

عنوان مقاله:

Soil quality of cultivated land in urban and rural area on the basis of both minimum data set and expert opinion

محل انتشار:

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خلاصه مقاله:

Soil quality assessment is a significant approach for arable land, especially in a coastal region to gain a better understanding of soil productivity and effect of agricultural systems on soil resources. This study aimed to determine the quality of cultivated soil of both urban (Noakhali) and rural areas (Kabirhat and Subarnachar) of Noakhali, Bangladesh. The soil quality was evaluated as soil quality index by using 117 soil samples data, collected from three different sites within the Noakhali District. Among 14 soil parameters (total data set), only six parameters namely organic matter, Phosphorous, Boron, potassium, and iron were selected for the minimum data set, based on a combination of principal component analysis, norm values and expert opinion. Four soil quality index calculation methods, namely: linear weighted additive; linear simple additive; nonlinear weighted additive and nonlinear simple additive; were calculated based on the minimum data set. A significant positive correlations ($P < 0.001$, $P < 0.05$) among the four methods were observed. The soil quality of the three sampling regions followed the order of Kabirhat > Subarnachar > Noakhali indicating the better quality soil in rural areas. In Noakhali, the major contributors to soil quality were organic matter (2.94–64.85%) followed by Boron (4.69–58.22%), iron (4.77–50.00%), electrical conductivity (3.48–32.53%), phosphorous (0.36–39.44%) and potassium (1.77–27.76%) whereas in Kabirhat, Boron (31.70%) and iron (23.83%) were the major contributors, and in Subarnachar, organic matter (28.98%) contributed the most.

کلمات کلیدی:

(Method comparison, Minimum data set, Noakhali, Principle Component Analysis, Soil Quality Index (SQI

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