

Abstract

Termites are eusocial insects, originating from cockroach-like ancestors having evolved eusociality about 100 Mya. Eusocial behavior of termite colonies help them to get access to otherwise inaccessible niches and thus higher fitness of the colony. Interaction between termites and fungi range across both higher and lower termites. Most of these interactions are facultative with one exception, the fungus-growing termites of the family Macrotermitinae. This mutualism originated in Africa about 30 Mya. This fungus growing termites use symbiotic fungi (Termitomyces) as an external- rumen for plant degradation. In this symbiotic relationship, termites provide substrate for the growth of Termitomyces, maintain the fungus garden by continuous addition of predigested plant material and consumption of the older comb material. Termitomyces are maintained as monoculture in termite nests. During the establishment of a new colony, the fungal partners are collected from the environment by termite workers. Agricultural symbiosis between termites and fungi is symmetrical because both termites and fungus have single origin and both obligatorily depends on this relationship. Termitomyces acts as a food source for termites. Many other fungi like Xylaria, Trichoderma, Penicillium etc are also present inside the termite nests. In the absence of termites, antagonistic fungi, like Xylaria, starts to grow over the combs. This indicates that termites or Termitomyces are using some mechanisms to prevent the growth of contaminating fungi. The present study tries to explore the Mycodiversity in the combs of *Odontotermes* termites and also attempts to see how these antagonistic fungi interact with termites and Termitomyces.