



BOOK OF ABSTRACTS

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Book of Abstracts

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Effect of co-inoculation with *Bradyrhizobium japonicum* and two *Bacillus* strains on soil biogeny parameters and soybean yield

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Plant growth-promoting rhizobacteria (PGPR) enhance plant growth and yield by various mechanisms which involve fixation of atmospheric nitrogen, production of siderophores, solubilization of minerals such as phosphorus, synthesis of phytohormones, etc. The aim of this study was to determine the effect of symbiotic nitrogen fixing bacteria *Bradyrhizobium japonicum*, applied alone or in co-inoculation with two different PGPR strains - *Bacillus subtilis* and *Bacillus megaterium*, on soil biogeny parameters, growth and yield of soybean cultivar Galina. This study was conducted on two-year experiment which was set up in four replications at experimental field of the Institute of Field and Vegetable Crops from Novi Sad. Soil biogeny was determined using the total number of microorganisms, number of azotobacters and dehydrogenase activity. Growth parameters were determined based on the height and weight of the aboveground plant parts and roots, number and mass of nodules, pod number, seed number and seed mass per plant. All treatments showed a positive effect compared to the control in both years of research. Co-inoculation had a greater impact on soil biogeny, growth and yield of soybean plants, while the best effect on nodules and yield parameters was achieved in the variant of single inoculation. On average, a higher percentage of increase was in the total number of microorganisms (5 – 37%) than in azotobacter population size (11 - 14%). The yield increase over the control ranging from 3,2% in the variant with *Bradyrhizobium japonicum*, to 11,7% in the case of co-inoculation with both strains of *Bacillus*.

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