

Research Article

Appraisal of the Rhizosphere Fungal Communities in Association with *Lagenaria siceraria* Standl. Growing in Kashmir Valley

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Abstract

Understanding the structure and dynamics of fungi inhabiting the rhizosphere is paramount for advancing sustainable agriculture and preserving ecosystem health. Rhizospheric fungi possess considerable potential to enhance crop yield, diminish dependence on chemical inputs, and promote ecologically sound agricultural methodologies over an extended period. A study was conducted to isolate and delineate rhizospheric soil fungi associated with *Lagenaria siceraria* Standl. Through a comprehensive analysis of morphological, cultural, and microscopic attributes, a total of twenty distinct species of soil fungi were successfully isolated and identified from the rhizosphere of *L. siceraria*. These fungi were *Acremonium falciforme* (Carrioon) W. Gams; *Alternaria alternata* Fr., Keissier; *Aspergillus clavatus* Desmazieres; *A. flavus* Link; *A. fumigatus* Fresenius; *A. nidulans* (Eidam) G. Winter; *A. niger* Tieghem; *A. oryzae* (Ahlburg) Cohn; *A. terreus* Thom; *Curvularia brachyspora* Boedijn; *Fusarium culmorum* (Wm.G. Sm.) Sacc.; *F. oxysporum* Schlecht., Emend, Synder & Hansen; *F. solani* (Mart.) Sacc.; *Verticillium nigrescens* Pethybr.; *Mucor mucedo* Linnaeus; *Paecilomyces variotii* Bainer; *Penicillium oxalicum* Currie and Thom; *P. solitum* Westling; *Talaromyces purpureogenus* (Stoll) Samson and *Trichoderma harzianum* Rifai. This study will be instrumental in the precise identification of soil fungi intricately associated with various crop plants and some fungal species can be harnessed through *in vivo* methodologies to safeguard and enhance the sustainable cultivation of *Lagenaria siceraria*. Furthermore, certain strains exhibit antimicrobial properties, particularly in combating pathogenic fungal organisms.

Key words: *Lagenaria siceraria*, rhizospheric fungi

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