

## Potential of endophytic fungi to promote plant growth

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### Abstract

Endophytic fungi are known to produce a wide range of structurally diverse and pharmaceutically important secondary metabolites. Some of them can promote plant growth in various ways by acting as phytohormones, inhibiting growth of plant pathogens or by capturing metal (siderophore). New species of *Muscodor* were discovered as endophytes in medicinal plants and para rubber in Thailand. All of them can produce both volatile and non-volatile metabolites. *Muscodor cinnamomi* was selected and investigated for its *in vitro* ability to produce siderophores, phenazine, indole-3-acetic acid (IAA), to solubilize different toxic metal (Ca, Co, Cd, Cu, Pb, Zn)-containing insoluble minerals and for its metal tolerance. Moreover, the capacity of the fungal IAA to stimulate coleoptile elongation, seed germination, and root growth was tested. Finally, *M. cinnamomi* was evaluated as a potential biological agent to control damping off disease caused by *Rhizoctonia solani* AG-2 in different crops (bird pepper, bush bean, garden bean, tomato), as well as to control postharvest pathogens.

**Keywords:** endophytes, medicinal plant, secondary metabolites, plant growth promoting compound