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Book review

Kuprevich, V. F. & Shcherbakova, T. A.: Soil enzymes. Translated from the Russian edition (1966), published by the Indian National Scientific Documentation Centre, New Delhi 1971. 392 pp., offset printing from type script, paper cover. Obtainable from U.S. Department of Commerce, National Technical Information Service, Springfield, Va. 22151.

Determination of free enzymes is often used as a substitute for an overall estimation of microbial activity in a soil and for its biochemical characterization. In the 1950's such enzymes as invertase, amylase, urease, protease and catalase were studied especially by E. Hofmann and co-workers in Weihenstephan, West Germany. More recently some essential and universally present enzymes such as dehydrogenases have received more attention. This book shows that Russian workers, in particular V. F. Kuprevich, have taken an active part in the study of soil enzymes from the beginning.

Two large chapters deal with the hydrolases and with the oxidoreductases, lyases and ligases (synthetases). Quantitative techniques are fully described. Numerous assessments of enzymes present in Russian soils are included. The various enzymes were usually studied in different soils at different times. Correlations with microbiological or respirometric observations were not really looked for. In a subsequent chapter, however, the effects of draining a peat-bog soil (variation of the watertable) on the content of 5 enzymes and free amino acids were studied simultaneously. In a chapter on external, non-biological factors it is shown that drying and storage of soil have comparatively little influence on enzyme activities, while various sterilizing agents can have different effects. In the final discussion on the origin and role of soil enzymes it is stated that various enzymes originate largely from plant roots, while proteases are mainly produced by bacteria. This chapter shows also how labile enzyme production by various organisms is. The bibliography (including short abstracts of most papers) covers 106 pp.: 50 for Russian, 56 for non-Russian publications.

The value of enzyme figures for the characterization of a soil is somewhat questionable; this is reflected in the often unconnected and unexplained observations. Nevertheless this book represents an important source of primary and secondary information on the topic.

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