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## **DEMANDS AND CONDITIONS OF BUILDING THE CENTRE OF PARENT CULTURES OF HEXAPODS**

**The purpose.** To determine demands and conditions of building the Centre of parent cultures of hexapods for provision of bulk production of entomologic protective means of plants from pests. **Methods.** Informational and analytical with the use of results of own probes. Materials and publications are studied which are devoted to techniques of formation of parent cultures. **Results.** Main stages of selection of cultures of hexapods and parent cultures in particular are specified. Expediency is illuminated of evolution of that direction of basic researches. Principal attributes of parent cultures are brought as well as demands for their creation. Basic stages of formation of parent cultures on an instance of entomophage *Bracon* which include selection with general and basic processes of takeoff are shown.

**Conclusions.** List of basic demands and conditions of creation of Centre of parent cultures of hexapods for rising efficiency of protection of plants against pests in conditions of agrobiocenosis is brought.

**Key words:** Centre of parent cultures of hexapods, quality, selection.

The most important direction of biologization and ecologization of modern agriculture and, especially, the biological protection of plants is use of entomophages and acarifages. In recent years, there has been an increase in the number of many species of *Lepidoptera* - pests of agricultural crops. The need for entomophages has increased significantly, it is only possible to satisfy it conditions for the implementation of programs of mass cultivation of entomocultures. Progress in the field of biotechnology has made it possible the selection and use of insects and their physiological processes as elements of production cycles, which, in turn, created the conditions for the formation of such applied discipline as technical entomology. One of them the main tasks of technical entomology are creation and reproduction of insect crops as artificial populations with given properties [1]. To do this, in laboratory conditions, it is necessary to create uterine cultures, which according to physiological, genetic and entomological characteristics, approach wild populations of the species and will continue to be used during production as starting and for the

improvement of industrial crops. On the basis for this is the need to create Center of uterine cultures. The most famous producers of useful ticks and insects that with specialized centers, there are Koppert (the Netherlands), Biobest (Belgium), Biotus Oy (Finland) and BioBee (Israel).

**The purpose.** To determine the requirements and conditions for the creation of the Center of uterine cultures insects to ensure mass production entomological plant protection products against pests.

**Research methods.** The methodological basis for the establishment of the Center of uterine cultures is the main principles of technical entomology and many years of experience in the creation of laboratory and mother-to-be cultures of entomophages, acarifas and phytophagus.

**Research results.** The main ones stages of creating insect cultures are [2]:

- select the source material that meets the requirements of the breeding program;
- introduction of biomaterial into technocenosis and the creation of the initial population;
- optimization of cultivation by the main parameters of content, typing and standardization of culture;
- providing the culture of the given properties;
- laying breeding uterine culture for prolonged reproduction with given properties;
- creation and mass production of insect cultures with given properties and reasonable cost of the produced biomaterial.

One of the most important requirements for the breeding of typical entomophages cultures is to maintain low insect content avoidance of competition for spatial resources [3].

Uterine culture is laid after the completion of typing, selection, optimization and standardization of laboratory culture and are used to create a start colony of working culture and its improvement in the process of exploitation [4].

For uterine cultures, it is important to preserve the entire gene pool of the population created, high viability indicators at all stages of the life cycle, as well as

high productivity [1]. Control of entomological products in the conditions of technocenosis is carried out according to the values of general and target quality indicators [5, 6]. General indicators characterize the physiological state entomoculture. These include: mass and linear size of individuals, sex index imago, multiplication factor, duration of development of the generation and individual stages of ontogenesis, emergence from eggs, survival rate, actual fertility of females. Target indicators quality determines the effectiveness of the entomoculture. These include: search and migration activity, intensity and the degree of parasitism of eggs of the host [6]. For uterine entomocultures, it is necessary to control the general and target quality indicators, and for marketable entomoproduction - search and migration activity, the degree of parasitism of eggs of the host, fertility of females [5].

Thus, the main feature of the breeding culture of the *Trichogramma* is provision species composition and qualitative indicators indicated in the quality passport on the uterine culture of the *Trichogramma*, for 3 to 4 times its successive reproduction into a commercial *Trichogramma* [7].

In order to maintain the high quality and efficiency of the use of the entomophage in agrocenosis, it is necessary to regularly update the working culture of the entomophage during its massive breeding. The source of replenishment of the individuals of the artificial population are mother crops, which they are formed from insects, collected in the natural conditions of agrocenoses, or in the reservoir [8].

In the process of forming the uterine cultures conduct a selection that is divided into general and basic selection processes [9]. The general process of selection consists of selection according to morphological indicators, sexual activity, a sign of mobile activity, the level of synchronization of development; the main processes - for the search engine capability and life expectancy [9]. cultivation on one host is dominated and degraded. Thus, in the process of formation of the *Habrobracon hebetor* uterine culture, two hosts of phytophagus are used: *Ephestia kuehniella* and *Galleria mellonella*, as entomophagous cultivation on one host results in the domestication and deterioration of the quality indices [9].

The formation of the uterine cultures *Habrobracon hebetor* consists of the following operations: the collection of older caterpillars *Ephestia kuehniella* and

*caterpillars* *Galleria mellonella*, the preparation of the imago *Habrobracon hebetor* to infect caterpillars phytophagus, parasite infestation of caterpillars, growing *Habrobracon hebetor* to the stage of the pupa, cultivation of the entomophage to the stage of the imago, collection of the imago [9].

Creation of Center of uterine cultures insects at the main scientific institutions of this the profile is due to the need for nationwide quality control of entomocultures. This will contribute to stable security biofactoris and bio laboratoryaris needed quality biomaterial. This will contribute to a stable bio-factories and bio-laboratories necessary quality biomaterial.

The main requirements of the Center of uterine cultures insects are:

- careful selection of phytophagous host;
- creation of breeding lines and hybrid cultures;
- purity of cultures (no mixing species in the original culture that can completely oust the species that was previously diluted) [10];
- observance of the balance of the age composition of typical crops (at the same time all stages of development should be presented in comparable volumes) [3];
- the renewed reserve of culture on the stage, optimal for storage, through possibility of morbidity of entomophages, equipment malfunction, lack of feed, human factor [3];
- provision of biological indicators quality.

The main conditions for the creation of the Center of uterine cultures insects are:

- providing equipment and qualified personnel; equipment for the Center should consist of laboratory and specialized equipment, measuring instruments, capacities for insect living (gardens, cuvettes, etc.);
- compliance of the premises of the Center with sanitary standards of Statutory rules 254a-97; at the same time, it is necessary to allocate zones of laboratories, insectarium and auxiliary premises;
- isolation of premises for preparation of nutrient media and direct obtaining of uterine crops; the development of feed for uterine cultures should be divided getting food for predators (predators and entomophages) and phytophagous animals;

- presence of normative documentation;
- certification of the Center according to current legislation of Ukraine.

**Conclusions.** Creation of the Center of uterine cultures insects will be able to provide Manufacturers of entomologic products high-quality uterine crops. Using hybrid culture like the starting will give the opportunity to receive highly viable insects (major performance of their quality is 15% higher compared with products obtained by traditional production) that will contribute to increase the effectiveness of plant protection against pests in conditions of agrobiocenosis.

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