



**Title: Metals content, occurrence and Distribution in soil of Al-Qilt catchment**

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**Abstract:**

Heavy metals pollution in Palestine soils was ignored for decades; anthropogenic pollution of soil has negative effect on the environment and human life. Determination of elemental background and identifying the anthropogenic pollution in Palestine soils will help in screening the anthropogenic metal-based pollution.

The objective of this research was to make an elemental background for soil's analysis in Palestine because there is no elemental background for soil's analysis in Palestine or Arab world, and there is dependence on the world reference, but there is different of the soil nature in Palestine or Arab world with other soils, and to study the pollution origin in soil of Al-Qilt catchment.

Soil samples from pristine areas of Al-Qilt catchments were analyzed and assessment of their content for heavy and trace metals. The sources and impact of anthropogenic pollution in Al-Qilt catchment soils were also discussed.

Samples along Al-Qilt catchment were collected. Then were digested by aqua regia, and analyzed by using BCR fractionation method.

Data were analyzed by computing the correlation coefficient of heavy and trace metals, and graphed against Al and Fe as reference elements to facilitate the comparison between Al-Qilt sites. Fe was chosen as elemental normalizer, based on the higher values of correlation factor ( $R^2$ ) compared to Al. This allows identifying the trace metal as a man-made pollutant, then the Enrichment Factor (EF) was calculated, this lead to identification of anomalous metal concentrations that have an anthropogenic source.

The elemental background concentrations of anthropogenic pollution in the soil of Al-Qilt catchment were determined and compared to the continental crust values.

Results showed that metal/Al and metal/Fe normalization for Ti, V, Mn, Co, Rb, Ag, Li, B and Be were used as anthropogenic pollutants for most of Al-Qilt sites, As comparison the Fe was found to be the best elemental normalizer, The EF calculation showed that Pb had the highest value of trace metals in Ramallah and Stone cut areas, and there was a moderate values for Sn and Ag in Sweanit and Sultan respectively.

Sources for pollution in Al-Qilt catchment, from heavy metals concentration in the soils of Al-Qilt catchment are higher than the average values of continental earth crust, and thus such heavy metals are considered as soils' contaminants and they affect the surface and groundwater, and ultimately the people in the surround.