**Insights in the biology and life cycle of the lichen-inhabiting fungus *Tremella hypogymniae* (Tremellales, Basidiomycota, Fungi)**

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In the past decades, lichens have been revealed as complex systems that harbour a diversity of additional organisms, including fungi other than the mycobiont (referred to as the mycobiome) and bacteria. Some lichen-inhabiting basidiomycetes – and also many fungi associated with other organisms – are dimorphic, i.e. they include a yeast phase and a filamentous phase in their life cycle. The filamentous phase of dimorphic lichen-inhabiting basidiomycetes (e.g. *Cyphobasidium* and *Tremella* s.l.) is highly host-specific and produces basidiomata, often associated with galls on the lichen thallus. The yeast phase of some of these fungi has been shown to grow in the lichen cortex, but at least in *Tremella*, the level of host-specificity is unclear. Here, we provide further data on the different phases of the life cycle within the lichen thallus. As study object we have chosen *Tremella hypogymniae*, a species that is so far known to grow only in *Hypogymnia physodes*. We have used highly specific PCR primers to selectively amplify *T. hypogymniae* and, in addition, we have performed fluorescent *in situ* hybridization (FISH) to identify the location of the different phases of the life cycle. Here, we investigate the frequency and host range of *Tremella hypogymniae*, whether *T. hypogymniae* may coexist with *Cyphobasidium hypogymniicola* in the same host thallus, and finally how *Tremella* and *Cyphobasidium* are structured genetically. Our study represents an important step in the understanding of the life cycle and biology of lichen-inhabiting basidiomycete fungi.