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THE EFFECT OF FOLIAR APPLICATION COBALT, BORON, PHOSPHORUS AND POTASSIUM ON THE CHLOROPHYLL CONTENT IN LEAF AND NODULATION OF RED CLOVER

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Abstract

In Southeast Europe, red clover (Trifolium pratense L.) seed crop is commonly established on acidic soils where certain macro- and micro-nutrients are less available to the plants. Symbiotic nitrogen fixation in legumes depends largely on the provision of certain macro- and micro-nutrients. The content of chlorophyll in the plant leaf is one of the indicators intensity of photosynthetic activity. The aim of the study was to analyze the influence of foliar fertilization with certain macro- and micro-nutrients on the chlorophyll content in leaves red clover and nodulation on acid soil. Two factorial experiment with varieties of red clover K-39, K-17, Una and Viola and four foliar fertilization treatments (control, cobalt, boron, phosphorus and potassium) was set up in 2011 in Čačak. The experiment was established on the alluvium soil type with acidic reaction (pH H_2O 4,8), using a randomized block design with four replications, with plot size of $5m^2$. The analyzes were carried out at the flowering stage of the second growth in the second year of cultivation. Regardless of foliar fertilization, the variety K-17 had a significantly lower chlorophyll content in leaves compared to the other cultivars. At the same time, this variety had a significantly higher number of nodules on the roots, as compared to the variety Viola. Foliar application of cobalt resulted in a significant reduction in chlorophyll content in the leaf in all of the varieties, as compared to the control. Foliar treatments with boron, phosphorus and potassium had no significant effect on change of chlorophyll in the leaf. Foliar treatments cobalt and boron showed a positive effect on nodulation red clover.

Key words: *red clover, fertilization, hlorophyll, nodulation*