

## RESEARCH ARTICLE

# Isolation of cold tolerant antifungal strains of *Trichoderma* sp. from Northern Hilly Zones of Chhattisgarh

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## ABSTRACT

Three species of *Trichoderma* viz., *Trichoderma viride*, *Trichoderma harzianum* and *Trichoderma konengii* have been isolated from the soil samples collected from forest sites in higher altitudes of Northern Hilly Zones of Chhattisgarh in Mainpat, Dist-Surguja, Chhattisgarh. The species could grow between 4 to 42<sup>o</sup> C temperatures and 3 to 13 pH on agar plates, the optimum requirement being 26<sup>o</sup> C and 5.5 Ph, respectively. Further incubation of the agar plates showing normal growth of *Trichoderma* species at 4<sup>o</sup> C, induced heavy sporulation in three weeks of time. Induction of sporulation on exposure to low temperature appeared to be a strategy for survival of these species in extreme cold environment experiencing sub zero temperatures. Antifungal activities were demonstrated between *Trichoderma* species and phytopathogenic fungi in dual cultures. The antifungal metabolites produced by *Trichoderma* species, diffusible as well as volatile, caused abnormalities in fungal structures of pathogenic fungi. Plant growth promotion abilities of *Trichoderma* species was also demonstrated through a plant based bioassay in greenhouse. The study is important for documentation of microbial diversity of Northern Hilly Zones of Chhattisgarh in Mainpat, Dist-Surguja, Chhattisgarh and determination of the associated biotechnological applications.

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