

PHYLLOSHERE MICROBIAL PROFILE OF ORNAMENTAL PLANTS GROWN IN INDOOR AND OUTDOOR ENVIRONMENTS

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Abstract

The aerial surfaces of plants, or phyllosphere, represent unique and wide habitats for microbial communities, which play a key role in plant growth and adaptation to adverse conditions. The phyllosphere microbiota is composed mainly of bacteria and fungi, and less frequently are present viruses, cyanobacteria, and protozoans. Leaf-inhabiting fungi and bacteria are important, but often overlooked component of biodiversity studies. To understand their diversity and function in relation to plant species and climate, the phyllospheres of five phylogenetically diverse ornamental plant species (*Vinca minor*, *Aster dumosus*, *Chrysanthemum indicum*, *Stachys lanata*, and *Sedum spectabile*) were analyzed under indoor and outdoor conditions. For both environment, *Stachys lanata* showed the lowest absolute abundance and diversity of fungi and bacteria, while *Aster dumosus* had the highest abundance and the diversity of fungi in comparacy to the other four plant species. Fungal isolates were abundantly ascomycetes and predominated by commonly known endophytic genera, such as *Penicillium*, *Aspergillus*, *Alternaria*, *Rhizopus*, and *Fusarium*. In the outdoor environment was a smaller proportion of shared fungal genera among the five different plants, in comparacy to indoor controlled greenhouse. For a better knowledge of the impact of plant species, UV radiation, variable temperature, nutritional resources, and relative humidity on microbial biodiversity, fungal genera from inside and outside cultivated species were identified.

Key words: phyllosphere, ornamental plants, microbial communities