



Organic matter, aggregate stability and infiltration relationships in agricultural semiarid soils of Valencia

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The amount and the stability of the soil organic matter both influence the stability of the soil aggregates. This last is considered as a main physical indicator of soil quality since it regulates the physical, the chemical and the biological soil fertility. In Mediterranean agricultural soils the type of use and management practices can influence negatively the stability of soil aggregates, this decreasing the soil productivity by erosion and the role of soil as environmental filter for water and contaminants. This kind of process is illustrated for a semiarid soil in Valencia under the soil use and management practices representative of the area. We analyze the amount and the type of organic fractions, the stability of soil aggregates and the soil response to simulated rain. We use conventional laboratory analyses as well as SEM images to analyse the internal organization of soil aggregates. Our results indicate that the amount and stability of the soil organic matter depend on the type of crop and management practices. The soil infiltration rate increases with the stability of the soil aggregates, this last increases with the amount of soil organic matter, and a relationship exists between amount of soil organic matter and humification degree. The interaction between amount-type of soil organic matter and aggregate stability is a key factor for the study of the agricultural and the environmental soil quality.