

Matsushimaea monilloides



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Matsushimaea monilioides Iturrieta-González, Dania García & Gené, *sp. nov.*

Etymology. Name refers to the moniliform filaments in conidia.

Classification — *Sympoventuriaceae*, *Venturiales*, *Dothideo-mycetes*.

Mycelium consisting of branched, septate, olive, smooth-walled, 1–2 µm diam hyphae, frequently forming hyphal coils, occasionally with irregular swellings not constricted at the septa. *Conidiophores* micronematous, often reduced to conidiogenous cells with conidia arising directly on hyphae. *Conidiogenous cells* integrated, mono- or polyblastic, intercalary or terminal, elongated, 7–14.5 × 2–4 µm, pale brown, smooth-walled. *Conidia* solitary, sessile or on short protrusions, irregularly shaped, composed of a basal cell from which arise acropetal chains of cells, giving place to moniliform, septate, often branched filaments, up to 46 µm long and 2–4.5 µm wide, remaining attached at maturity; cells globose, subglobose, ellipsoidal to somewhat pyriform, 2.5–5.5 × 2–4.5 µm, brown, smooth-walled. *Sexual morph* not observed.

Culture characteristics — Colonies on PDA reaching up to 13 mm diam after 14 d at 25 °C, yellowish brown, velvety, flat, aerial mycelium scarce, margin entire; reverse dark brown. On OA up to 14 mm diam after 14 d at 25 °C, dark brown, dusty, flat; reverse dark brown. No growth at 37 °C.

Typus. SPAIN, Catalonia, Tarragona, Parc Samà, garden soil, Feb. 2017, J. Gené & I. Iturrieta-González (holotype CBS H-23392; cultures ex-type FMR 16505 = CBS 143867, ITS and LSU sequences GenBank LT883468 and LT883469, MycoBank MB823930).

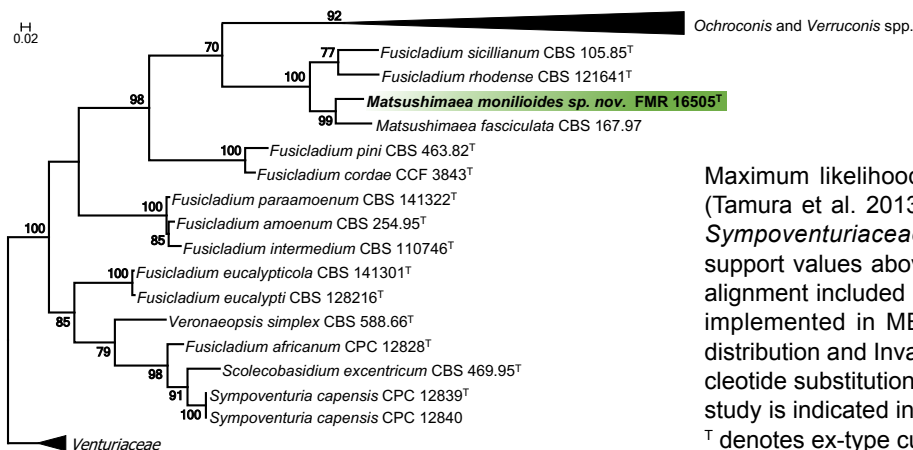
Notes — The genus *Matsushimaea* was erected by Subramanian (1977) to accommodate *Torula fasciculata*, a fungus described by Matsushima (1975) and characterised by the production of sessile branched conidia arising directly from vegetative hyphae. In addition to the type, *M. fasciculata*, the genus currently includes two other species, *M. fertilis* (Castañeda-Ruiz et al. 1996) and *M. magna* (Matsushima 1996). The three

species were found on leaf litter from Japan, Cuba and South Africa, respectively. Considering the lack of molecular data for *Matsushimaea* and that only for *M. fertilis* ex-type cultures were available for comparison, we selected a reference strain of *M. fasciculata* (CBS 167.97), which morphological features fit with those of the protologue of the species, in order to elucidate the phylogenetic position of the genus among ascomycetes and determine its relationships with our fungus. A phylogenetic analysis with the rDNA operon (ITS and LSU) placed the CBS strain of *M. fasciculata* in the family *Sympoventuriaceae* and it was closely related to our strain. However, both strains showed genetic differences (99 % similar with LSU, 86 % with ITS) enough to be considered distinct species.

Matsushimaea monilioides morphologically resembled *M. fertilis*. However, a megablast search with ITS and LSU sequences of the ex-type strain (INFAT C93/204 = IMI 358617) of this latter species showed it was related to the genus *Cladophialophora* (*Herpotrichiellaceae*, *Chaetothyriales*), being highly similar to the sequences of the ex-type of *C. boppii* (CBS 126.86; LSU 100 % similar with GenBank FJ358233 and ITS 98 % similar with GenBank NR_131297). Therefore, *M. fertilis* was excluded in the present phylogenetic analysis.

Based on a megablast search of NCBI's GenBank nucleotide database, the closest hits using LSU sequence of *M. monilioides* with other sympoventuriaceous species were *Fusicladium sicilianum* (CBS 105.85; GenBank FN398150.1) with a similarity of 95 % (531/557) and *Fusicladium rhodense* (CBS 121641; GenBank EU035440.1) also 95 % (812/855) similar. The closest hits using the ITS sequence were *F. rhodense* (CBS 121641; GenBank EU035440.1) and *F. sicilianum* (CBS 105.85; GenBank FN549914.1) with a similarity of 86 % (402/470) and 85 % (390/459), respectively.

Matsushimaea fasciculata and *M. magna* morphologically differ from our fungus in conidial morphology; while the conidia of the former are more regularly shaped, obconical to cupulate and measure 30–45 µm long (Matsushima 1975), those of *M. magna* are larger, up to 100 µm long (Matsushima 1996).



Colour illustrations. Parc Samà, Tarragona, Spain; colony sporulating on OA and conidia after 14 d at 25 °C. Scale bars = 10 µm.

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