



Stocks and microbial degradability of organic matter in calcareous subsoil under agriculture in the Mediterranean basin

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In this study we investigated the quantitative and qualitative aspects of soil organic matter (SOM) in an calcareous subsoil under agricultural use. The aim of this research was to evaluate the carbon stocks as well as the potential of SOM to be degraded by the soil microbial biomass.

Soil samples were collected in the basin of "Kamech" in Tunisia from four soil profiles at five depths (0-30 cm, 30-50 cm, 50-70 cm, 70-110 cm and 110-140 cm). Samples were incubated at 28°C during 90 days and CO₂ evolution was monitored throughout the incubation using NaOH (1N) traps. The soils sampled had a high clay content of more than 50 %. They were classified as Vertisols (WRB-FAO classification).

The SOM content decreased from topsoils to subsoils. The carbon mineralization from top- and subsoils after 70 days ranged between 530 and 572 mg C-CO₂ kg soil⁻¹. The difference is not significant after 70 days of incubation with no significant differences between both. We conclude that The incubation indicated that there were metabolically active microbes in the subsoil which can degrade the organic matter. The significance of these phenomena with regards to the carbon stocks throughout the profile will be discussed.