Geophysical Research Abstracts
Vol. 18, EGU2016-14848, 2016
EGU General Assembly 2016

Enzyme activities by indicator of quality in organic soil

Mª Dolores Raigon Jiménez (1), Ana Fita (2), and Adrián Rodriguez Burruezo (2)

(1) Dept Química, Universidad Politécnica de Valencia, Camino de Vera SN, CP 46022,Valencia Spain.mdraigon@qim.upv.es , (2) 2 Centro de Conservación y Mejora de la agrodiversidad Valenciana, Universidad Politécnica de Valencia, Camino de Vera SN, CP 46022,Valencia Spain. anfifer@btc.upv.es; adrodbur@upvnet.upv.es

The analytical determination of biochemical parameters, as soil enzyme activities and those related to the microbial biomass is growing importance by biological indicator in soil science studies.
The metabolic activity in soil is responsible of important processes such as mineralization and humification of organic matter. These biological reactions will affect other key processes involved with elements like carbon, nitrogen and phosphorus , and all transformations related in soil microbial biomass. The determination of biochemical parameters is useful in studies carried out on organic soil where microbial processes that are key to their conservation can be analyzed through parameters of the metabolic activity of these soils.
The main objective of this work is to apply analytical methodologies of enzyme activities in soil collections of different physicochemical characteristics. There have been selective sampling of natural soils, organic farming soils, conventional farming soils and urban soils. The soils have been properly identified conserved at 4 ° C until analysis.
The enzyme activities determinations have been: catalase, urease, cellulase, dehydrogenase and alkaline phosphatase, which bring together a representative group of biological transformations that occur in the soil environment.
The results indicate that for natural and agronomic soil collections, the values of the enzymatic activities are within the ranges established for forestry and agricultural soils. Organic soils are generally higher level of enzymatic, regardless activity of the enzyme involved. Soil near an urban area, levels of activities have been significantly reduced.
The vegetation cover applied to organic soils, results in greater enzymatic activity. So the quality of these soils, defined as the ability to maintain their biological productivity is increased with the use of cover crops, whether or spontaneous species. The practice of cover based on legumes could be used as an ideal choice for the recovery of degraded soils, because these soils have the highest levels of enzymatic activities.