Results and Discussion

Taxonomy and synonyms

Herpetogramma phaeopteralis (Guenée, 1854)

Botys phaeopteralis Guenée, 1854

Acharana descripta Warren, 1892

Botys additalis Walker, 1862

Botys cellatalis Walker, 1866

Botys communalis Snellen, 1875

Botys inhonealis Walker, 1866

Botys neloalis Walker, 1859

Botys otreusalis Walker, 1859

Botys plebejalis Lederer, 1863

Botys triarialis Walker, 1859

Botys tridentalis Snellen, 1872

Botys vecordalis Guenée, 1854

Botys vestalis Walker, 1859

The identification process showed that the collected larvae belonged to the family Crambidae. Moreover, examination of the adult confirms, that it belongs to the genus *Herpetogramma* and the species *phaeopteralis*.

Distribution:

Herpetogramma species attack turf grasses (10), *Herpetogramma phaeopteralis* have been recorded for the first time in Iraq at the football stadium in Basra. However, there has been a survey for this insect pest in the Basrah region.

Economic importance:

In nearly 100 nations in tropical and subtropical sections of the world, the sod webworm has a considerable economic impact on turfgrasses. Bermuda grass, *Cynodon dactylon* (L.), Persoon centipede grass, *Eremochloa phiuroides* (Munro) Hackel, seashore paspalum, *Paspalum vaginatum* Swartz, and St. Augustine grass, *Stenotaphrum secundatum* (Walter) Kuntz are among the turf grasses that sod webworm larvae feed on., and zoysia-grass, *Zoysia japonica* (Steude), especially on newly established sod, lawns, athletic fields, and golf courses, resulting in

yellowing, drying and patchy growth of foliage (Reinert, *et al.* 2009).

Material examined:

All insects were examined using dissecting microscope type Leica EZ4 as well a Nikon D5300 Lens 18-55mm camera was used to take photos.

Diagnostic features:

The features used for the diagnosis were circular, dark spots all over the body of the larvae. Adult features: color, size, length of wings, the shape of wings at rest, wing veins, a long spine on the tarsal segment, and terminal segment in males and females.

Below is the full description of the four stages, egg, larvae, pupa, and adult:

Egg: deposited by the female which is a cluster in shape. They are white and then mature became deep brownish. Eggs are oval and deposited in grouped grass.

Larva: (Figure 2) the larval stage pass through 6 instars. The larval width is arranged between 0.225mm and 1.267mm depending on the larval instar. The length of the first instar larvae is 9–13 mm, and the last instar larvae are 24–28 mm (9). They overwinter in thatch or soil as a final or penultimate larval instar. Larvae will pupate as the weather warms up, and moths will emerge in late spring or early summer. Females of the first generation start laying eggs in early June and larvae can be appeared in late June. Larvae eat grasses, particularly turf grasses, but their primary host plants are cool-season grasses with fewer records on warm-season grasses. When disturbed, some species feed on maize, wheat, rye, oats, timothy-grass, and other grasses in pastures and meadows,

writhing the most in areas with permanent sod which make them serious insect pests

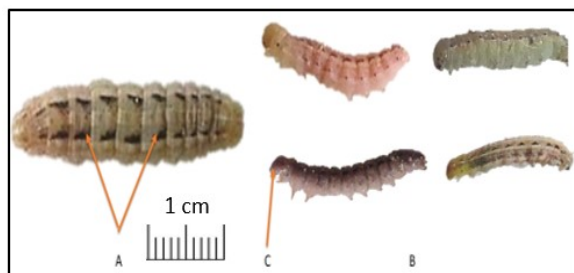


Figure 2: larvae character: A=dorsal view showing the black spots=lateral view showing the larvae color C= showing the head capsule.

