



New approach for calculation of pollution indices of the soils by heavy metals: case study for soils of Bahr El-Baqar Region, South of Manzala Lagoon, Egypt

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Abstract: Pollution of Bahr EL-Baqar soils are the case for comparison between the old pollution indices and the new pollution indices. The pollution indices are contamination factor, load pollution index, contamination degree and pollution rate. The heavy metals concentrations of Fe, Cu, Co, Ni, Zn, Pb, Cd and Cr from the soil samples of Bahr EL-Baqar region compared with many soil quality guidelines. New pollution indices used the Canadian soil quality guidelines (CSQGs) as background in the calculation of indices. Old (popular) pollution indices always used the background values reported by [1] and is based on element abundances in sedimentary rocks (shale). $PR(CSQGs) = (\sum Mc)_{\text{sample}} / (\sum Mc(CSQGs))_{\text{background}}$, where PR is pollution rate, Mc is the concentration of metals in collected sample, Mc(CSQGs) concentration of metal in Canadian soil quality guidelines as background. The abundance of heavy metals measured in these soils decreases as follows: Fe > Zn > Cr > Cu > Co > Ni > Pb > Cd. The new methods of assessment are favorable and more accuracy than the ordinary methods, where using the Canadian soil quality guidelines (CSQGs) as background in the calculation of indices.

Key words : Pollution Indices- Ordinary- New – Guidelines- Bahr EL-Baqar- Soils

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