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
of

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The Effect of Different Land Uses on Soil Microbial Biomass Carbon and
Nitrogen in Bartın Province

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Abstract: The microbial biomass of soil is being increasingly recognized as a sensitive indicator of soil quality. Its knowledge is fundamental for sustainable environmental management. This study aimed to determine the impact of different land uses (forest, pasture, and agricultural lands) on soil microbial biomass carbon and nitrogen using the chloroform fumigation extraction (CFE) method. This study also aimed to determine interrelationships between microbial biomass C (C_{mic}) and N (N_{mic}) and the physico-chemical characteristics of the soil. For this purpose, a total of 45 soil samples were taken from 3 different land uses located in the Ağdacı Village in Bartın. Additional core samples were collected from each sample site to determine other physico-chemical characteristics of the soils. The average microbial biomass C were found as $1028.29 \mu\text{g g}^{-1}$, $898.47 \mu\text{g g}^{-1}$, and $485.10 \mu\text{g g}^{-1}$, respectively, for forest, pasture, and agricultural soils. As with microbial biomass C, the average microbial biomass N was found as $129.99 \mu\text{g g}^{-1}$, $100.90 \mu\text{g g}^{-1}$, and $42.60 \mu\text{g g}^{-1}$, respectively, for forest, pasture, and agricultural soils. One-Way ANOVA showed a significant difference in microbial biomass C and N among the study areas. Microbial biomass C and N were shown to be significantly correlated to the physico-chemical properties of the soil, such as organic C, total N, clay, and pH. Present study clearly shows that land use has a significant effect on microbial biomass C and N in soil by altering natural soil characteristics under the same ecological conditions.

Key Words: Microbial biomass C, microbial biomass N, land use type, soil

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