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FACULTY OF NATURAL SCIENCES AND MATHEMATICS



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IV SIMPOZIЈUM BIOLOGA I EKOLOGA REPUBLIKE SRPSKE

sa međunarodnim učešćem – SBERS2020

Prirodno-matematički fakultet, Univerzitet u Banjoj Luci
12-14. novembar 2020.

IV SYMPOSIUM OF BIOLOGISTS AND ECOLOGISTS OF REPUBLIC OF SRPSKA

with international participation – SBERS2020

*Faculty of Natural Sciences and Mathematics, University of Banja Luka
12-14 November 2020*

Banja Luka, 2020.



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CORRELATION PATTERNS IN THREE *Lamium* SPECIES GROWN IN TWO LIGHT AND THREE DENSITY TREATMENTS

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Phenotypic integration is a correlation structure between the traits of an organism. It could be seen both as an adaptation to a set of environmental conditions, and as a constrain to evolution. Plastic responses of different traits and strength and patterns of their integration change throughout the lifespan of an organism and should be higher under stress. That is why there is a need for monitoring trait responses at different ontogenetic stages, as well as under different environmental treatments. In this study we examined between trait correlations in three *Lamium* species – annual *Lamium purpureum*, and perennial *Lamium album* and *Lamium maculatum*, grown in two light treatments (low and high) and three planting densities within light treatments (1, 3 and 5 plants per pot). The goal was to examine how pattern and strength of phenotypic correlations and the level of phenotypic integration changed in different light and density treatments, ontogenetic stages and among three *Lamium* species. *L. purpureum* showed greater integration in comparison to the other two perennial species before applying environmental treatments, and greater variability in phenotypic correlations in response to light and density at the earlier ontogenetic stage. Variability in phenotypic response intensified over time in perennials, *L. album* and *L. maculatum*, when they become more similar in their reaction to annual *L. purpureum*. Leaf width and leaf length, as functionally and developmentally related traits, were the most integrated in all three species in comparison to other measured traits.

KEYWORDS: *Lamium album* (White Dead Nettle), *Lamium maculatum* (Spotted Dead Nettle), *Lamium purpureum* (Red Dead Nettle), phenotypic integration