

A Survey of Biological Control Agents in Tripoli, S.P.L.A.J.

NAWAL A. HESSEIN¹

ABSTRACT

A four year survey for entomophagous insects and predaceous mites has been carried out. Different kinds of traps and different rearing methods were used. Many important species have been found. New records include four orders, one sub-order, 16 families, one sub-family, and 52 species of which 19 were identified up to the generic name only.

INTRODUCTION

Insect parasites and predators play an important role in insect pest control. In the Libyan Jamahiriya, very little information have been published on this subject, and the only catalog on Libyan insects published Damiano (1) does not include many of the observed species. The main purpose of this investigation is to report the natural enemies which were found in the last four years.

MATERIALS AND METHODS

The insect and mite natural enemies listed in this report were either collected by a hand trap or by a light trap placed in the farm of the Faculty of Agriculture. The same light trap described by Hessein and Kraim (4) was used in this study. The collected immature stages were reared in the laboratory to the adult stage. All samples were sent to the Commonwealth Institute of Entomology in London, England, where they were identified, and to whom the author extends her thanks and gratitude.

RESULTS AND DISCUSSION

The following are the groups of natural enemies that were collected. All the names with asterisk are the newly reported species, sub-families, families, sub-orders, and orders.

¹ *Department of Plant Protection, Faculty of Agriculture, University of Alfateh, S.P.L.A.J.*

I. Insecta***Order Odonata — Anisoptera**

An unidentified species of a dragonfly.

Order Dictyoptera — Mantodea*Mantidae**

**Sphodromantis bioculata* Burm.

**Mantis religiosa* Linn.

Order Dermaptera

An unidentified species of an earwig.

Order Thysanoptera**Thripidae**

**Scolothrips sexmaculatus* (Pergande)

The six spotted thrips is a predator of the phytophagous mite *Tetranychus hydrangae* Pritchard and Baker, which is a pest of the blue dawn flower *Ipomoea leari* Paxt.

***Order Hemiptera — *Heteroptera**

Natural enemies from this group were usually associated with different species of aphids or tetranychid mites infesting alfalfa, oleander, bean, and chick-peas plants.

***Coreidae**

**Camptopus lateralis* (Germ.)

***Lygaeidae**

**Caenocoris nerii* (Germ.)

***Nabidae**

**Nabis* sp.

***Reduviidae**

**Reduvius jakowleffi* Retter

**Reduvius* sp.

For the latter family, the prey species is not known yet.

Order Neuroptera**Chrysopidae (Green facewings)**

**Chrysopa carnea* Steph.

**Chrysopa genei* Rambur

**Chrysopa nana* Mcl.

**Chrysopa septumpunctata* Wesmael

Hemerobiidae (Brown lacewings)

** *Wesmaelius* sp.

* *Hemerobius* sp.

23 Myrmeleontidae (Ant lions)

* *Creoleon grisens* (Klug)

* *Maracanda lineata* Navás

* *Morter alternans* (Brullé)

* *Morter hyalinus* (Olivier)

* *Mymecaelurus* sp.

* *Neuroleon tenellus* Klug

* *Nohoveus* sp.

Order Diptera

* Asilidae

An unidentified species of a robber fly.

* Bombyliidae

An unidentified species of a bee fly.

* Dolichopodidae

* *Hydrophorus praecox* (Lehmann)

* Sarcophagidae

* *Sarcophaga* sp.

* *Parasarcophaga* sp.

The latter species is a parasitoid that had been reared from adults of grasshoppers.

Syrphidae

* *Spharrophoria scripta* L.

* Syrphinae

* *Eristalinus aeneus* Scop.

* *Eristalinus taeniops* Wied.

* *Eristalis tenax* L.

* *Melanostoma* sp.

Larvae of these syrphid flies were found in roses, citrus, oleander, and alfalfa plants infested with aphids.

* Tachinidae

* *Tachina* sp.

Order Coleoptera

* Carabidae

* *Calosoma olivieri* Dej.

* *Graphipterus serrator* (Forsk.)

* Cicindelidae

* *Cicindela melancholica* F.

Coccinellidae

Coccinella septumpunctata L.

Coccinella undecimpunctata L.

* *Exochomus nigripennis* (Er.)

* *Myrrha octodeimguttata* (L.)

Scymnus sp.

Stethorus sp.

The lady beetle *Stethorus* sp. preys on the phytophagous mite *Tetranychus hydrangae* Pritchard and Baker.

* Meloidae

* *Mylabrus* sp.

* Paussidae

* *Paussus themsonii* Reiche

Order Hymenoptera

Damiano (1) had reported 111 species from this order. They belong to families Bethyridae, Braconidae, Chalcididae, Eulophidae, Eumenidae, Evaniidae, Ichneumonidae, and Sphecidae.

Braconidae

Apanteles glomeratus Linn.

A parasite reared from the larvae of the cabbage butterfly, *Pieris rapae* (Linn.).

Aphidius sp.

Reared from different species of aphids.

* *Meteorus* sp.

* *Microplitis similis* Lyle

* *Opius* sp.

* *Yelicones* sp.

* *Zelex chlorophthalma* Nees

Eumenidae

* *Delta emarginatum* Linn.

Evaniidae

An unidentified species.

Ichneumonidae

* *Diadegma* sp.

* *Gelis* sp.

Hemiteles sp.

* *Meloboris* sp.

* *Netelia* sp.

* *Ophion* sp.

* *Ophion* sp.

Pimpla instigator Fab.

This last species is a parasite of an unknown moth species belonging to the family Liparidae, whose larvae heavily attack the *Acacia* trees in the fall.

* Pompilidae

* *Agenioideus excisus* Morawitz

* Scoliidae

* *Megascolia bidens* Linn.

Sphecidae

**Philanthus triangulum* var. *diadema* Fabricius

**Podalonia capensis* Lepeltier

**Sceliphron quartinae* (Gribodo)

II. Acarina

Phytoseiidae

Phytoseiulus persimilis Athias-Henriot

This predatory mite was collected from leaves of the blue dawn flower *Ipomoea leari* Paxt. infested with the phytophagous mite *Tetranychus hydrangae* Pritchard and Baker (2).

Typhlodromus athiasae Porath and Swirski

This phytoseiid has been found associated with the carmine mite *Tetranychus cinnabarinus* (Bois.) on citrus (3).

Some of the species reported in this work are very successful natural enemies in many parts of the world. Therefore, the encouragement and expansion of this field of study in Libyan Jamahiriya is highly recommended.

LITERATURE CITED

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حصر للاعداء الحيوية في طرابلس**نوال احمد حسين****المستخلص**

تم حصر الاعداء الحيوية الحشرية والحلم المفترسة لمدة أربع سنوات استعمل لهذا الغرض أنواع مختلفة من المصائد ووسائل التربية . وجدت عدة أنواع هامة من الاعداء الحيوية التي وجدت في أماكن أخرى من العالم . وقد تعمدت التسجيلات الجديدة أربع رتب ، تحت رتبة واحدة ، ستة عشر عائلة ، تحت عائلة واحدة واثنين وخمسون نوع ، منهم تسعة عشر نوع تم تصنيفهم الى الجنس فقط .