Biocontrol of Nuculaspis Abietis (Schrank) in Adjara

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Abstract:

Nuculaspis abietis meets of Adjara. This pest feeds on conifer needles and twigs causing needle drop and branch desiccation. The article with the results of the study of Nuculaspis abietis and its natural enemies in Adjara.

Key Terms: Nuculaspis abietis, Diaspididae, bio-agent

Introduction:

Many types of sucking pests are known on spruces, including coccids (armored scales, tortoise scales, and mealy bugs), aphid/greenflies, gall aphids, red spiders. Nuculaspis abietis belongs to the family of Diaspididae. It is widely spread in Ajara and is a serious threat to spruces and pines in Turkey (Bodenheimer 1953, Japoshvili et al. 2002).

In most cases Nuculaspis abietis harms needles of spruces, pines and fir trees in Ajara. Strong damage causes yellowing and falling of needles as well as suppression of a plant. Plants lose their charm and beauty and cannot serve the purposes they are intended to.

Materials and Methods:

The object of the research was Nuculaspis abietis, harming spruce, pine and fir in Ajara. Laboratorial research was conducted at Batumi Botanical Garden. The working material was mostly compiled from collections and observations conducted in Ajara for the last several years (2005-2010).

Collection of materials was conducted in accordance with the methodology of N. S. Borkhsenius (Borkhsenius 1963) and Hajibeili (Hajibeili 1983).

Results and Discussion:

During a year one generation of Nuculaspis abietis develops in high mountain Ajara. In spring female pest puts eggs out of which after several days telotroches are hatched. Mass hatching is observed in early June. At the end of summer, in August, male pests appear who fecundate the female ones. Impregnated females hibernate in winter.

Bio-agents have essential importance in limiting the number of Nuculaspis abietis. As a result of longtime monitoring it has been stated that biocontrol of Nuculaspis abietis in Ajara is mainly accomplished by parasite insects: Comperiella bifasciata Howard (Hymenoptera, Encyrtidae), Aphytis mytilaspidis Le Baron (Hymenoptera: Aphelinidae), Encarsia citrina Craw (=Aspidiotiphagus citrinus Craw,) (Hymenoptera: Aphelinidae).
Comperiella bifasciata was first found on this territory by V. A. Tryapitsin (Agekyan 1968). It is a specialized endo-parasite Nuculaspis abietis. It the former Soviet Union Comperiella bifasciata was first reared in 1950 from single specimens of Diaspidiotus gigas Thiem et Gern. At present it represents an effective parasite of Nuculaspis abietis. Encarsia citrina Craw and Aphytis mytilaspidis - are internal parasites participating in regulation of armored scales quantity.

Conducted study allow to make conclusions that bio-control Nuculaspis abietis in our region is carried out by Comperiella bifasciata, Aphytis mytilaspidis and Encarsia citrina. At present they are well propagated in natural conditions and successfully inhibited. Thanks to bio-agents’ activities this armored scale insect is not an ecologically important species in our region.

References


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