

Variability of the Arbuscular Mycorrhizal Fungi Communities Associated with Wild Agraz Plants (*Vaccinium meridionale* Swartz) in the Colombian Andes

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Abstract : The objective of this study was to determine the variability of arbuscular mycorrhizal fungi (HFMA) communities associated with wild agraz plants (*Vaccinium meridionale* Swartz) in the Colombian Andes. This species is one of the most promising fruits within the genus *Vaccinium* because of the high content of anthocyanins and antioxidants in its fruits, and like other species of the Ericaceae family, it depends on the association with HFM for its development in the natural environment. In this study, the presence of mycorrhizae in wild communities of *V. meridionale* was evaluated, and their relationship with the edaphic and climatic conditions of the study area was analyzed. Sampling was conducted in the rural area of the municipalities of Raquira, and Chiquinquirá, Chia, and Tabio in the departments of Cundinamarca and Boyacá, Colombia. Seven sites were selected, and in each site, 5 plants were randomly selected, root and soil samples were taken from each plant in the rhizosphere zone for the quantification of colonization and the presence of spores. The samples were collected on different soils, taxonomic orders Entisols, Inceptisols, and Alfisols, located at altitudes between 2,600 and 3,000 above sea level in the Eastern Cordillera of Colombia. The physicochemical characteristics of the soil were compared with the density of spores and the percentage of presence of mycorrhizae in the roots and variables with the morphometric and physiological characteristics of the plants. Four types of mutual associations were found: arbuscular mycorrhizae, ectendomycorrhiza, ericoid mycorrhizae, and endophytic septate fungi. The main results obtained show a predominance of spores of the genera *Glomus* and *Acaulospora*, in most of the soils analyzed. The spore density of Glomeromycete fungi in the soil varied considerably between the different sites; it was higher (> 50 spores/g of dry soil) in soil samples with lower bulk density and higher content of organic matter; in these soils a higher cation exchange capacity was found, as well as of nitrogen, calcium, magnesium, manganese and zinc concentration. It can be concluded that *Vaccinium meridionale* is able to establish in a natural way, association with HFMA.

Keywords : Ericaceae, Arbuscular mycorrhizae, Andes, soils, *Glomus* sp.

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