

Ecological-Faunist Analysis of Entomophages of Eastern Fergana

Dendrophil Coxides

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Abstract: In the Fergana Valley, 18 species of coccidia are found in orchards, infecting fruit trees. Studies have shown that 3 species of entomophagous biological relatives of cocci are predators, 9 species are parasites and 2 species are super-parasites. Wild-type species of entomophagous females feed on coccidial bodies, larvae, ovaries, or egg sacs. Five species of parasitic entomophagous species are found in the coccidial body of females, 6 species in the body of larvae, 1 species in the egg sac, and 2 species in primary terns.

Keywords: coccids, entomophagous, “parasite-host”, “predator-prey”, orchard, East Fergana.

Introduction

World experience shows that the negative impact of coccidia on trees and shrubs is increasing year by year, and the economic damage to horticulture and forestry is increasing [10, 11, 20]. A number of scientists point out that in the development of effective measures to control pests, the identification of entomophages living in their bodies with greed and predation, the analysis of their life processes in contact with their hosts, especially through a system of "parasite-host" and "predator" prey. is of great scientific and practical importance [7, 14, 15, 18, 19].

Scientific sources provide a number of data on the species composition, distribution and bioecology of coccidia of orchards in Uzbekistan [2, 11, 15, 16]. In the conditions of the Fergana Valley, 18 species of coccidia are found in orchards and cause serious damage to horticulture [11, 15, 16]. However, their entomophages have not been thoroughly analyzed and the scope of scientific evidence about them is somewhat limited. The available data also belong to the last century [4, 10].

Therefore, special attention has been paid to the extensive study of entomophagous coccidia. This article presents the results of research on harmful coccids found in orchards of East Fergana region and some species of entomophagous.

Material And Research Methods

The research was conducted in 2018-2020 on the basis of individual and complex faunal expeditions in the plains, hills, foothills, mid-mountain regions, cultural and natural landscapes of East Fergana. Commonly accepted coccidiological methods in the collection and storage of coccids [3, 5] and insect detectors in the detection of entomophagous, a number of scientific sources were used [1, 3, 5, 6, 8, 9, 10, 13, 16, 17]. In nature and in the laboratory, mainly acacia lizard (*Parthenolecanium corni* Bouche), curly lizard (*Eulecanium rugulosum* Arch.), Purple shield (*Parlatoria oleae* (Colvee), red giant worm (*Drosicha turkimonica* Arch.) Entomophages of *Phenacoccus mespili* Sign.), Plum beetle (*Sphaerolecanium prunastri* Fonsc.) And pistachio caterpillar (*Anapulvinaria pistaciae* Bodenh.) Were routinely monitored and parasites and predators were observed.

Results And Their Analysis

Studies have shown that coccidia are infested by entomophagous insects belonging to the categories of insects, such as hard-winged, winged, and bivalve. The following is information about the entomophages of some coccidia found in the East Fergana region.

1. *Cryptochaetum* sp. – cryptoxetum (cotton parasite). Representative of the family Cryptochetidae.

Lifestyle: parasite.

Main host: red giant worm (*D. turkestanica*).

Location: female coccid body. Forage plants of the genus *D. turkestanica*: willow, poplar, quince and juniper.

Location: Altynkul, Asaka, Andijan, Khojaabad districts of Andijan region and the cities of Andijan and Khanabad.

Biology. Entomophagous red giant worm in the conditions of Northern Fergana *Cryptochaetum* sp from the family Cryptoshaetiidae. was found to be The cryptoxetum type is a representative of the mosquito generation that feeds on red giant worm eggs, whose larvae have been reported to feed on eggs laid by giant worms. In the first ten days of June, a female mosquito lays its eggs on the body of a female of a giant worm. The bodies of infected red giant worms were

covered with thick white dust (14-17.VI.2019, Andijan, Altynkol). Adult imagoes were found to fly out of the worm's body in the last decade of June (24-28.VI.2019, Andijan, Bulakboshi).

