

BIOACTIVE PRODUCING BACTERIA OBTAINED FROM TERMITES' SUBTERRANEAN NESTS AND  
SURROUNDING MOUND SOIL AT UNIVERSITY OF EMBU FARM

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**ABSTRACT**

Embu County has a range of climates ranging from wet and cool in the northern portions that traverse up Mount Kenya to relatively warm and dry in the central and southern parts of the County. Due to this gradient in climate University of Embu farm located in Embu County is densely forested with diverse plant on which termites degrade these dead plant litter. This facilitates carbon and nitrogen mineralization, nutrient availability and stimulation of microbial activity. An opportunity to obtain novel bioactive compounds has been linked to the discovery of bacteria from diverse and unexplored resources such as termites' nests from different geographical areas. Herein we assessed antimicrobial and exoenzyme producing bacteria from termite's subterranean nest and surrounding mound at University of Embu farm. This was achieved through collection of termite's subterranean nest and surrounding mound samples, isolation of bacterial colonies on various media supplemented with antifungal-cyclohexamide followed by morphological characterization of the isolates, and screening for exoenzyme and antimicrobial activities. A total of 25 isolates were obtained, 12 isolates and 13 isolates from subterranean nest and mound soil respectively. The isolates obtained produced various enzymes such as amylases, lipases, proteases, chitinase and cellulases. Cellulolytic bacteria associated with termites' nest include *Bacillus*, *Cellulomonas*, and *Micrococcus* among others. Most of the isolates showed antagonistic activity against the test organisms such as *E.coli*, *Pseudomonas*, *Salmonella*, *Shigella*, *B.subtilis*, *C.albicans* and *S.aureus* and likely were presented by genera *Nocardia* and *Actinobacteria* which have been shown to produce bioactive. These results confirmed that termite's nest materials harbor bacteria that can produce bioactive compounds of significant in medical and industrial sectors.