

Formation of Hyphal Loops in Xylotrophic Coprinoid Mushrooms

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Recent molecular analysis split the traditional genus *Coprinus* (Homobasidiomycetes) into four distinct genera: *Coprinus*, *Coprinopsis*, *Coprinellus* and *Parasola*. Coprinoid mushrooms are usually saprotrophic on soil and/or dung of herbivores. However, more than 60 species are able to grow on wood and straw.

Xylotrophic mushrooms are forcing a relatively short supply of nitrogen and phosphorous nutrients. *Coprinus comatus* has been reported to produce specialized structures (“spiny balls”) to penetrate nematodes for nutrient supply (Luo et al. 2004, Mycologia 96, 1218-1224). Nematode traps of other fungi involve adhesive hyphal network and knobs, hyphal loops and snares. Toxin production may support in nematode immobilisation.

Nematode-trapping species belong mainly to the mitosporic Deuteromycetes, but some are also found amongst Zygomycetes and Basidiomycetes.

We have observed hyphal loops in several wood-decaying basidiomycetes, such as *Daedalea quercina*, *Ganoderma lucidum*, *Lentinula edodes*, *Piptoporus betulinus* and *Pleurotus ostreatus*. Furthermore, regular and irregular hyphal loops and/or rings were observed in the four clades of Coprinoid species (*Coprinus comatus*, *Coprinellus angulatus*, *C. bisporus*, *C. curtus*, *C. domesticus*, *C. disseminatus*, *C. ellissi*, *C. micaceus*, *C. xanthothrix*, *Coprinopsis cinerea*, *C. gonophylla*, *C. radians*, *C. strossmayeri*, *C. scobicola*, and *P. plicatilis*). Hyphal loops were particularly often formed in *Coprinellus* species. Such structures were rare in *Coprinopsis atramentaria*, *C. cothurnata*, *C. romagnesiana*, *C. psychromorbida* and *Coprinus patouillardii* (an unclassified isolate).

It is not clear yet why Basidiomycetes fungi have these structures. Is it that many species have nematode trapping abilities by formation of such structures?

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