Outlineoffungi.org - Note 928 *Asproinocybaceae*

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Asproinocybaceae T. Bau & G.F. Mou

The similar tricholomatoid habit and pinkish, subdistant lamellae result in *Asproinocybe* R. Heim and *Tricholosporum* Guzmán to look similar (Heim 1969, Guzmán 1975, Guzmán et al. 1990, 2004, Angelini et al. 2014, Xu et al. 2018, Lebel et al. 2020). The only feature that could distinguish these two genera is the shape of their basidiospores; nodulose or tuberculate in *Asproinocybe* and cruciform in *Tricholosporum* (Mou & Bau 2021). However, the segregation of these two genera and their taxonomic placement was always dubious (Mou & Bau 2021). Various taxonomists have placed *Asproinocybe* and *Tricholosporum* in the family *Tricholomataceae* R. Heim based on their morphological features for quite a long time (Heim 1969, Guzmán 1975, Guzmán et al. 1990, 2004, Angelini et al. 2014, Xu et al. 2018, Lebel et al. 2020, Mou & Bau 2021). Though no specific family was assigned to *Asproinocybe* during its establishment, Heinemann (1977), Guzmán et al. (2004), and Lebel et al. (2020) placed it under *Tricholomataceae* (Mou & Bau 2021). However, the first attempt at phylogenetic analysis retrieved *Tricholosporum* within another family, *Entolomataceae* based on ITS region and within *Tricholomataceae* based on LSU sequence data (Heaton & Kropp 2013). Later, more extensive multi-gene phylogeny based on LSU, SSU, and *RPB2* sequences showed the closeness of *Tricholosporum* with the clade containing members of *Entolomataceae*, *Lyophyllaceae*, *Collybia*, and the callistosporoid groups but the relationship had weak phylogenetic support (Angelini et al. 2017, Mou & Bau 2021). The relation between *Asproinocybe* and *Tricholosporum* could also not be resolved by means of one marker-based phylogeny (Mou & Bau 2021). Thus, to resolve such problems and the need for proper systematic positioning of these two genera, the family *Asproinocybaceae* was erected by Mou & Bau (2021) by comprehensive sampling and combining ITS, LSU, SSU, *RPB1*, *RPB2,* and *TEF1* marker-based phylogeny. The type genus is *Asproinocybe* and the representatives of this family are found on soils of the forests of broad-leaf trees (Mou & Bau 2021). Generally, the basidiomata of the members of this family are violaceous with purplish to lilac-vinaceous colour tones (Mou & Bau 2021). The pileus shape is mostly convex to hemispherical becoming plane to depress at maturity with occasionally the presence of an umbo. The surface is distinctively fibrillose to velvety and smooth. The context is whitish coloured but turns greyish to yellowish on exposure. The lamellae attachment varies from adnexed to adnate to sinuate, emarginate, or free (Mou & Bau 2021). The lamellae of this family are usually of violet colour tones but turn reddish or brownish on bruising. The stipe is typically fistulose-hollow, violaceous in colour with the surface of flocculose or pruinose. *Asproinocybaceae* has inamyloid, thin-walled, basidiospores with usually having large oil-drop. The cystidia at lamellar edge and face vary in shape but generally are thin-walled with occasional greyish violet pigment (Mou & Bau 2021). The hyphal arrangement of the pileipellis is generally cutis with interwoven, smooth-to-incrusted hyphae. Clamp connections may or may not be found but the laticifers are present in all the species of this family. The type genus, *Asproinocybe* R. Heim, that was typified by *Asproinocybe lactifera* R. Heim, has a central pileus with the hyphae of pileipellis having incrustations and the unbranched apices of the cystidia which make it quite distinct. The other genus of this family, *Tricholosporum,* that was typified by *Tricholosporum goniospermum* (Bres.) Guzmán ex T.J. Baroni, is characterized by central pileus with no significant colour spots, basidiospores cyanophilous, and the cystidia sometimes are pigmented (Mou & Bau 2021). The species of *Asproinocybe* are mostly found in tropical forests while that of *Tricholosporum* is quite widespread (Kirk et al. 2008). The taxonomic

placement of this family is in *Agaricales* and *Agaricomycetes*.

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