Outlineoffungi.org – Note 1592 *Hyphoderma*

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Hyphoderma Wallr.

Hyphoderma Wallr. (*Hyphodermataceae*, *Polyporales*) represents one of the most species-rich and taxonomically complicated genera among wood-inhabiting fungi typified by *H. setigerum* (Fr.) Donk. (Donk 1957, Yurchenko and Wu 2014, Kirk et al. 2008). The species within the genus cause white rot, and is one of the most important fungal groups that plays a key role in the carbon cycle and the most efficient wood decomposers in the forest ecosystem (Floudas et al. 2012, Duan et al. 2023).The genus is characterized by resupinate to effuse-reflexed basidiomata with ceraceous consistency, and a smooth to tuberculate, grandinioid or odontioid hymenial surfaces, a monomitic hyphal system (rarely dimitic) with clamp connections on generative hyphae, presence of cystidia or not, suburniform to subcylindrical and cylindrical basidia, and ellipsoid to subglobose, smooth, thin-walled basidiospores (Wallroth 1833, Bernicchia and Gorjón 2010). Based on Index Fungorum, the genus *Hyphoderma* has 210 specific and registered names. Currently, 116 species have been accepted worldwide (Wu et al. 2010, Baltazar et al. 2016, Martín et al. 2018, Ma et al. 2021, Guan and Zhao 2021a, b, Guan et al. 2021, Duan et al. 2023, Yang et al. 2023).

This pioneering research for the phylogenetic analysis process of the genus *Hyphoderma* was just the prelude to the molecular systematics period (Ma et al. 2021, Guan and Zhao 2021a, b, Guan et al. 2021, Duan et al. 2023). The phylogenetic research revealed that all *Hyphoderma* taxa clustered into the different groups in phylogenetic trees at the class level based on the molecular phylogenetic methods, in which the result indicated that *H. praetermissum* (P. Karst.) J. Erikss. & Å. Strid and *Resinicium bicolor* (Alb. & Schwein.) Parmasto were grouped together, while the other *Hyphoderma* species, *Hypochnicium* J. Erikss, and several other species formed a separate branch (Langer 2002). The phylogeny of *Hyphoderma* showed that two species *H. obtusum* J. Erikss. and *H. setigerumnested* into the family *Meruliaceae* Rea and formed a sister taxon to *Hypochnicium polonense* (Bres.) Å. Strid (Larsson 2007). The phylogenetical relationships among the closely related taxa in *Hyphoderma* were determined and a new species was proposed, *H. macaronesicum* Tellería, M. Dueñas, Beltrán-Tej., Rodr-Armas & M.P. Martín (Telleria et al. 2012). The research comprising the representative sequences of the *H. setigerum* complex showed that *H. pinicola* Yurch. & Sheng H. Wu represented a fifth species in this complex of this genus *Hyphoderma* (Yurchenko and Wu 2014). The research of the family-level classification of the order *Polyporales* indicated that four *Hyphoderma* species grouped into the residual polyporoid clade, belonging to the family *Hyphodermataceae*, in which they grouped with three related genera in the family *Meripilaceae* as *Meripilus* P. Karst., *Physisporinus* P. Karst. and *Rigidoporus* Murrill (Justo et al. 2017).

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