paddy-rice in the form of its salts, such as the sulphate and phosphate. Soil retains guanylurea better than ammonia.

Recent studies revealed that anaerobic soil conditions created by other means than water-logging, such as the addition of reduced iron to the soil or placing soil in an atmosphere of hydrogen gas, also had a favorable effect upon the microbial ammonification of dicyanodiamide.

Within the range of the experiments, the lower the redox-potential the more rapid was the ammonification of dicyanodiamide and guanylurea. There was no appreciable ammonification of the above stated substances during a period of a few weeks when Eh was below 250 mv. at pH 7.0. The main cause of lowering the redox-potential to the range favorable for the ammonification of dicyanodiamide and guanylurea, is the microbial decomposition of organic substances, contained in or added to the soil. — A. Hofer.

A SCHEME OF PRELIMINARY INVESTIGATIONS PROPOSED FOR THE MICROBIOLOGICAL CHARACTERISTICS OF SOILS¹

Abstract

J. Marszewska-Ziemiecka

In spite of the well-known difficulties connected with the evaluation of microbial activities in soils, the problem ought to be considered as very vital for an understanding of the general characteristics of soils. Recent progress of direct methods in soil microbiology tends to make this task easier. On the basis of these methods, the author suggests the adoption of a following scheme of investigations:

1. Qualitative observation on the distribution and growth cycle of microorganisms on buried slides (Rossi-Cholodny), especially on slides coated with different substances (Ziemiecka).

2. Estimation of the density of population originally present in soils, using the ratio method of Thornton and Gray.

3. Quantitative evaluation of energy of growth of this population in soils, when added with common sources of energy and nutrients. The ratio method has been successfully adapted to this purpose.

4. Study of CO₂ evolution from the soils.

5. More detailed study of the activities of organisms in elective cultures of Winogradsky; additional methods, when needed.

Special stress may be laid on the study of nitrogen fixation, cellulose decomposition, and the nitrifying power of soils, these processes being closely associated with general soil fertility conditions. — Abstract.

RESEARCHES ON THE BIOLOGICAL ACTIVITY OF DESERT SOILS²

Abstract

D. Feher and Ch. Killian³

Previous experiments begun in 1934 have shown that biologically the desert soils are quite active. The present experiments were made in order to investigate biological activities of desert soils at the most extreme conditions. During this expedition, studies were made of the soils over practically the entire Sahara region between 16° and 37° latitude. These included all the important soil types of the Sahara, the steppe and savanna soils of the Sudan, oasis soils, and certain weathered soils from the Hoggar mountains. A total of 68 samples was taken.

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