

Short title: Two new *Septoglomus* spp.

Septoglomus fuscum and *S. furcatum*, two new species of arbuscular mycorrhizal fungi

(Glomeromycota)

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Abstract: Two new arbuscular mycorrhizal fungal species, (Glomeromycota) *Septoglomus fuscum* and *S. furcatum*, are described and illustrated. Spores of *S. fuscum* usually occur in loose hypogeous clusters, rarely singly in soil or inside roots, and *S. furcatum* forms only single spores in soil. Spores of *S. fuscum* are brownish orange to dark brown, globose to subglobose, (20–)47(–90) μm diam, rarely ovoid, $21\text{--}50 \times 23\text{--}60 \mu\text{m}$. Their spore walls consist of a semi-persistent, semi-flexible, orange white to golden yellow, rarely hyaline, outer layer, easily separating from a laminate, smooth, brownish orange to dark brown inner layer. Spores of *S. furcatum* are reddish brown to dark brown, globose to subglobose, (106–)138(–167) μm diam, rarely ovoid; $108\text{--}127 \times 135\text{--}160 \mu\text{m}$, usually with one subtending hypha that is frequently branched below the spore base, or occasionally with two subtending hyphae located close together. Spore walls consists of a semi-permanent, hyaline to light orange outermost layer, a semipermanent, hyaline to golden yellow middle layer, and a laminate, smooth, reddish brown to dark brown innermost layer. None of the spore-wall layers of *S. fuscum* and *S. furcatum* stain in Melzer's reagent. In the field, *S. fuscum* was associated with roots of *Arctotheca populifolia* colonizing maritime dunes located near Strand in South Africa and *S. furcatum* was associated with *Cordia oncocalyx* growing in a dry forest in the Ceará State, Brazil. In single-species cultures with *Plantago lanceolata* as host plant, *S. fuscum* and *S. furcatum* formed arbuscular mycorrhizae. Phylogenetic analyses of the SSU, ITS and LSU nrDNA sequences placed the two new species in genus *Septoglomus* and both new taxa were separated from described *Septoglomus* species.

Key words: arbuscular fungi, Glomeromycota, molecular phylogeny, mycorrhizae, new species