Published Date: - 25-11-2025
Page No: - 210-212

ANALYSIS OF THE LITERATURE ON THE USE OF COCCINELLIDS IN THE CONTROL OF AGRICULTURAL PESTS

X.P.Boriyeva
Associate professor at Turon university, Uzbekistan

M.Sattorova
Master's student at Turon university, Uzbekistan

Sh. Allaberganov
Master's student at Turon university, Uzbekistan

ABSTRACT
This article reviews and analyzes the literature on the use of coccinellids in the control of agricultural pests. More than 10 scientific sources have been examined. Scientific studies conducted in the world and in Uzbekistan are analyzed.

KEYWORDS: Pest, coccinellid, control, aphid.

INTRODUCTION
One of the main factors limiting crop productivity in agriculture is associated with insect pests, and in this regard the prospects for the use of natural entomophages are considered high [1, 7]. Coccinellids are beetles of significant economic importance, participating in the regulation of the population size of certain insect species, and also serving as food for a number of entomophagous species [5]. It is noted that predatory (entomophagous) coccinellid species play an important role in controlling the population dynamics of harmful biological species in natural ecosystems and agrocenoses [2].

It is known that in agriculture the species composition of insect pests of cereal crops exceeds 300 species, of which about 130 species occur on wheat. The coccinellids that form the object of our study (Coccinella septempunctata L., Propylaea quatuordecimpunctata L., Hippodamia tredecimpunctata L.) have been recorded as beneficial entomophages in wheat agrocenoses [2]. According to scientific sources, the number of cereal aphid species (Sitobion avenae F., Rhopalosiphum padi L.) may increase in agrocenoses to a maximum of 780–1930 individuals per m^2, and in such conditions coccinellids play an important role in their biological control.

Studies have shown that in cereal agrocenoses 17 coccinellid species are present, among which Coccinella septempunctata L., Propylaea quatuordecimpunctata L., and Hippodamia tredecimpunctata L. are dominant [57, p. 38; 209, pp. 4–26]. In the research of V.G. Kovalenkov, V.V. Kostyumov, and N.M. Tyurina it was noted that, under conditions where alfalfa aphid (A. crassivora Koch.) populations reach 105–185 individuals per plant, the presence of up to 7 coccinellid adults and larvae per plant ensures effective suppression of the pest, and as a result the need to use insecticides is eliminated.

At the same time, some coccinellid species can act as phytophages and cause damage in agriculture, and may also serve as carriers of certain fungi. Some coccinellid species are even included in the list of agricultural pests. In particular, studies have reported that the Asian lady

beetle (Harmonia axyridis Pallas) can cause significant damage to grape berries [3]. Likewise, the melon lady beetle (Epilachna chrysomelina F.), which is distributed in Southern Europe, Africa, Asia Minor, the Near East, Afghanistan, Azerbaijan, Turkmenistan, Uzbekistan and Tajikistan, causes considerable damage to cucurbit crops (melon, cucumber, pumpkin, etc.) at both larval and adult stages [5].

Studies conducted in California have shown that Hippodamia convergens is an effective entomophage against agricultural pests. In the USA, Rodolia cardinalis (Mulsant, 1850), introduced from Australia, has been tested for the biological control of agricultural pests [88, p. 25; 117, pp. 71–81]; in North and South America, Coccinella septempunctata (Linnaeus, 1758), Adalia bipunctata (Linnaeus, 1758), and Chilocorus bipustulatus (Linnaeus, 1758), introduced from Europe, have been used [7]; in North Africa, Harmonia axyridis (Pallas, 1773) (synonym: Leis axyridis Pallas), introduced from East Asia, has been tested [4]; in Abkhazia, R. cardinalis and Cryptolaemus montrouzieri (Mulsant, 1850), introduced from Australia, and Chilocorus inornatus (Weise, 1887), introduced from the Ussuri region, have been used for the biological control of agricultural pests. In all these cases, coccinellid species were tested for biological control purposes and positive results were recorded [2].

Coccinellid species possess a high degree of adaptability and are distributed in almost all ecosystems [6]. In addition, some researchers note that coccinellids are of importance as bioindicators in monitoring the condition of ecosystems [3].

CONCLUSION

The role of coccinellids in the control of insect pests has been examined in the literature. The works carried out worldwide and in Uzbekistan have been reviewed and analyzed; however, these scientific studies are not sufficient to fully evaluate their beneficial properties, and it can be seen that further research is needed. This, in turn, demonstrates the particular significance of our own scientific investigation.

REFERENCES

1. Анорбаев А.Р., Сулаймонов Б.А., Кимсанбаев О.Х. Вредители новых сортов хлопчатника и роль биологического метода борьбы // «Селекция ва уруғчилик соҳасининг ҳозирги ҳолати ва ривожланиш истиқболлари» республика илмий-амалий конф. материаллари тўплами. – Тошкент, 2014. – С.187-190.
2. Азимов А.А., Нариманов А.А. Изменчивость и средние показатели выхода волокна у растений хлопчатника F1 и родительских форм на фоне искусственного заражения тлей // Bulletin of Gulistan State University. – 2019. – V.2(6). – P.1-5.
3. Бутько Е.В. Видовой состав и распределение кокцинеллид (Coleoptera, Coccinellidae) антропогенных ландшафтов г. Читы // 9-я междунар. Пущинская школа-конф. молодых ученых «Биология – наука XXI века. – Пущино, 2005. – С.38
4. Поляк В.В., Дядичко В.Г., Трач В.А. Эколого-фаунистический обзор божьих коровок (Coleoptera: Coccinellidae) Юго-западной Украины // Известия Харьковского энтомологического общества. – 2006 (2007). – Т.XIV. – Вып. 1–2. – С.47-56.
5. Khan M.R., Sheikh M.K., Rafi M.A., Sharif A. Predatory coccinellid fauna (Coleoptera: Coccinellidae) of Sudhnuti District, Azad Jammu and Kashmir // Pak. J. Entomol. – 1999. – V.14. – P.5-7.

6. Rafi A.M., Irshad M., Inaytullah M. Predatory ladybird beetles of Pakistan // «Rohani Art Press» (Blue Area, Islamabad, Pakistan). – 2005. – P.105.
7. Бокина И.Г. Агроэкологическое обоснование использования энтомофагов в защите злаковых культур от тлей в лесостепи Западной Сибири // Автореферат дисс. ... на соиск. учен. степ. д.б.н. – Кинель – 2009. – С.4-26.