

# Taxonomy, phylogeny and physiological characteristics of the genus *Cryptomarasmius* (Agaricales) in Japan

## 要旨

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Litter-decomposed fungi greatly contribute to soil fertility. However, there are few studies about their diversity because their basidiomata are often small-sized and they are difficult to find in field and identify their taxonomic status.

Some species of the genus *Cryptomarasmius* have host specificities so these fungi are easier to find and identify than other litter-decomposed fungi. Hence, the species of *Cryptomarasmius* are suitable to study their physiological characteristics such as their decomposition process of leaf litter. Moreover, some species of *Cryptomarasmius* were reported to have pathogenicity to their host plants. Therefore, various species of *Cryptomarasmius* probably also have pathogenicity to their host plant.

The author collected multiple specimens tentatively regarded as the species of *Cryptomarasmius* that grew on various plants. However, these specimens were different to known Japanese species of *Cryptomarasmius* in their host plants and morphological characteristics. In this study, the author firstly conducted taxonomic studies on these specimens based on morphological observations and phylogenetic analyses. Then, inoculation experiments were conducted to leaves of their host plants using newly obtained mycelial cultures of these fungi.

In taxonomic studies, three new species, *C. hederæ*, *C. hispidus*, *C. ligustrumæ* were described and *C. exustoides* was newly recorded in Japan. These species could be distinguished from the known Japanese species of *Cryptomarasmius* by their morphological characteristics and phylogenetic placements.

In addition, *C. aucubæ*, *C. hederæ* and *C. ligustrumæ* inoculated to their host plant and the reactions were observed. In the four patterns of injured leaves, plant death and hyphal growth were observed in injured leaves. Moreover, in the three patterns of injured leaves, the formations of basidiomata of *Cryptomarasmius* were observed. In intact leaves, there were no significant reactions were observed. These results suggest that some species of *Cryptomarasmius* have the ability to penetrate to plant bodies from wound, cause them to die, decompose their host and form their basidiomata. (308 words)