



***Acaulospora baetica*, a new arbuscular mycorrhizal fungal species from two mountain ranges in Andalucía (Spain)**

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With 11 figures and 1 table

Abstract: A new *Acaulospora* species, *A. baetica*, was found in two adjacent mountain ranges in Andalucía (southern Spain), i.e. in several mountainous plant communities of Sierra Nevada National Park at 1580–2912 m asl around roots of the endangered and/or endemic plants *Sorbus hybrida*, *Artemisia umbelliformis*, *Hippocrepis nevadensis*, *Laserpitium longiradium* and *Pinguicula nevadensis*, and in two Mediterranean shrublands of Sierra de Baza Natural Park at 1380–1855 m asl around roots of *Prunus ramburii*, *Rosmarinus officinalis*, *Thymus mastichina* and *Lavandula latifolia* among others. The fungus produced spores in single species cultures, using *Sorghum vulgare* or *Trifolium pratense* as bait plant. The spores are 69–96 × 65–92 µm in diameter, brownish creamy to light brown, often appearing with a grayish tint in the dissecting microscope. They have a pitted surface (pit sizes about 0.8–1.6 × 0.7–1.4 µm in diameter and 0.6–1.3 µm deep), and are similar in size to several other *Acaulospora* species with pitted spore surfaces, such as *A. nivalis*, *A. paulinae* and *A. sieverdingii*, but smaller than *A. minuta*, *A. punctata* and *A. scrobiculata*. The new species can be distinguished from all these fungi by the combination of surface ornamentation, spore color and spore size. Phylogenetic analyses of sequences obtained from the ITS and partial LSU of the ribosomal gene confirm the new species in a separate clade within the Acaulosporaceae, close to *A. nivalis*, *A. paulinae* and *A. sieverdingii*. The phylogenetically most closely related fungus to *A. baetica*, however, is *A. ignota*, a species that does not have any pits, but innumerable inconspicuous warts and flattened elevations on the spore surface.

Key words: arbuscular mycorrhizal fungi, biodiversity, endangered plant species, endemisms, Glomeromycetes, high Mediterranean mountains, phylogeny.

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