

**Title:Extra-Cellular Enzyme Producing Fungi from Termite Nests at The University of Embu Soils**

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**Abstract**

A group of fungi are capable of degrading cellulose which is a complex polysaccharide of plants since they produce cellulase enzymes. The research on the isolation and determination of substrate degrading fungi isolated from termite nests at the University of Embu soils is important in learning the ecological significance of the various fungi in the decomposition process. Comparison of the rate of substrate degradation (Starch, cellulose, casein, CMC, lignin, tween twenty and chitin), various fungi aids in understanding the decomposition process. To determine this, nest samples were collected from the study sites and taken to the laboratory and various fungal isolation techniques were employed to obtain pure isolates using soil extract agar. Eighteen isolates were obtained named with codes as Isolate 001 to isolate 018. Morphological identification including mycelium color, colony characteristics and microscopic features were used when colonies were grown on various media (Malt extract, oat meal agar, actinomycetes agar and SDA). Biochemical tests were done to differentiate between the isolates ability to degrade various substrates and the optimum conditions required for growth. Isolates 004,005,006,009,010,011,012,016 showed positive results in degradation of various substrates. Therefore, the knowledge obtained in understanding the degradation mechanisms and process of complex molecules (cellulose) by fungi can be applied in the management of organic wastes from plants as well as utilization in industrial processes such as production of bioethanol.