Determination of Heavy Metal Pollution of Muratlı Districts Soils in Tekirdağ Province with Geostatistical Modeling Methods

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Aim of the study: Heavy metal pollution is a very important problem for Trakya region and world soils. In this research was investigated cadmium, chrome, cobalt, lead and nickel pollution of Muratlı districts and maps of heavy metal agricultural soils.Identify the areas where the phytoremediation will take place with this study.

Material and Methods: For this purpose, 50 different agricultural areas for each district and total 50 soil samples were taken from 0-30 cm depth and research area soils in Tekirdağ province. Extractable cadmium, chrome, cobalt, lead and nickel concentration of soil samples were determined with ICP- OES instrument. Analysis results were compared with critical values of these heavy metals concentrations. The study will be made by using the geostatistical modeling package program ArcGIS 10.2. software. In this software has Inverse Distance Weight (IDW) and Kriging methods and they will be applied. 40 point as a observation point, and 10 point as a control total will be taken 50 sampling points. The most appropriate method to work field variables, and will be determined and provided with all area interpolated. Each will be produced separately for maps of heavy metal and heavy metal levels in the region's surface soil analysis results will be supported in the visualition with maps to be made. Some heavy metal pollution was obtained in research area soils.

Results: Heavy metal pollution map was done in this research according to the heavy metal concentrations of the soil samples with geostatistical modeling methods. Consequently, it should be recommended phytoremediation method applications in the research area soils for the improvement of heavy metal pollution.

Keywords: Soil pollution, heavy metal, Geostatistical Modeling Methods.