

Effects of Land Use Change on Organic Carbon Amount and Some Other Parameters in Vertisols (Case Study: Bilehvar Area, Kermanshah Province)

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Abstract

Reduction of quality and soil productivity due to organic carbon losses is one of the most important consequences of land use changes, that creates irreparable effects on the soil. To evaluate the land use effect on the amount of soil organic carbon in Vertisols, Sartip Abad series with extent of 1850 hectare in south of Bilehvar area in Kermanshah province was studied by using the completely randomized block design in factorial experiment with 10 repeats in farmland and grassland, some soil physical and chemical properties in two Lands compared with each other. The results showed that the soil organic carbon in surface horizons of grassland has been more than farmland and accordingly increase the amount of sequestered carbon in grassland. No significant differences were found in the amount of soil organic carbon in lower horizons of two lands. Due to land use change from grassland to farmland, noticeably increase in Bulk density, Nitrogen, Acidity, soil Electrical Conductivity and decrease the organic carbon percent and the soil organic material. Pedoturbation, clay amount (higher of 50%), numerous small subsoil, and stable structure are the important factors in saving the organic carbon of vertisols that can reduce the effects of land use changes on organic carbon amount. Generally, it can be conclude that: the land use changes not only can create the severe damage on soil physical and chemical properties but with the carbon losses and more release of greenhouse gases exacerbate the pollution of environment which endangers the life in a earth planet.

Keywords: Carbon Sequestration, Kermanshah province, Land use, Soil organic Carbon, Vertisols.

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