2. *Microterys* sp. – microteris, a member of the Encyrtidae family of parietal birds.

Lifestyle: parasite.

Main host: pistachio pillow worm(*A.pistaciae*) and other counterfeiters.

Location: worm's egg sac.

A.pistaciae forage plants of the genus: handon pistachio.

Location: Bogishamol Park, Andijan district, Andijan region, Andijan city.

Biology. Its larvae are pistachio pillow worms (*A.pistaciae*) fed on eggs. In June 2018, it was found that several representatives of the microtermis came out of the pillow worm egg sac (16-21.VI.2018, Andijan). Microteris - noted in many falsifiers. It was observed that its larvae feed on laid eggs and do not cause a significant decrease in the number of pistachio caterpillars.

3. *Leucopis annulipes* Ztt. – leukopis. Representative of the Chamaemyiidae family.

Lifestyle: wild.

Main prey: pistachio pillow worm(*A.pistaciae*)egg bag; apple unsimon worm (*P.mespili*); acacia counterfeit (*P.corni*) female body and ovaries.

A.pistaciae forage plants of the genus: handon pistachio.

P.mespili forage plants of the genus: seed fruit trees.

P.corni Forage plants of the species: polyphagous - fruit and ornamental trees and shrubs.

Location of detection: *A.pistaciae* – Andijan district, Bogishamol park; *P.corni* – Andijan city, Khojaabad, Kurgantepa, Khanabad city; *P.mespili* – Khojaabad district

Biology. Pistachio is one of the serious predators of pillow worms. Leukopsis eggs were observed to be laid by a pillow worm in the egg sac, and the host was found to develop inside the egg sac. The larvae feed on the eggs inside the egg sac. Then they became cocoons. The development of the larva from egg to cocoon took 11-12 days. In our observations in Andijan, it was observed that leukopis had a significant effect on the reduction of the number of pistachio pillow counterfeits (1-5.V.2018-2020, Andijan). Parasite activity increased during the egg-laying period of the pistachio pillow worm.

The flight of leukopsis into the egg sac of the pillow worm was observed in the 2-3 decades of May 2018. In the Crimean context, the efficacy of leukopsis is between 10–30%, [14]. In our observations, its efficiency was much higher (20-45%).*Leucopisannulipes*Ztt. the fly was previously considered a predator of unsimon worms [12]. Our research has shown that leukopsis is a predator for many other liars, as well as for worms.

Leukopsis larvae develop in the ovaries in the body of a lizard female, which feeds on the egg laid by its owner. Leukopsis' flight from the master's body began with the arrival of the

moderately warm months. According to the results obtained, the acacia counterfeit (*P. corni*) The number of eggs laid by a female with leukoplakia reached 10-15. In the conditions of the Fergana Valley *P. corni* among the eggs laid, leukopis was recorded in late April and May in the larvae of acacia lizards. Leukopsis feeds on acacia fake eggs and develops in about a month. Usually in the body of the host female there are 1-2, sometimes up to 4 larvae, which then turn into fake cocoons. In most cases, one of them turns into a cocoon. In the laboratory, the isolated larvae continue to eat the eggs of the lizard given to them. Leukopsis larvae that turn into fungi have also been observed in soil and tree bark.

The role of leukopsis larvae is important in reducing the number of acacia fake eggs. They were found to be 25–30% biologically effective in valley conditions.

4. *Hyperaspis* sp. – hyperaspis represents the family Coccinellidae.

Lifestyle: wild.

Main prey: pistachio pillow worm (*A. pistaciae*) ovaries.

A. pistaciae forage plants of the genus: handon pistachio.

Location: Bogishamol Park, Andijan district, Andijan region.

Biology. Entomophagous is a predator of coccidia, aphids, and other insects.

