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Effect of soil microorganisms on organic carbon sequestrationindifferent soil landscapes of the Ouargla's basin

Maria Nour El Houda Bensayah, Mokhtar Karabi, Baelhadj Hamdi Aissa, and Ismaiel Berkal
Kasdi Merbah-Ouargla, faculty of natural and life sciences, agronomic , Algeria (houdanour1957@gmail.com)

The objective of this work is to study the effect of microorganisms on carbon sequestration in different soil landscapes of Ouargla's basin. Ouargla is part of the arid zones of the Algerian Sahara, which is characterized by high temperatures, low and irregular precipitation, sparse vegetation and soils poor in organic matter. However, the soil remains a favorable environment for macros and microorganisms which tolerates this deficit. The soil provides ecosystem services to these environments by protecting natural resources. Microbial biomass, which represents on average 2 to 4% of organic carbon, is involved in renewing organic matter in the soil. For this study, 7 stations of different pedo- sequences were chosen. After collection, the samples underwent microbiological analyzes for enumeration of bacteria and fungi, fumigation-extraction and physicochemical analyzes. The enumeration of the main microbial groups in bacteria and fungi showed the predominance of bacterial microflora, followed by fungal microflora at higher values in cultivated soil and those of Sebkhat. The identification of fungal species according to the determination keys allowed us to identify the following species: Alternaria alternata, Rizopus sp and Aspergillus niger, as well as yeasts. The microbial carbon values show that this parameter is higher in Sebkhat N'Goussa, gypsum soil in Frane and in cultivated soil. These are the stations where high values of organic carbon and organic matter are recorded. We can say that microorganisms play an important role in carbon sequestration. They mineralize microbial residues and provide carbon to the stable organic matter fraction of the soil.

Key words: carbon sequestration, ecosystem service, microbial carbon, organic carbon, Ouargla.