Mutinus verrucosus
Mutinus verrucosus  T.S. Cabral, B.D.B. Silva, K. Hosaka, M.P. Martín & Baseia, sp. nov.

Etymology. In reference to the verrucose surface of the fertile portion of the pseudostipe.

Classification — Phallaceae, Phallales, Agaricomycetes.

Unexpanded basidiome (egg) ovoid to pyriform, 11–18 mm high x 6–8 mm diam, epigean. Exoperidium membranaceous, smooth, white to yellowish white (4A4), with white rhizomorphs at the base attached to the soil. Endoperidium with gelatinous content, hyaline. Expanded basidiome composed of a pseudostipe and volva. Pseudostipe cylindrical, 80 mm high x 6 mm diam, acuminated at the apex, hollow, spongy, apically perforated; sterile portion white at the bottom, becoming yellowish white (4A4) close to the fertile portion, chambered; fertile portion (receptacle) 22 mm high, reaching 1/3 of the total length of the pseudostipe, brownish red (9D6, 9E6), thick, obclavate but slightly truncate at the tip, with a pore at the apex, surface strongly verrucose. Gieba on the terminal portion of receptacle, mucilaginous, olive brown (4F3). Pseudostipe composed of pseudoparenchymatous cells, hyaline, irregular shaped, 20–57.5 × 18–47 μm. Volva formed by filamentous hyphae, septe, branched, hyaline, 2.6–4.5 μm diam. Rhizomorphs composed of filamentous hyphae, septe, hyaline, 1–5 μm diam, with crystals disposed in globose cells (14.5–50.5 × 17–50 μm). Basidiospores cylindrical, 4–5 × 2–2.5 μm [x = 4.3 ± 0.1 x 2.4 ± 0.6 μm, Q_m = 1.7, n = 20], smooth, hyaline.


ITS nrDNA phylogenetic tree obtained with MrBayes v. 3.1.2. (Huelsenbeck & Ronquist 2001) under GTR+I+G model for 3 M generations. Both type and paratype of the new species are marked with a rectangle. The GenBank accession numbers are indicated before species names. Support values are indicated on the branches (posterior probabilities/bootstrap). TreeBASE submission ID 21112.

Notes — Mutinus verrucosus is morphologically close to M. proximus and M. penzigii, due to the nature of the surface of the apical portion. There is little information on M. proximus, especially about the surface of the receptacle; however, it is different from M. verrucosus by having smaller basidiomata (up to 5 mm high), and the imperforate orange-red receptacle (Massie 1891). Mutinus penzigii was initially described based on a specimen registrierd as Mutinus elegans (Penzig 1899). Penzig classified this species is characterised by the peg-shaped processes on the surface of the receptacle (Lloyd 1909, Fischer 1910), which is different from the verrucose receptacle found in M. verrucosus. These species also differ in habitat: M. penzigii was found on rotten bamboo stems, while M. verrucosus is found on soil. Another morphologically similar species to M. verrucosus is M. boninensis, due to its white pseudostipe and brownish red receptacle perforated at the apex, but M. boninensis has an annulated surface of the apical portion (Lloyd 1909, Kobayasi 1937). On the other hand, M. borneensis resembles M. verrucosus with the white pseudostipe (Penzig 1899, Kibby 2015), but the apical portion surface is an irregular fragile network of variable meshees, and with brownish colour. Based on ITS nrDNA phylogenetic analyses, M. verrucosus is close to M. albotruncatus with high support values (posterior probability = 1; bootstrap = 99 %); however, M. albotruncatus has a pale brown receptacle with slightly verrucose surface and doliform to cylindrical shape (Da Silva et al. 2015).


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