

ANALYSIS OF LONG-TERM STUDIES OF PLANT MITES (TETRANYCHOIDEA, PHYTOSEIIDAE) OF THE TRANSCARPATHIAN REGION, UKRAINE

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The herbivorous Tetranychoidea and the predatory Phytoseiidae mites are significant components of the plant associations. Their stable biotic interaction is a necessary condition for preventing the mass reproduction of harmful species of spider mites and, as a result, the loss of the ornamental value of greenery. Complex studies in the “plant-pest-predator” system are interesting not only for establishing the mite species diversity, but also to identify the interaction of species in that system under different natural conditions.

The purpose of this work was to analyze and summarize long-term studies of tetranychid and phytoseiid mites in the Transcarpathian region of Ukraine. The research was conducted on the basis of the collection materials of I. Akimov (1976), L. Kolodochka (1972, 1976), A. Putrashyk (2002–2006), O. Zhovnerchuk (2016–2017), and A. Dudynska (2021). In total, 404 samples of tetranychid mites and 415 samples of phytoseiids were processed. The distribution of 77 species from 21 genera of mites of both groups was analyzed (28 species from 10 genera of tetranychid mites and 49 species from 11 genera of phytoseiid mites).

Since the investigated groups of mites are strongly connected to vegetation, the altitudinal zones for the analysis of mite communities were determined taking into account the regularities of the formation of the vegetation cover of Transcarpathia (Stojko, 2003). Thus, mite communities were analyzed using the PAST program in three altitudinal zones of the Transcarpathian region: lowland (up to 200 m above sea level), foothill zone (200–600 m above sea level) and highlands (more than 600 m above sea level) and according to generalized data.

Differences in the species composition of tetranychid and phytoseiid mites were found in different altitudinal zones. The greatest species richness of tetranychids is observed in the lowlands (24 species), a little less in the foothills (20 species) and the least in the mountain zone (12 species). Ten species of spider mites are transzonal, most of them are widespread with a wide range of host plants. In all altitude zones, some species were noted that are well-represented in the coenoses of the Transcarpathian region, although they are either not found in the rest of Ukraine, or are rarely found. The occurrence and dominance indices for the total sample of species showed the highest values for three polytopic polyphages: *Amphytetranychus viennensis* (occurrence 15.44, dominance 2.3), *Panonychus ulmi* (occurrence 13.51, dominance 1.34), *Bryobia rubrioculus* (occurrence 12.36, dominance 1.08). However, the analysis of the same indicators in different altitude zones showed some differences for the species mentioned above, which is related to their ecological valence and the presence of host plants.

Species of phytoseiids, like tetranychid mites, are unevenly distributed in the altitude zones of the Transcarpathian region. The largest number of them was found in the foothills (38 species), less in the lowlands (25), and the least in the mountains (21 species). Ten transzonal species of predatory phytoseiid mites, which inhabit the plants of Transcarpathia, make up a small part of the total species list, but have high values of biotic indicators (occurrence up to 19.44%, dominance up to 3.27% in different altitude zones) and play a leading role in biocenoses. The assessment of the diversity of groups of tetranychid and phytoseiid mites, taking into account the distribution by altitudinal zonation, also reveals certain differences that

help establish the position of the analyzed species in the biocenosis hierarchy and determine the role of predatory species in the processes of regulating the number of herbivorous arthropods.

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