

ASSESSMENT OF BENEFICIAL MICROORGANISMS IN THE RHIZOSPHERE SOIL OF BLACK NIGHTSHADE (*SOLANUM NIGRUM* L.) IN NATURAL VEGETATION IN SEMIARID ZONE OF TAMILNADU

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Abstract : *Solanum nigrum* (L.) is commonly called as Black Nightshade and it belongs to the family solanaceae. The sustainable cultivation techniques using bioinoculants not only improve the production but also maintain the soil fertility status and protect the agro ecosystem from degradation. Various types of beneficial microorganisms inhabited in the rhizosphere, which influence either directly or indirectly the growth and development of plants. Hence, Plant specific micro flora in the rhizosphere to be identify for the large scale application of bio inoculants for sustainable cultivation of *Solanum nigrum*. The present investigation focuses on the microbial interaction and rhizosphere ecology of existing wild plant of *Solanum nigrum* in semi-arid zone of Southern Tamil Nadu. The rhizosphere soil analysis showed the AM fungal spore (67/ 100 g soil) was recorded and *Glomus* as the dominant genus of AM fungi was found and 87% of AM fungal root colonization was also recorded in plants grown in sandy clay soil with a pH of 8.6. Among the fungi, the six dominant fungal species isolated and identified were *Aspergillus* sp., *Penicillium* sp., *Fusarium* sp., *Rhizopus*., *Trichoderma* sp., and *Curvularia* sp. *Solanum nigrum* are highly mycorrhizal dependent in this agro climatic region. Beneficial bacteria such as *Azospirillum*, *Pseudomonas* and *Azotobacter* were recorded. The above microorganisms may play a role in nutrient management and act as bio control for sustainable cultivation of *Solanum nigrum*.

Keywords: Bio-fertilizer, Rhizosphere flora and *Solanum nigrum*

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