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Biodiversity investigation and potential of fungal endophytes of peppermint and their extract effect on chickpea rot pathogens

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India is the highest producer of *Cicer arietinum* (Chickpea), however the crop is highly susceptible to plant fungal diseases i.e. *Sclerotinia sclerotiorum*, *Botrytis cinerea*, *Fusarium oxysporum* and *Rhizoctonia solani*. For a sustainable and environment friendly alternative, anti-plant pathogenic efficacy of fungal endophytes were investigated. Endophytic fungal agglomerate of Indian medicinal plant, *Mentha piperita* was investigated for biodiversity, bio control potential towards chickpea rot causing phytopathogens and their metabolite profiling. 63 pure fungal isolates were recovered from medicinal plant sampled in different seasons from distinct regions of India. Endophytic fungi were identified by ITS-rDNA sequence process. PCA divulged seasonal variability with exclusive presence of *Colletotrichum sp.*, *Diaporthe phaseolorum*, *Alternaria sp.*, *Hypocrea sp.* and *Rhizopus oryzae* in second sampling season. Shannon diversity index (H') was found to be highest in leaf (1.253) from Mukteshwar. Menhinick's index discern that stem tissues from Mukteshwar have maximum species richness ($Dmn=1.75$). Best antifungal activity was exhibited by extracts of *Acremonium sp.* (MPM-2.1) with $< 1\text{mg/ml}$ IC₅₀ value towards phytopathogens. GC-MS chromatography of potent biocontrol fungus *Acremonium sp.* (MPHSS-2.1) confirmed presence of antifungal compounds 1-heptacosanol and 1-nonadecane.

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