



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Effect of Iron and Zinc Applications on Growth and on Concentration of Mineral  
Nutrients of Bean (*Phaseolus vulgaris* L.) Grown in Artificial Siltation Soils

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**Abstract:** The study was carried out in greenhouse conditions by growing the Yalova field bean variety (*Phaseolus vulgaris* L.) with different iron (Fe) and zinc (Zn) applications in an alluvial soil which was collected from the artificial siltation area (0-20 cm depth) of the Kelkit River in Niksar-Tokat. A colluvial soil was also used for comparison. Iron was applied at 0, 10 and 20 ppm Fe in the forms Fe-EDDHA,  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  and Fe-EDDHA +  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  (1:1 ratio). Zinc was applied at 0, 10 and 20 ppm Zn in the form  $\text{ZnCl}_2$ . The plants were harvested after six weeks of growth in the greenhouse. The results obtained show that increasing amounts of Fe and Zn significantly increased the dry-matter yield of bean plants compared to the control (without Fe or Zn treatment). The maximum dry-matter yield was obtained with an application of 20 ppm Zn combined with 20 ppm Fe in the form Fe-EDDHA. Application of Fe-EDDHA +  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  also significantly increased the dry-matter yield of bean plants in both soils. Iron application decreased the P, Zn, Cu and Mn contents. Zinc application decreased the P, Fe, Cu and Mn contents of the bean plants.

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