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[Tolypocladium](#) W. Gams

[Tolypocladium](#) was circumscribed based on three soil-inhabiting asexual species with sparingly branched conidiophores, swollen phialides, and one-celled conidia adhering in slimy heads (Gams 1971). This genus is typified with *T. inflatum* (Gams 1971). Later, the asexual-sexual connection between *Tolypocladium inflatum* and *Cordyceps subsessilis* was established based on cultural study by Hodge et al. (1996). Sung et al. (2007) introduced *Elaphocordyceps* to accommodate a subclade of [Ophiocordycipitaceae](#) that contains *Elaphomyces*-infecting *Cordyceps* species and some closely related arthropoda-pathogens. *Chaunopycnis* is a genus with similar conidiogenesis to [Tolypocladium](#) (Gams 1980). Quandt et al. (2014) synonymized *Chaunopycnis* and *Elaphocordyceps* under [Tolypocladium](#) following the principle of “One Fungus One Name”. The sexual morph of [Tolypocladium](#) is characterized by solitary to multiple, stipitate, fleshy, fibrous to tough stromata, clavate to capitate fertile head, immersed perithecia, cylindrical asci with thickened apex and filiform, multiseptate, disarticulating ascospores (Sung et al. 2007, [Quandt et al. 2014](#), [Yu et al. 2021](#)). The asexual morph is tolypocladium-, chaunopycnis-, or verticillium-like. The conidiophores laterally or terminally carry whorls of phialides. Phialides usually comprise a cylindrical to swollen base and a thin, bent neck. Conidia are hyaline, globose to oval, aseptate, smooth-walled, aggregating in globose heads at the tips of the phialides ([Yu et al. 2021](#)).

Recent morphological and phylogenetic analyses have ascribed many novel species to [Tolypocladium](#), e.g., *T. bacillisporum* ([Yamamoto et al. 2022](#)), *T. cucullae* ([Wijayawardene et al. 2021](#)), *T. flavonigrum* ([Crous et al. 2020](#)), *T. inusitaticapitatum* (Yu et al. 2021), *T. pseudoalbum* ([Dong et al. 2022](#)), *T. reniformisporum* ([Wang et al. 2022](#)), *T. subparadoxum* ([Dong et al. 2022](#)), and *T. yunnanense* ([Dong et al. 2022](#)). Presently, [Tolypocladium](#) comprises 49 species with a cosmopolitan distribution, and inhabits diverse hosts/substrates that range from various insects (such as mosquito larvae, fireflies, beetles, cicada nymphs, batmoth larvae) to nematodes, bdelloid rotifers, other fungi (truffle, *Ophiocordyceps sinensis*), soil, and even plants (as endophytes) ([Yu et al. 2021](#), [Dong et al. 2022](#)). Species of [Tolypocladium](#) have been subjected to investigation of nutritional and medicinal properties (Lin et al. 2009). Some metabolites with anti-fungal, anti-inflammatory, anti-parasitic and anti-tumorous properties have been reported from [Tolypocladium](#) species and they are cyclosporin A, cyclosporin D hydroperoxide, tolypoalbin, tolypin, and tolyprolinol ([Leung et al. 2006](#)).

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