MICROBIOLOGICAL INDICATORS AS IMPORTANT TOOL FOR SOIL QUALITY ASSESSMENT

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Abstract

The most significant and appropriate soil indicators are microbiological indicators because they provide a comprehensive picture of the viability of the entire soil ecosystem as well as the quality of the crop. In the Romanian Plain, two Chernozems (P1-irrigated and P2-non-irrigated) were used for the study. The researches presented in this paper belong to a complex study, part of the results (based on the hydrostability indicators) being also published. Thus, the initial premises of the researches were that the results obtained perfectly matched: the microbiological activity should be higher in an ecosystem with a high structural stability and, consequently, with a porous system stable and interconnected. The obtained results emphasized that, according to the microbiological indicators (the number of bacteria; the number of fungi; and the soil respiration), the higher activity of microbiota were in the less stable structural profile, but with higher humidity due to irrigation. In P2, bacteria and fungi, as well as the soil respiration reached higher values. In what concerning the taxonomic identification, in P2, a richness of species, both bacteria and fungi, had been identified, comparing to P1. The microbiological diversity and their distribution in the two soil profiles had been different as a result of the anthropic influence through irrigation. The microbiological indicators use in the paper to emphasize soil quality, proved to be important tools for soil quality assessment and marching with the others important physical indicators, showing also a great accuracy.

Key words: soil quality indicators; microbiology; micromorphology