In the conditions of the Fergana Valley, mature hyperaspis beetles appear in the second half of April and in May. After mating, the females are pillow worms (*A. pistaciae*) lays one egg on the ovary. The larvae that hatch from the eggs at the first age feed on the eggs of the pillow worm. They eat the eggs inside one ovary and pass them into other fresh egg sacs. About 50 ovaries of a pillow worm will be needed until the development of a larva is complete. Adult larvae of hyperaspis on the body of the pillow worm were also recorded in the second decade of June. In the laboratory, it was found that one hyperaspis larvae finished eating all the eggs in a single egg bag by a pistachio caterpillar in one day. The larvae, which have completed their feeding, turn into mushrooms in the ovaries of the lizards in the third decade of June. The emergence of mature beetles from the fungus was recorded in June 2019 (19-23.VI.2019, Andijan).

5. *Chilocorus bipustulatus* (Linnaeus, 1758) – Coccinellidae representative of the family.

Lifestyle: wild.

The main owner: acacia counterfeiter (*P. corni*) larvae and females.

P. corni Forage plants of the species: polyphagous - fruit and ornamental trees and shrubs.

Location: Khojaabad, Kurgantepa districts of Andijan region and the cities of Andijan and Khanabad.

Biology. Hilokorus was recorded in August 2019 in the colony of larvae of the second-year pistachio pillow worm (14-21.VIII.2019, Andijan, Altynkol). Hilokorus feeds on larvae and females of many coccidial species. It winters in bark cracks and in hidden places during the beetle stage.

Activated in March and April, it feeds on the larvae of acacia lizard (*P.corni*). In the conditions of Andijan, the contribution of this parasite to the reduction of acacia lizards is not high, as it feeds mainly on shields and their larvae.

6. *Coccophagus lycimnia* (Walk.) – coccygeal Representative of the Aphelinidae family.

Lifestyle: parasite.

The main owner: a plum liar (*S.prunastri*); twisted forger (*E.rugulosum*); acacia counterfeit (*P.corni*).

Location: larvae and female bodies.

S.prunastri Forage plants of the genus: bean fruit trees - peach, cherry, plums, cherries, wild cherries.

E.rugulosum forage plants of the species: hawthorn, poplar, willow.

P.corni Forage plants of the species: polyphagous - a fruit and ornamental tree and shrubs.

Location of detection: *S.prunastri* – Khojaabad district, Khanabad and Andijan cities; *E.rugulosum* – Andijan city, Ulugnor district; *P.corni* – Andijan and Izbaskan districts.

Biology. Plum is a free-ranger of the lizard (second young larvae and females). The larvae overwinter in the larval body of the coccophagous host. The larvae that emerge from the winter continue to develop and turn into mushrooms. Infected larvae of plum lizard differ from uninfected by its dark color (27-29.IV.2018, Andijan, Ulugnor). In the conditions of Eastern Fergana, the mummified larvae of the coccophagus begin to appear in the second half of April, and the adults begin to fly out of the fake body in the second decade of April. The incidence of coccophagous lesions in lizards was 10%, sometimes 30–35%. Flying lizards infect young and adult females of lizards.

Acacia is a fake for this species (coccophagus) (*P.corni*) is also the master. The parasite overwinters in the body of the second-year larvae of the thyroid. The larvae of the acacia lizard infested with coccophagus are no different from those infested in early spring. But with the development of parasitic larvae, they mummify and darken and shine (4-7.V.2018-2020, Khojaabad, Khanabad). In valley conditions, the coccophagus infested the second young larvae and young females of the acacia lizard and produced 3 or 4 generations. The coccophagus does not play a significant role in reducing the number of acacia lizards. It infects its owner about 5-10% of its second-year larvae. *Coccophagus lycimnia* (Walk.) type second-year twisted counterfeit (*E.rugulosum*) also parasitizes. Its larvae hibernate in the body of wintering host larvae. As the days get warmer in the spring, their development accelerates. When they finish feeding, they turn into a fungus inside the pest larva. In the conditions of the Fergana Valley, they fly from 2-year-old larvae in the second decade of April.

7. *Metaphicus melonostomatus* (Timb.) – metaphysics. Representative of the family Encyrtidae.

