

## Publication

*Glomus achrum* and *G. bistratum*, two new species of arbuscular mycorrhizal fungi (Glomeromycota) found in maritime sand dunes

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 104065**Author(s)** Blaszkowski, Janusz; Ryszka, Przemyslaw; Oehl, Fritz; Koegel, Sally; Wiemken, Andres; Kovacs, Gabor M.; Redecker, Dirk**Author(s) at UniBasel** [Wiemken, Andres M.](#) ; [Koegel, Sally](#) ;**Year** 2009**Title** *Glomus achrum* and *G. bistratum*, two new species of arbuscular mycorrhizal fungi (Glomeromycota) found in maritime sand dunes**Journal** Botany**Volume** 87**Number** 3**Pages / Article-Number** 260-271**Keywords** arbuscular mycorrhizal fungi, Glomeromycota, molecular phylogeny, new species, *Glomus*, sand dunes

Two new arbuscular mycorrhizal fungal species, *Glomus achrum* sp. nov. and *Glomus bistratum* sp. nov. (Glomeromycota), are described and illustrated. Both species produce small, hyaline spores in aggregates formed in the soil and inside roots. *Glomus achrum* was associated with roots of *Ammophila arenaria* (L.) Link colonizing maritime dunes of the Vistula Bar in northern Poland, and *G. bistratum* occurred among vesicular-arbuscular mycorrhiza of *Xanthium* cf. *spinosum* growing in dunes of the Mediterranean Sea adjacent to Veriko, Greece. Spores of *G. achrum* are globose to subglobose, (25-)43(-55)  $\mu$ m in diameter, rarely egg-shaped, oblong to irregular, 15-45  $\mu$ m x 55-65  $\mu$ m. Their wall consists of three hyaline layers: a mucilaginous, short-lived outermost layer; a laminate middle layer composed of loose sublayers; and a flexible innermost layer. The outermost and the innermost layers stain deeply red in Melzer's reagent. Spores of *G. bistratum* are globose to subglobose, (20-)29(-50)  $\mu$ m in diameter, and have a wall composed of two permanent, hyaline layers. The outer layer is unit, smooth, and the inner one laminate. Only the inner layer stains yellow in Melzer's reagent. Both species formed vesicular-arbuscular mycorrhiza in single-species cultures with *Plantago lanceolata* L. as the host plant. Phylogenetic analyses of partial 18S rDNA subunit and internal transcribed spacer (ITS) region sequences placed *G. achrum* and *G. bistratum* into *Glomus* group A, but did not reveal any closely related described species. Environmental sequences from the public databases suggested that *G. achrum* occurred in at least two other plant species from geographically distant regions. No such evidence could be obtained for *G. bistratum*, which is currently known only from the type location.

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