MICROBIOLOGICAL ANALYSIS OF SOIL AS AN AID TO SOIL CHARACTERIZATION AND CLASSIFICATION

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INTRODUCTORY

The famous French chemist Berthelot once said "la terre Vegetale est regar del comme une chose vivante", "arable soil is considered as a living thing." With the advance of our understanding of the role of microorganisms in soil processes, we must come to recognize this truth more and more. Any system of characterization of a soil which is based merely on its physical makeup or even on its chemical composition will fail to give us a correct idea of the dynamics of the given soil. A knowledge of the soil processes is intimately connected with the understanding of the nature and activities of the soil population. The Polish bacteriologist Niklewski wrote some fifteen years ago that the value of microbiological methods for soil characterization seems to be in a more exact study of the soil properties than it is possible by the ordinary methods of physics and chemistry. Christensen also stated that the microbiological condition of the soil, which reflects the qualitative and quantitative composition of its microflora and microfauna can be considered as an expression of its chemical and physical condition.

The physical and chemical methods of soil analysis are comparatively too crude to allow us to determine the presence, both qualitative and quantitative, of the various soil factors which control plant growth. At best the results obtained by these methods supply information concerning only the static condition of the soil, namely its chemical composition, presence and concentration of certain nutrient elements, etc., but not its dynamic condition, or the processes which go on in the soil constantly. To characterize a soil, it is not merely sufficient to know what it consists of, but also what changes these constituents may undergo; in other words a soil should be characterized not only by what it is composed of but also by changes...