Lifestyle: parasite.

The main owner: a plum liar(*S.prunastri*); twisted forger (*E.rugulosum*); acacia counterfeit (*P.corni*).

Location: larval body. Forage plants of shrubs: seeds and seeds of fruit trees and shrubs, ornamental trees.*P.corni* Forage plants of the species: polyphagous - fruit and ornamental trees and shrubs.

Location of detection: *S.prunastri* – Khojaabad district, Khanabad and Andijan cities; *E.rugulosum* – Andijan city and Ulugnor district; *P.corni* – Andijan and Khanabad cities, Khojaabad and Kurgantepa districts.

Biology. The second-year-old plum is the primary larva of the false larvae. Metaphycus spends the second larval period in the body of the host larva. The flight of the metaphysis from the body of the host was observed in late April and the first ten days of May. Typically, metaphycus females fly with their developed gonads, and it has been found that as soon as the host leaves the body, it begins to infect the lizard.

8. *Mikroterys hortulanus* (Erd.) – microterism. Representative of the family Encyrtidae.

Lifestyle: parasite.

The main owner: a plum liar(*S.prunastri*).

Location: the body of an adult female.

S.prunastri Forage plants of the genus: bean fruit trees - peach, cherry, plums, cherries, wild cherries;

Location: Khojaabad district, Andijan and Khanabad cities.

Biology. A plum forger in the Fergana Valley (*S.prunastri*) parasitizes. It overwinters in the body of the host during the adult female stage, where they emerge from their wintering grounds in the spring and move on to additional feeding. During this time, their gonads develop. In the Andijan region, feeding larvae of the microtaris were observed in the body of the lizard in the third decade of May (19-23.IV.2019, Khanabad). In valley conditions, the percentage of pest infestation with microtermus varies. It was noted that in the lowlands of the valley, the biological efficiency of tequila is 18-30%. However, according to observations in Arslanbob, this figure was 52-84%.

9. *Tetrastichus gallerucae* Fonscolmbe. – tetrastixus. Representative of the family Eulophidae.

Lifestyle: parasite.

The main owner: a plum liar(*S.prunastri*) secondary parasite.

Location: larvae and fungi of primary amphibians.

Fodder plants of *S. prunastri* type: bean fruit trees - peach, cherry, plum, cherry, wild cherry;
Location: Khojaabad district, Khanabad and Andijan cities.

Biology. This species is a secondary parasite of many lizards, including plum lizard (*S. prunastri*). The larvae of the parasite develop at the expense of larvae and fungi of primary amphibians, sometimes reducing their number to 18–20% or less. *Tetrastixus* overwinters in the larvae stage of the last age in the mummies of microthermal fungi. In the plum colony of Arslonbob, the emergence of microterivers in the colony was recorded in the second decade of March under laboratory conditions (13-15.III.2019, Arslonbob). In the plum colony, dead *tetrastixus* larvae were found in the dead fungi of the microtermis.

10. *Pachineuronsolitarum* Hart. – paxinevron. Representative of the Aphelinidae family.

Lifestyle: parasite.

The main host: metaphyxus, coccophagus and others.

Location: larvae and fungi of primary amphibians.

Location: Khojaabad, Ulugnor, Izbaskan districts, Khanabad and Andijan.

Biology. The primary larvae are larvae of larvae. It infects the larvae and fungi of the metaphysis, coccophagus, and others, and can control up to 50% of their number.

11. *Aphytis proclia* (Wlk.) – apitis. Representative of the Aphelinidae family.

Lifestyle: parasite.

Main boss: purple shield (*P.oleae*).

Location: female coccid body.

Forage plants of the genus *P.oleae*: seed fruit trees.

Location: Andijan and Izbaskan districts.

Biology. Purple shield (*P.oleae* (*Colvee*)) parasitism has been reported (25-28.V.2020, Izboskan). Its larvae live by sucking the female of the coccidia. Adult larvae are lemon-yellow in color. Observations have shown that larvae of different ages of aphids overwinter on the back of the female host.

