BIOTECHNOLOGICAL ASPECTS OF THE USE OF PHEROMONE TRAPS FOR MONITORING POPULATIONS OF *HALYOMORPHA HALYS* ON ORNAMENTAL PLANTS

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Background: The rapid expansion of invasive species in urban ecosystems represents a major challenge for plant protection and the maintenance of ecological balance. The invasive species *Halyomorpha halys* (Stal, 1855) is a highly polyphagous pest with a strong capacity for adaptation and dispersal, frequently utilizing ornamental plants as food sources and shelters in urban environments. In this context, biotechnological methods based on the use of aggregation pheromones are becoming essential for the effective monitoring of this pest. Pheromone traps enable early detection and assessment of population dynamics, contributing to the development of integrated pest management strategies.

The aim of this study was to evaluate the efficiency of pheromone traps in monitoring *Halyomorpha halys* populations on ornamental plants in the municipality of Chișinău.

Materials and methods: The research was conducted during the 2025 growing season in the urban environment of Chișinău, on various ornamental plant species. Monitoring of *Halyomorpha halys* populations was carried out using pheromone traps. The traps were installed in the plant canopy at a height of 1–1.5 m, on the territory of the Institute of Genetics, Physiology and Plant Protection and the Botanical Garden. Data were recorded weekly by counting the number of captured individuals.

Results and discussion: The results obtained from pheromone trap monitoring revealed a well-defined seasonal dynamic of *Halyomorpha halys* populations in the urban ecosystems of Chisinau, characterized by fluctuations in density depending on the vegetation period and host plant species. The onset of captures was recorded in the last decade of may, marking the emergence of overwintered adults, followed by a progressive increase in the number of captured individuals.

A pronounced population peak was recorded in July, with average values of 35–45 individuals per trap per week in areas dominated by *Ailanthus altissima* and *Syringa spp.*, confirming their role as key elements in the trophic structure and aggregation behavior of the pest. In the case of *Hibiscus spp.*, the distribution of captures showed a bimodal pattern, with two distinct peaks in June and August. For *Tilia spp.* and *Rosa majalis*, capture levels were moderate (18–25 individuals per trap per week).

Conclusions: Seasonal monitoring of *Halyomorpha halys* populations using pheromone traps highlights the importance of continuous surveillance throughout the entire vegetation period. The use of aggregation pheromones allowed for precise identification of host plant preferences and seasonal fluctuations in population density. Ornamental plants, particularly lilac (*Syringa spp.*) and tree of heaven (*Ailanthus altissima*), demonstrated an essential role in maintaining and reproducing pest populations in urban environments. The obtained results confirm the efficiency of pheromone traps as a biotechnological tool and emphasize the need for their integration into phytosanitary monitoring systems in urbanized areas.

Keywords: *Halyomorpha halys*, invasive species, pheromone traps.

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