

Evolutionary history of the symbiosis between fungus-growing ants and their fungi.

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REPORTS

Evolutionary History of the Symbiosis Between Fungus-Growing Ants and Their Fungi

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Abstract

The evolutionary history of the symbiosis between fungus-growing ants (Attini) and their fungi was elucidated by comparing phylogenies of both symbionts. The fungal phylogeny based on cladistic analyses of nuclear 28S ribosomal DNA indicates that, in contrast with the monophyly of the ants, the attine fungi are polyphyletic. Most cultivated fungi belong to the basidiomycete family Lepiotaceae; however, one ant genus, *Apterostigma*, has acquired a distantly related basidiomycete lineage. Phylogenetic patterns suggest that some primitive attines may have repeatedly acquired lepiotaceous symbionts. In contrast, the most derived attines have clonally propagated the same fungal lineage for at least 23 million years.



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