12. *Metaphycus* sp. – metaphysics. Representative of the family Encyrtidae.

Lifestyle: parasite.

The main owner: acacia counterfeiter (*P.corni*)

Location: larval body.

P.corni forage plants of the species: polyphagous - fruit and ornamental trees and shrubs.

Location: Khojaabad and Kurgantepa districts, Andijan and Khanabad.

Biology. Its larvae overwinter in the larvae of acacia lizard (*P.corni*). The adult flight of the metaphycus master larvae occurs in mid-May. The mummified larvae of the acacia lizard infested with metaficus are yellowish-green in color (13-17.V.2019-2020, Kurgantepa, Khojaabad).

13. *Metaphycus melonostomatus* (Timb.) – metaphysics. Representative of the family Encyrtidae.

Lifestyle: parasite.

The main boss: a twisted fake (*E.rugulosum*).

Location: second-year larvae and young females.

E.rugulosum forage plants of the species: hawthorn, poplar, willow.

Location: Ulugnor district and Andijan city.

Biology. This type is a twisted liar(*Eulecanium rugulosum* Arch.) infects second-year larvae and young females. Its larvae overwinter in a twisted false body. In the Fergana Valley, it was discovered that the body of the greedy master flew from the body in late April to mid-May. The biological efficiency of the parasite is low (5–8%).

14. *Blastothrix scenographica* (Sugn.) – blastotrix. Representative of the family Encyrtidae.

Lifestyle: parasite.

The main boss: a twisted fake (*E.rugulosum*).

Location: second-year larvae and females.

E.rugulosum туринингозуқаўсимликлари: hawthorn, poplar, willow

Location: Ulugnor district and Andijan city.

Biology. Blastotrix twisted counterfeit(*E.rugulosum*) is an effective freelancer. Its larvae overwinter in their second-year larvae. The flight of blastotrix master larvae was recorded in the second decade of April. Mass flights will be observed in mid-April and the third decade. It has been found that the rate of infestation of the lizard of this lizard reaches 35%.

Conclusion

Entomophages of 14 species of dendrophilic coccids were recorded in East Fergana. In the dendroflora, the feeding properties of entomophages with coccids lead to the formation of specific "parasite-host" and "predator-prey" relationships. According to the ecological-faunal description of entomophagous coccidia of orchard agroecosystems, predatory and parasitic insects exhibit trophic interactions with plant pests in several directions. In particular, 3 species of coccidia-fed entomophagous species were studied in East Fergana. (*L.annulipes*, *Hyperaspis* sp., *C.bipustulatus*) wild, 9 types (*Cryptochaetum* sp., *Microterys* sp., *C.lycimnia*, *M.melonostomatus*, *M.hortulanus*, *A.proclia*, *Metaphycus* sp., *M.melonostomatus*, *B.scenographica*) parasite and type 2 (*P.solitarum*, *T.gallerucae*) and are extreme parasites. If the identified predator feeds on the female insect body, larva, ovary or egg sac, 5 types of parasites depending on the location (*Cryptochaetum* sp., *C.lycimnia*, *M.hortulanus*, *A.proclia*, *M.melonostomatus*, *B.scenographica*) female coccid body, 6

species(*C.lycimnia*, *M.melonostomatus*, *T.gallerucae*, *Metaphycus* sp., *M.melonostomatus*, *B.scenographica*) larval body, type 1 (*Microterys* sp.) egg bag, as well as 2 types (*P.solitarum*, *T.gallerucae*) and damages the larvae and fungi of the primary tekins.

Based on the feeding characteristics of harmful and beneficial insects in different directions in the entomocomplex, there is a constant interdependence and competition between species in the ecosystem. That is, trophic pairs are formed between plant organisms in the order "producer → consumer" and "consumer → reductant". This, in turn, leads to the expansion of the food chain of the same plant ecosystem and the formation of a secondary food chain in the "producer-consumer-reductant" system.

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