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INCREASING THE BIOLOGICAL QUALITATIVE INDICATORS OF THE TRICHOGRAM

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Abstract:

In the article, on the basis of the analysis of the special literature, specific techniques are considered for improving the biological qualitative indicators of a trichogram when it is diluted in biolaboratories. Special attention of specialists should be paid to the quality indicators of the trichogram when it is reproduced in the biolaboratory. These include: improving the technology of its breeding, storage and use; creation of optimal conditions for its upbringing in the process of reproduction in biological laboratories and in biofactories; additional feeding of imago with various stimulants; continuous introduction of uterine cultures of the trichogram and its laboratory host.

Keywords: : Trichogram, noctuid, grain moth, photoperiod, fertilizing of imago, renewal of uterine material.

In recent years, the biological method of combating pests has become generally accepted in the system of measures and is increasingly being used in agricultural production. A large amount of work has been done on the taxonomy, biology and ecology of entomophages. Representatives of entomophages and acariphages were registered in 16 orders, of which species of practical importance belong to 8 orders. Trichogramma refers to insects that easily change their quality indicators depending on the conditions of upbringing. Failure to comply with the required breeding conditions - hygrothermal, obligatory diapause development in the autumn-winter period, feeding adults leads to a deterioration in the quality indicators of trichogramma, its viability.

One of the most important factors controlling the activity of Trichogramma is temperature. So, the Chinese scientists, L.Liying, C.Yuehua, C.Zhonghua (1983) managed to show that the optimal conditions for the development of certain populations correlate with the climatic conditions of habitation. In their opinion, the effect of temperature on the growth and development of Trichogramma is specific for the species and population. With prolonged cultivation in the laboratory, the response of the population to temperature effects is lost, and this requires constant renewal of the mother material due to collection in nature. An important factor that determines the duration of the development of trichogramma is the photoperiod. At different photoperiods, the duration of development from egg to adult emergence is not the same. According to the data cited by V.A.Zaslavsky (1984), with extreme short-day and long-day photoperiods, not only the time required for the completion of insect development increases, but also the synchronicity of emergence decreases. So, with a photoperiod of 16-20 hours, the beginning of the emergence of the adult Trichogramma is noted after 14-16 hours, and the peak of the flight is observed after 15-17 hours. In addition, the photoperiod affects the initial fertility. Thus, in the species T. evanescens, when developing on a grain moth, the number of eggs in the oviducts of females that developed at a temperature of 20° C and a short day (12 hours) averaged 17,5-24,7 and in a long day (20 hours) - 24,7-28,6 eggs.

Trichogramma evanescens wasp parasitizing

Another effective method of increasing the viability of Trichogramma is feeding the imago with a 20% solution of sucrose or honey. It has been proven that feeding adult females of Trichogramma 20% sugar syrup increases their fertility by 1,5-2 times, and life expectancy up to 10-15 days. According to N.I.Ignatko (1983), a one-time feeding with a 20% sugar solution in combination with the education of trichogramma in natural conditions increases its fertility by 33,9-40,2%. The value of feeding also affects the transfer of trichogramma from a natural host to a laboratory one. As noted by Sh.M.Greenberg and A.F.Rusnak (1985), the proportion of females that left offspring in the eggs of a grain moth at the first contact usually does not exceed 30-40%. The negative effect of the transfer can be removed due to carbohydrate dressings. Since, during the first days of life, females really do not perceive the grain moth as a host. Not having received feeding, they die after a few days, and never leave offspring. Females start infecting the eggs of the grain moth only a few days later. This reserve of time is created by feeding.

One of the most important methods of increasing the efficiency of using laboratory populations of Trichogramma is the renewal of the mother material. As pointed out by S.N.Alimukhamedov et al. (1986), when trichogramma reproduces on sitotrog eggs, the parasite from generation to generation loses its natural biological characteristics, which leads to a sharp decrease in its reproductive abilities. So, the fertility of Trichogramma already after 3 generations decreases by 50-60%, and after 5 generations - by 70-80% and reaches 10-15 eggs per female, which is half the established standard.

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