

Symbiotic cellulolytic bacteria from the gut of the subterranean termite *Psammotermes hypostoma* Desneux and their role in cellulose digestion.

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ABSTRACT

The subterranean termite *Psammotermes hypostoma* Desneux is considered as an important pest that could cause severe damage to buildings, furniture, silos of grain and crops or any material containing cellulose. This species of termites is widespread in Egypt and Africa. The lower termite's ability to digest cellulose depends on the association of symbiotic organisms gut that digest cellulose (flagellates and bacteria). In this study, 33 different bacterial isolates were obtained from the gut of the termite *P. hypostoma* which were collected using cellulose traps. Strains were grown on carboxymethylcellulose (CMC) as a sole source of carbon. Cellulolytic strains were isolated in two different cellulose medium (mineral salt medium containing carboxymethylcellulose as the sole carbon source and agar cellulose medium). Five isolates showed significant cellulolytic activity identified by a Congo red assay, which gives clear zone. Based on biochemical tests and sequencing of 16s rRNA genes these isolates were identified as *Paenibacillus lactis*, *Lysinibacillus macrolides*, *Stenotrophomonas maltophilia*, *Lysinibacillus fusiformis* and *Bacillus cereus*, that deposited in GenBank with accession numbers MG991563, MG991564, MG991565, MG991566 and MG991567, respectively.

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