

**Preferential use of carbon sources in culturable aerobic mesophilic bacteria of
Coptotermes curvignathus's (Isoptera: Rhinotermitidae) gut and its foraging area**

ABSTRACT

The lower termite, *Coptotermes curvignathus*, is one of the most prominent plantation pests that feed upon, digest, and receive nourishment from exclusive lignocellulose diets. The objective of this study was to examine the utilization of sole carbon sources by isolated culturable aerobic bacteria among communities from the gut and foraging pathway of *C. curvignathus*. We study the bacteria occurrence from the gut of *C. curvignathus* and its surrounding feeding area by comparing the obtained phenotypic fingerprint with Biolog's extensive species library. A total of 24 bacteria have been identified mainly from the family Enterobacteriaceae from the identification of Biolog Gen III. Overall, the bacteria species in the termite gut differ from those of foraging pathway within a location, except *Acintobacter baumannii*, which was the only bacteria species found in both habitats. Although termites from a different study area do not have the same species of bacteria in the gut, they do have a bacterial community with similar role in degrading certain carbon sources. Sugars were preferential in termite gut isolates, while nitrogen carbon sources were preferential in foraging pathway isolates. The preferential use of specific carbon sources by these two bacterial communities reflects the role of bacteria for regulation of carbon metabolism in the termite gut and foraging pathway.

Keyword: *Coptotermes curvignathus*; Culturable aerobic bacteria; Termite gut; Foraging pathway; Carbon source