UDC: 632.937:595.78 DOI: https://doi.org/10.53040/ppap2026.24

TROPHIC RELATIONSHIPS OF THE SPECIES *Scymnus rubromaculatus* Goeze AND ITS ABILITY TO ADAPT TO LABORATORY CONDITIONS

IORDOSOPOL Elena*, https://orcid.org/0000-0003-3492-8045
BATCO Mihail, https://orcid.org/880000-0002-3711-4429

Moldova State University, Institute of Genetics Physiology and Plant Protection, Chisinau, Republic of Moldova,
**Corresponding e-mail: elena.iordosopol@sti.usm.md*

Introduction. Species of the Coccinelidae family are currently successfully used in plant protection against agricultural pests such as aphids, armored scales, false armored scales, and mealybugs. Predators utilized include *Rodolia cardinalis*, *Lindorus lophanthae*, *Chilocorus renipustulatus*, and *Cryptolaemus montrouzieri*.

Climate change in the Republic of Moldova - where, over the past five years, air temperatures have deviated from the long-term average by as little as 2.1°C and as much as 4.7°C - has brought with it a wide range of pests that have surreptitiously entered the country. It is a well-known fact that the migration of invasive pest species from one area to another is accompanied by the migration of their natural regulating agents.

The role of human intervention in species migration via intentional introduction is exemplified by the ladybird *C. montrouzieri*, which has been introduced in various countries to combat specific pests. This species was initially introduced to Europe, Africa, and regions such as New Caledonia (east of Australia), where it adapted to coastal environments characterized by tropical temperatures (remaining above 17°C). It is known as an oligophages predator; both its larvae and adults feed on the eggs, nymphs, and adults of various coccid species. For laboratory rearing, mealybugs such as the cactus mealybug (*Dactylopius opuntiae*), the coffee mealybug (*Planococcus liliacinus*), and the citrus mealybug (*Planococcus citri*) are used as hosts. The species is employed as a biological control agent through seasonal colonization.

The aim of the investigation is to determine the trophic associations of the species *Scimnus rubromaculatus* and its ability to adapt to alternative hosts under laboratory conditions.

Materials and methods. The biological material consisted of populations of three alternative hosts (two aphid species and eggs of the bean weevil *Acanthosceledes obtectus* and *Scimnus rubromaculatus* individuals collected from trap crops during the 2025–2026 season (population in autumn–winter) and individuals from the greenhouse population in the spring of 2026. The laboratory culture was maintained at temperatures ranging from 12 to 29°C and an air humidity of 44–75%

Summarized results. The initial phase of the study focused on establishing cultures of alternative hosts - specifically two aphid species, *Aphis origani* and *Schizaphis graminum* - for the predatory ladybeetle *Scimnus rubromaculatus*. Collected predator individuals were introduced into insectary cages at a 1:1 female-to-male sex ratio. In the experiment, adults from the autumn-winter 2025–2026 population - active during the winter "windows" - began egg-laying in mid-May, whereas the greenhouse population found within *Aphis origani* colonies in the spring of 2026 began laying eggs in the second half of June.

Conclusions. It was observed that *Scimnus rubromaculatus* successfully overwintered for two years in trapping bands within a plum orchard and in greenhouses. The species was successfully maintained in greenhouses on a diet of *A. origani* found on *Mentha piperita*. Its feeding activity was observed within the trapping bands, where it preyed upon individuals of the invasive mealybug species *Pseudococcus maritima*.

Keywords: mealybug, diets, the spring, the autumn-winter, insectary cages, sex ratio.

Acknowledgments: The research was carried out within the Subprogram 011103 "Development of ecologically harmless means of reducing the impact of harmful organisms of agricultural crops against the background of climate change", funded by the Ministry of Education and Research of the Republic of Moldova.