Predator-prey relationships of mites living on conifers

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Abstract

Due to the great variety regarding their colour and form, conifers are very popular in ornamental gardens and parks. These plants are damaged by several arthropod species, including mites belonging to the Tetranychidae and Tenuipalpidae families. The role of predatory mites that they play in limiting the number of phytophagous mite populations present on conifers had been unknown in Hungary. Therefore we commenced studies in order to determine the species composition and relative dominance of phytoseiid predatory mites occurring on conifers.

The studies were carried out between July 2010 and September 2011 in the evergreen variety collection in Soroksár Research Station of Corvinus University of Budapest. Plant samples were collected 14 times from the species and varieties of the *Juniperus, Abies, Picea, Pinus, Thuja, Taxus, Cupressus, Chamaecyparis* and *Taxodium* genera. From spring to autumn the mites were isolated with the method of washing off, whereas in the winter Berlese-Tullgren funnels were used. This was followed by preparing slides for the microscopic identification of the species.

During the time of our examination, altogether 1088 specimens belonging to the Phytoseiidae family were collected. In the course of the identification it was found that the specimens belonged to seven species, namely *Amblyseius andersoni* (Koch, 1957), az *Amblyseius tenuis* Westerboer, 1963, az *Anthoseius bakeri* (Garman, 1948), az *Anthoseius involutus* Livshitz et Kuznetzov, 1972, a *Typhlodromus baccettii* Lombardini 1960, a *Typhlodromus bichaetae* Karg, 1989, és a *Typhlodromus pyri* Scheuten, 1857. *Amblyseius andersoni* occurred in the highest number on the conifers studied: 989 specimens were collected throughout the year of the study, accounting for 90,9% relative dominance. The species was present on all the conifer species studied. *Anthoseius involutus* had the second largest relative dominance (D=4,1%). Out of the phytophagous mites, species belonging to the Tenuipalpidae family occurred in highest numbers. The changes in the number of phytophagous mite species and that of predatory species showed significant correlation.

On the basis of the results it is assumed that, due to their great species composition and relative abundance, phytoseiid mites can play an effective role in limiting phytophagous mite populations damaging conifers in pesticide-free dendrological and botanic collections.

Key words: phytoseiid mites, conifers, evergreen

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