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Creation ofparent cell-reserve of entomophage bracon

Goal. Establishment of the entomophagous broiler carrier and its application in the system of biological protection of plants. Methods. The development was based on the experience of continuous cultivation of bracon during 20 years in the laboratory of the institute, analysis of the biological features of the entomophage and its phytophagous owners, and the methods for the creation of the retina of the enthomophagus of the trichogram. Results The principles of the creation of the entomophagous reservoir of the entomophage bracon-crawler parasite, which are used to protect crops from pests, have been developed. Conclusions The breeder-rescuer of the breach is a conveyor of plant crops, which during the season is the development of phytophages - natural hosts of the entomophagus.

Key words: bracon, matrix-reservoir, entomoculture.

Ensuring ecological safety and human health constantly require a significant reduction in the use of chemical plant protection products, which is the basis of the strategic agricultural policy of all leading powers. At the same time, it is impossible to maintain high yields without further improving the environmentally-based methods of protecting agricultural crops. Among them, the leading place is the biological method. Particular importance of the development of biological methods of plant protection acquires with the adoption of the Law of Ukraine No. 425 - VII "On the production and circulation of organic agricultural products and raw materials" [10]. The biological protection of crops should become the main instrument for implementing this law in practice. Of the known biological means of protection, a special role belongs to entomophagas, among which one of the promising species is bracon (Habrobracon hebetor Say.).

Bracon - crawler ectoparasite of many types of dangerous scalloped pests, including stem corn butterfly, scoop (maltovaya, cabbage, cotton), and others. [6, 7]. Before laying eggs, females of Bracon puncture the caterpillar with an ovipositor and introduce a toxin into the body, which leads to paralysis. The caterpillar loses mobility and stops feeding. The larvae, reborn from the eggs, feed on the body of the caterpiller until the moment of pollination. Females of the parasite selectively lay eggs, giving preference to the caterpillars of the middle and older age groups, which makes it possible to extend the terms of the parasite's settlement into agrocenoses.

Work on the application of bracon in Ukraine began in the 90s of the last century on technologies developed in Central Asia. The known technology of cultivating a parasite on different hosts, most often used the moth and mint flames [7, 8]. However, these technologies have not become widespread production introduction due to a number of imperfections in ensuring the technological process of mass production of the entomophage and its owner. Specialists of our institute developed the technology of mass parasite breeding and a modular set of equipment for the production of entomologic drugs bracon (KOM-B19). To breed the parasite, caterpillars of the Ephestia küchniella Zell. IV-V ages that are grown on milled barley are used [6].

In order to maintain the high quality and efficiency of the use of entomophagus in agrocenosis, a regular updating of the working culture of the entomophage during its massive breeding should be carried out. The source of replenishment of the specimens of the artificial population is the mother cultures, which are formed from insects, collected in the natural conditions of agrocenoses or in the mother-in-the-reserve. It is desirable to collect material for the production of mother-to-be crops in the area of the future application of a biological agent in order to ensure the maximum correspondence of the environmental features of the entomophage to the conditions for its further use.

There was a question of the creation of rescue larvae for parasite bracon [2 - 4].

Research methodology. The development was carried out on the basis of the experience of continuous cultivation of bracon during 20 years in the laboratory of the institute, analysis of the biological features of the entomophage and its phytophagous owners, and the methods for the creation of the retina of the enthomophagus of the trichogramm. The method of creation of the reservoir in the conditions typical for the Odessa region is considered. Insect Rescuer is a conveyor of plant crops, which during the season is the development of phytophagous - natural hosts of the entomophage, as well as natural populations of the parasite itself [2, 5]. The reservoir provides for the self-regulation of the trophic communication system of the parasite-host.

Research results. Under the mother plant for several years, allocate 0.5 - 3 hectares of agricultural land bordering with natural coenoses. Taking into account the agro-climatic characteristics of the region [1, 9], the plants, which recommended the plantation to be planted, and the range of pests of pests-owners of the parasite for settling the reservoir are defined.

