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Lifecycle and ecology of *Pyrenopeziza protrusa* (Helotiales, Dermateaceae sensu lato) in Japan

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Purpose: To clarify the versatility of the saprophytic fungi with high host selectivity, we focused on *Pyrenopeziza protrusa*, which forms apothecia solely on the fallen leaves of *Magnolia obovata*.

Methods: The fungal specimens were collected across Japan, and the lifecycle and ecology was studied in Tsukuba botanical garden in detail. The intraspecific phylogenetic analysis and molecular detection of the fungal DNA from the plant by PCR and RT-PCR with the primers developed for the present study were carried out. Apothecial development was observed.

Results: *Pyrenopeziza protrusa* showed relatively high genetic diversity in ITS-5.8S rDNA, but showed no genetic structure among local populations. The fungus was well defined by the barcoding region and probably forms a single population covering wide areas in Japan.

The DNA concentration of *P. protrusa* showed drastic increase in the fresh leaves just before the defoliation and kept high quantity in fallen leaves. The fungus was isolated from fresh leaves only in October, while it was more frequently isolated from fallen leaves throughout the year. From these results, this fungus presumably switches the mode of life from endophytic to saprophytic when the leaf senesce.

Because *P. protrusa* was detected from the roots of the seedlings, it probably shows systemic infection. The apothecia occur underneath the epidermal layer of the plant tissue and then penetrate through the epidermis when matured. The microconidia of *P. protrusa* were discovered next to the immature apothecia.

Conclusion: This study elucidated the versatility of the fungus previously known only as saprophyte.