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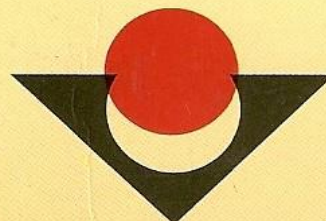
ÇOMÜ

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TÜBİTAK

## **The Relationships between Heavy Metal Contents and Microbiological Characteristics in Bafra and Çarşamba Plain Soils**

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### **Abstract**

In this study, the relationships between soil heavy metal contents and soil microbiological characteristics were investigated in Bafra and Çarşamba Plain. For this purpose, overall 36 surface soil samples, 20 samples from Bafra Plain and 16 samples from Çarşamba Plain, were used. It has been determined that, total heavy metal contents of Bafra Plain soils varied among 1.83-2.73 µg Cd/g, 19.80-42.33 µg Co/g, 50.38-141.18 µg Cr/g, 25.53-58.50 µg Cu/g, 46.79-144.15 µg Pb/g, and 76.10-210.43 µg Ni/g; on the other hand heavy metal contents of Çarşamba Plain soils varied among 0.95-3.20 µg Cd/g, 17.10-37.10 µg Co/g, 18.43-88.53 µg Cr/g, 23.05-96.68 µg Cu/g, 19.30-60.20 µg Pb/g, and 80.03-152.85 µg Ni/g.

Soil microbiological characteristics such as, dehydrogenase activity, catalase activity, urease activity, CO<sub>2</sub> production and microbial biomass-C were determined as 123.4-420.4 µg TPF/1g dry soil, 9.3-37.2 ml O<sub>2</sub>/5g dry soil, 19.7-749.3 µg N/1g dry soil, 4.8-33.4 mg CO<sub>2</sub>/100g dry soil and 15.0-135.4 mg C/100g dry soil in Bafra plain soils respectively. Same characteristics for Çarşamba Plain soils were 23.9-313.4 µg TPF/1g dry soil, 2.7-61.1 ml O<sub>2</sub>/5g dry soil, 16.9-594.4 µg N/1g dry soil, 6.3-33.7 mg CO<sub>2</sub>/100g dry soil, 6.3-33.7 mg C/100g dry soil respectively. Consequently, the significant statistical relations were determined between the heavy metal contents and microbiological characteristics in the soils.

**Key Words:** Soil, Microbiological characteristics, Heavy metal, Bafra plain, Çarşamba plain.