The area of the mother-reservoir is divided into the required number of plots. The spring is cultivated in the classical methods. The composition of the planting plants should be such that the pests, the dragon's owners, had a permanent biomass feed for plants in a phase that is vulnerable to phytophagous fauna. Also, in the matrix during the entire growing season, flowering plants are needed to provide brachokas with carbohydrate nutrition in the stage of the imago. Considered 2 examples of planting areas of the mother-reservoir (Fig. 1).

The settlement of the mother-keeper with the pests who are hosts of the entomophage bracon are carried out artificially.

Their species composition depends on the plants planted in the reservoir, and the term of the growing season, which will be the catching of the imago bracon. Reservation of the reservoir should be carried out after planting the mother-reservator with plants that have reached the most vulnerable phase of development for pests. Hunting of pests for settlement is carried out in agrocenoses in the foci of infection of phytophages. Collection of phytophagous can be done by various means: mowing and shaking, using light and earth traps and collecting eggs and pest caterpillars. The collected material is identified in the laboratory. The caterpillars and pest eggplants in the reserve are laid down on plants. The implementation is carried out when the sun goes, it will help to better adapt in conditions that may differ from their living conditions [1, 9].

In the first year after the creation of the matrix-reservoir of settlement, the broth should be carried out when the number of phytophages in the areas of the reservoir and their age will allow the parasite to be reproduced. Carbohydrate food insects are derived from nectarous plants in the flowering phase. The second year after the establishment of the entomophage reservoir is introduced in the fall. During the operation of the reservoir, periodically determine the number of phytophages with a selective inspection of the plants and their fruits in the areas of the reservoir. The settlement of the reservoir's brook is carried out artificially in the stage of the imago or pupa, the latter is better because it depicts the pupa from the environment and adapts better to the environment. Enriched with a laboratory culture of broth. Several releases of a parasite are required (up to 2 thousand individuals per hectare every 7 days), which will enable in 1 - 2 months. after the colonization of the breach is guaranteed to be assembled in sufficient quantity of the founding colony of the entomophage at the end of the season. For the introduction of bracon in the reservoir is its passage through the main hosts in the natural climatic conditions and cross-breeding with individuals of local populations bracon. In such conditions survive only viable individuals with the best biological indicators.

At the end of the worker's season, the remains of plants are rolled up, placed at a certain distance from each other and humidified in dry weather. They will have a defecation that lasts in diapause. Capture of bracons from the mother-reservoir is carried out as needed.

In ITI Biotechnics, the design of a cartridge trap for capturing entomophage bracon was developed and an experimental batch was tested, which was tested directly during the collection of a parasite on field and garden crops (Figures 2, 3). Traps are made of polymer material, which makes it possible to use them many times in any natural environment. They consist of 2 parts, between which set a bait in the form of live caterpillars of mill firefighters taken from the laboratory culture. Between the parts are fastened with cast buttons and a thin rubber ring. The parasite penetrates through the mesh surface inside the trap and, with

its trap, is transferred to the laboratory for further propagation or collected and used as a starting population for mass production of bracon.

Receiving from the refreshment center during the season, the greater quantity of the breach required for the startup population, can be increased by the size of the reservoirs and, accordingly, additional maintenance and use costs, and an increase in the number of pledged traps (to increase the probability of contact with the entomophagus with them), without increasing the area of the reservoir and the costs of its maintenance and operation.

Conclusions

The method of creation of the reservoir mothers, which provides stable reproduction of populations of phytophages and entomophages, is developed. Phytocomplexes have been determined to ensure the continuous development of the entomophage bracon.

The use of the reservoir ensures the natural passage of the brooks through the main hosts in the natural climatic conditions and crosses with the individuals of the local breccia populations. In such conditions, only highly viable individuals with the best biological characteristics survive.

In the mother-reservator, the self-regulation of the trophic communication system is carried out by the parasite-host.

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