

## Carbon and Nitrogen Storage Capacities of Soils of Different Land Use in Karstic Ecosystems

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**Abstract:** There are significant differences in carbon and nitrogen storage of soils developed under to different land uses in areas where climate, bedrock and other external factors are similar. This study was carried out to determine soil carbon and nitrogen stocks of forest (O), Agriculture (T) and bare (B) areas, including Ahir Mountain Green belt afforestation area in Kahramanmaraş province. Disturbed and undisturbed soil samples (72 in total) were collected from the topsoil (0-20 cm) of 36 systematically determined points on Mount Ahir. Soil organic carbon (SOC), total nitrogen (N) and bulk weight (BD) analyzes were made in soil samples. The amount of carbon and nitrogen stored in the area was estimated by using the data obtained as a result of the analyzes and the inequalities. According to the data, the amount of carbon stored in forest, agriculture and clearing areas is 75.49 t C Ha<sup>-1</sup>, 73.56 t C Ha<sup>-1</sup> and 47.31 t C Ha<sup>-1</sup>; the amount of stored nitrogen was found to be 6.05 t N Ha<sup>-1</sup>, 7.67 t N Ha<sup>-1</sup> and 4.40 t N Ha<sup>-1</sup>. Forest soils have approximately 46% more carbon than bare areas soils and 5% more than agricultural soils. In terms of total nitrogen amount, it was found 20% higher in the soils of agricultural areas compared to forest and 50% more than in bare space soils. It has been determined that there are significant differences in the chemical parameters of the soils belonging to the lands with different land use capabilities, especially in the C and N concentrations. Examining this change reveals the effect of land use on carbon and nitrogen stocks of soils. Changes in the organic C and N status of our soils, which are of great importance for a sustainable agriculture, should be well observed.

**Keywords:** Land use, Nitrogen, Carbon stocks, Soil properties.