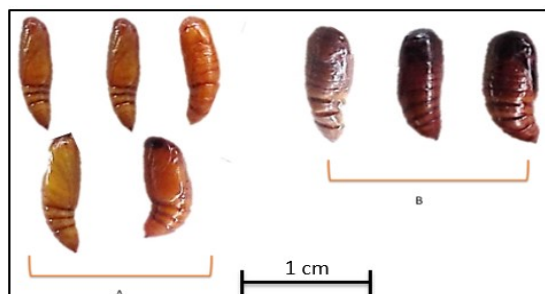


Figure 3: pupae of the insect, A= pale yellow at first, B=darkening to a mahogany brown.

Pupa: found buried in the upper root I the soil, they are lightly brown, with about 8-10mm long (Figure. 3).

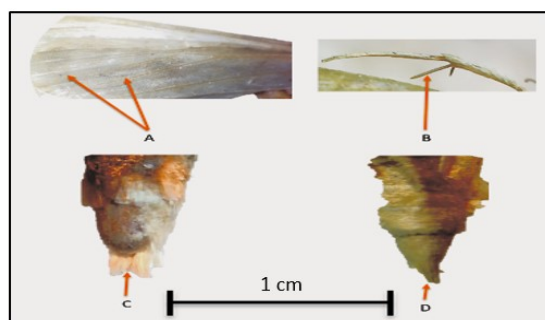


Figure 4: Adult character. A= longitudinal veins that reach the outer margin the wing, B= first tarsal segment which has a long spine, C= terminal segment in female with a large opening, D= the terminal segment in males is a fine extension.

Adult: Adult males and females are different in several characters, e.g. the anal segment the male is slimmer than the female. also, female has 5 abdominal segments, but in male, there are 6 segments. The adult is general are deeply brown in color.

References

- 1 - Ackery, P. R.; R. De Jong and Vane-Wright, R. I.1999.The Butterflies: Hedyloidea, Hesperioidea, and Papilionoidea. In 'Lepidoptera, Moths, and Butterflies. Volume 1. Evolution, Systematics and Biogeography'. (Ed. NP Kristensen.) pp. 263–300.
- 2 - Al-Saad, L. A and H. Z. Hussain.2018. The Basic of Image Processing with ImageJ. Iraqi National Library and Archive. Baghdad. Iraq. pp. 116.
- 3 - Bohart, R.1947.Sod webworms and other lawn pests in California. Hilgardia, 17(8):267-308. DOI: 10.3733/hill.v17n08p267.
- 4- Gerald, M. F.2007.Moths of North Dakota an online identification guide.<https://www.ndsu.edu/ndmoths/ndmoths/identification%20keys.htm>.
- 5 - Gerald, M. F.2009. Moths of North Dakota an online identification guide. http://www.afromoths.net/species/types_museum.
- 6 - Kerr, S. H.1955.Life history of the tropical sod webworm *Pachyzancla phaeopteralis* Guenée. The Florida Entomologist, 38(1):3-11.
- 7 – Meagher, R. L.; N. D. Epsky and Cherry R.2007.Mating behavior and female-produced pheromone use in tropical sod

- webworm (Lepidoptera: Crambidae).
Florida Entomologist 90: 304-308.
- 8 - Nuss, M.; B. Landry; R. Mally; F. Vegliante; A. Tränkner; F. Bauer and Speidel, W.2003. Global information system on Pyraloidea. URL: www.pyraloidea.org. Available at www.pyraloidea.org/[Date accessed: 17 February 2021].
- 9 - Patricia, J. V.; Michael, G. V. and Haruo, T. 1999. Turfgrass Insects of the United States and Canada (2nd ed.). Ithaca, New York: Cornell University Press. ISBN 0.
- 9- Reinert, J. A.1976. Control of sod webworms (*Herpetogramma* spp. and *Crambus* spp.) on bermudagrass. Journal of Economic Entomology, 69(5), 669-672.
- 10 – Reinert, J. A.; M. C. Engelke; A. D. Genovesi; A. Chandra and McCoy, J. E. 2009. Resistance to tropical sod webworm (*Herpetogramma phaeopteralis*) (Lepidoptera: Crambidae) in St. Augustine grass and zoysia grass. International Turfgrass Society Research Journal. 11: 663–6

