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Abstract

Role of cyanoprokaryota in the rhizospheres of gypsophytes

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Abstract:
Cyanoprokaryota can improve plant growth and provide tolerance against biotic or abiotic stress. Semi-arid Mediterranean environments are characterized by frequent droughts. The interest in researching the unknown role of Cyanoprokaryota in gypsiferous rhizospheres arises from the fact that they are components of the biological crust and colonize gyprocks. In the rhizospheres of three gypsophytes and in non-rhizospheric soil, two samplings were carried out - the first during a summer drought and the second during spring - to detect the responses to the availability of water in the soil. Surprising results were obtained when water retention and water loss were studied, with the highest values being obtained for the dry season due to the association of Cyanoprokaryota with the rhizospheres. The results are also explained by two water pulses that occurred before the samplings. We propose three functional adaptation mechanisms of these plants associated with the Cyanoprokaryota in their rhizospheres and related to the water availability as determined by drought and water pulse effects. Herniaria fruticosa is a pioneer with the greatest diversity of Cyanoprokaryota, in both summer and spring (10 species and 11 species, respectively), and with high-medium abundance (5–30%). Teucrium balthazaris exhibits an intermediate strategy, with greater diversity of Cyanoprokaryota in spring (7 species) and predominance of high-medium abundance (5–30%). Finally, Helianthemum squamatum has lower diversity,

with one species in summer (with low abundance, <5%) and no species in spring.

Biography:

Antonia Dolores Asencio Martinez has completed her PhD from University of Murcia (Spain) and postdoctoral studies from Université de Liège (Belgium). Currently, she is professor at University Miguel Hernández (Spain). She has published more than 50 papers in reputed journals and more than 20 informative articles.

Recent Publications:

1. Role of cyanoprokaryota in the rhizospheres of gypsophytes

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