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Endophytic fungi for pest management

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Cultivated and wild plants are recognised to be inhabited by endophytes which produces metabolites like guanidine, pyrrolizidine alkaloids, indole derivatives, sesquiterpenes, isocoumarine derivatives. These endophytes provide protection and relief to the crop plants against the pests and diseases invasion. High frequency infection by fungal specimens is observed in ryegrass, correlated with the decrease in the attack of frequency of the Argentine stem weevil. Insect toxins, isolated from an unidentified endophytic fungus from wintergreen (*Gaultheria procumbens*) shows toxicity to both adult and larvae of Spruce budworm. Naphthalene which is widely used insect repellent is obtained from endophytic fungus *Muscodor vitigenus*. While, Nodulisporic acid, a novel indole diterpenes exhibit potent insecticidal properties against the larvae of blow fly. Moreover entomo pathogens like *Beauveria bassiana* and *Metarhizium anisopliae* are the natural range of enemies for insects and arachnids. These grow endophytically within tissues of maize and rhizosphere of *Picea abies* and cabbage plant roots respectively. Besides fungus *Verticillium lecanii* is found out to be antagonistic to insects, fungi and nematodes. However some bio controlling airborne fungal spores like *Lecanicillium lecanii* usually used in glasshouse to control aphids, which are originally their vectors. Bioactive fungal endophytes *Hirsutella thompsonii* is an asexually reproducing fungi which can be actively used to control insects, mites and nematodes.

Biography

Mainak Bhattacharyya has completed his MSc in Agricultural Entomology at the age of 26 years from Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal and now he is working as a Full time Teacher in a School of West Bengal. He has a number of publications published in reputed journals and a leading Agricultural magazine of India.

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