



## Phytoremediation of nickel (Ni) from agricultural soils using canola (*Brassica napus* L.)

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### ABSTRACT

The aim of this research is to propound an innovative method to remediate the nickel (Ni) pollution in agricultural soils by using canola (*Brassica napus* L.) plant. For this purpose, a field experiment was conducted on the campus of Namık Kemal University, namely its Faculty of Agriculture Research and Experimental Area, during 2011. Nickel (100 mg/kg) as NiSO<sub>4</sub> forms was applied to each parcel. Then ethylene diamine tetra acetic acid (EDTA) chelate was applied to each parcel at four doses (0, 5, 10, and 15 mmol/kg) during the blossom period of the plants. The plants were harvested four months after planting. The soil in the samples was classified with neutral pH, low lime, and insufficient organic matter. The available phosphorus content and the exchangeable potassium content of research area were both found to be sufficient. The amount of available iron, manganese, and copper of the experimental soil was sufficient, but the available zinc amount of the soil was determined at a deficient level. The experimental area soil was classified to be in clay texture. According to the field experiment results, root and shoot yield of plants decreased with increasing EDTA doses. On the other hand, nickel amount of root and shoot of the plants increased with increasing EDTA application to the plants. These increases and decreases were found to be statistically significant at the level of 1%. According to the results of the experiment, heavy metal pollution of the soil of Tekirdağ province can be remediated by the phytoremediation method.

*Keywords:* Phytoremediation; Soil pollution; Nickel; Canola; Tekirdağ

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