SOIL QUALITY INDICATORS AS AFFECTED BY DIFFERENT CULTIVATED CROPS

I. Effects of wheat, clover and sugar beet on biological and biochemical indicators

By

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ABSTRACT

Soil microorganisms play a crucial role in mineralization and breakdown of complex organic compounds in soil. Microbial populations and functional diversity are greatly influenced by quantity and quality of crop residue and other incorporate organic amendments. Interactions among vegetation, soil physical and chemical conditions, and soil microbial communities determine the functions, resilience and stability of ecosystems. This study carried out using bio-, organic and chemical fertilizers to measure soil quality by evaluate some indicators (biological and bio-chemical indicators) as affected by adopted farming system with three different kinds of crops (wheat, clover and sugar beet). The total microbial counts for bacteria, fungi, actinomycetes, azotobacter and azospirillium and soil enzyme activities (dehydrogenase, phosphatase, catalase, and invertase) were evaluated using rhizosphere of the previous crops comparing with bulk soils. The yield and yield components of these crops were considered. In a bioassay preliminary trial to assess the residual effects of soil rhizosphere and bulk soil samples of harvested pretreated plants, soybean as a sensitive leguminous summer crop was used. In general, using of bio fertilizers and organic manures increased most biological and bio-chemical indicators and the soil quality.

Key Words: Soil Quality Indicators, Wheat, Clover, Sugar Beet, Bio-, Organic and Chemical Fertilizers.