Outlineoffungi.org – Note 1540 *Serpula*

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Serpula (Pers.) Gray

Basionym: *Merulius* sect. *Serpula* Pers.

Synonyms: *Plicaturella* Murrill, *Xylophagus* Link, *Xylomyzon* Pers., *Gyrophora* Pat., and *Gyrophana* Pat.

The genus *Serpula* was introduced by Persoon (1801) to designate one section of the genus *Merulius* Boerh. ex Haller. Gray (1821) raised the Persoonian section to the generic rank. Initially, the genus contained one species, *Serpula destruens* (Pers.) Gray. Fries (1821) did not recognize the genus *Serpula*, and continued to consider the aforementioned species in the genus *Merulius* emend. Fr. under the name *Merulius lacrimans* (= *Boletus lacrymans* Wulfen in Jacq.). In this genus, Fries considers fungi with effused or effused-reflexed fruiting bodies, a folded-tortuous hymenophore and a continuous hymenium. Along with *Merulius pulverulentus*, *M. brassicaefolius*, and *M. umbrinus*, *M. lacrymans* were included by Fries (1838) in the section *Coniophori* based on the clearly colored rusty-brownish spore print. The Friesian system was widely recognized by his contemporaries, and the genus *Serpula* was forgotten for many years. The return of this to taxonomic practice was associated with Karsten's work (1889). This researcher adhered to a broader *Serpula* concept and included in this genus many species of *Merulius sensu* Fries, characterized mainly by a pale yellow, ocher, or olive merulioid hymenophore, regardless of the color of the spore print. A number of subsequent mycologists followed the method of splitting the genus *Serpula sensu* P. Karst. After the description *Gyrophora* (Patouillard 1887) (type species *Gyrophora lacrymans*), the rest of merulioid fungi with a fawn or olive hymenophore were continued to be considered in the genus *Merulius* (Harmsen 1954), and not all mycologists recognized the genus *Gyrophora* (Falck 1912). After studying specimens of *Merulius sensu* Fries and Burt, Cooke (1943) confirmed the generic level of *Serpula sensu* Gray based on the difference in basidiospore color with *Merulius* (hyaline vs colored in *Serpula*) and proposed a new combination *Serpula americana* (= *S. himantioides*). Later, a number of species, previously placed in *Serpula*, found their place in the genus *Leucogyrophana* (Pouzar 1958, Parmasto 1968). Jülich (1979) described the genus *Pseudomerulius* to accommodate *Merulius aureus* and *Merulius elliotii*, to which Redhead and Ginns (1985) add another species, *P. curtisii*, previously considered in the genus *Paxillus* or *Tapinella*. In the era of molecular taxonomy, the independence of the genera *Leucogyrophana* and *Pseudomerulius* was confirmed experimentally, and they were placed in different families, whereas the genus *Leucogyrophana sensu* Pouzar was sufficiently splitted (Jarosch & Besl 2001). Skrede et al. (2011) inferred the evolutionary history of *Serpulaceae* based on multigene phylogeny (SSU, LSU, 5.8S, *tef1-α*, *rpb2*) and concluded that *Serpula* clusters together with two ectomycorrhizal genera, *Austropaxillus* Bresinsky & Jarosch and *Gymnopaxillus* E. Horak in one family-level clade.

The members of this genus are characterized by annual, resupinate, rarely pileate, fleshy or sometimes floccose, membranous, generally dark-brown basidiomes (Cooke 1957, Skrede et al. 2011). The hymenium is meruloid or poroid with obtuse-edged pores. No type of cystidia has been documented in members of *Serpula* (Cooke 1957). Basidiospores are globose to ovoid, smooth, from yellow to rusty or brown, cyanophylous, with 1–2-layered thick brownish wall (Cooke 1957, Dai 2004, Zmitrovich et al. 2019). *Serpula* consists of saprotrophic taxa that

mainly degrade conifer substrates causing brown rot. *Serpula lacrymans* is a well-known destructive house-invading fungus (Dai 2004, Skrede et al. 2011). Though a lot of application-based research has been done on *S. lacrymans*, there has been limited documentation regarding the other taxa of this genus. Currently *Serpula* includes 16 species that have been documented worldwide based on Species Fungorum.

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