Study of mineralogical properties of sugarcane fields in comparison with uncultivated lands and fields under rotation cultivation in south of Khuzestan Province

A. Landi¹, S. Pourkeihan¹, M. Chorom¹, S. Hojati¹, S. Jafari²

¹- Department of Soil Sciences, Faculty of Agriculture, Shahid Chamran University of Ahvaz, Iran
²- Department of Soil Sciences, Ramin University of Agriculture and Natural Resources, Khuzestan, Iran

(Received: 3/2/2017, in revised form: 23/5/2017)

Abstract: The change in composition of clay minerals is possible in uncultivated lands that sugarcane is cultivated for many years. For this study, mineralogical properties of soil samples from described profiles in four farms with more than 15 years cultivation were determined and compared with nearby uncultivated lands and farms under rotation cultivation. The results showed that expandable minerals were abundant in the Ap horizon of the cultivated soils, unlike in the uncultivated soils, while only small amounts were found in C horizons of cultivated soils. Also, the surface horizons of the uncultivated soils contain more palygorskite than the surface of cultivated soil, but this subject is not seen in depth of profiles. These changes are more observable in soils under sugarcane cultivation in comparison with soils under rotation cultivation because of the differences in irrigation, biomass production and food requirements and therefore intensive cropping and strong irrigation over a long time could result to the changes in soil minerals and other factors such as soil nutrient requirements.

Keywords: Expandable minerals; Rotation cropping cultivation; Sugarcane production; Palygorskite.

*Corresponding author, Tel: 09166111322, Fax: 06133364054, Email: landi@scu.ac.ir