

[¹⁴C]-Cellulase–Humic Complexes That Are Stable in Soil

J. M. SARKAR*

*Laboratoire d'Ecologie Microbienne, Faculté des Sciences
Agronomiques, Université de Louvain, Place Croix due Sud, 2,
1348-Louvain La Neuve, Belgium*

ABSTRACT

[¹⁴C]-Cellulase was extracted from the culture medium of *Trichoderma viride* and an attempt made to complex it with humic acid by adsorption. The result showed that the humic acid extracted from soil does not form a stable complex with [¹⁴C]-cellulase. In contrast, the flocculation of humic acid by 0.025M Ca²⁺ in the presence of the cellulase resulted in the formation of stable humic–cellulase complexes. DEAE cellulose chromatography of cellulase–humic complex revealed that cellulase could not be separated from the humic acid. Enzyme activity was only eluted along with humic acid upon increasing gradient concentration from 1.0 to 1.5M NaCl. Furthermore, in order to test its stability, the enzyme–humic complex was incorporated into fresh soil for 90 d. During this period the enzyme–humic complex remained stable. The cellulase–humic complex was then extracted from soil. Fractionation of the extract on DEAE cellulose and G100 sephadex revealed that cellulase activity could not be separated from humic acid and was again eluted in the form of enzyme–humic complex. This confirmed the stability of cellulase–humic complex in soil.

*Present address: Biological Laboratory, University of Kent, Canterbury CT2 7NJ, Kent, UK.