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A New Actinomycetes, *Nocardioides* Species Producing an Antifungal Substance

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A rare actinomycetes producing an antifungal substance was isolated from soil humus at Chiri-mt. This actinomycetes produces abundant branched aerial mycelium and substrate mycelium containing LL-diaminopimelic acid in cell wall. The substrate mycelium is broken into fragments which are irregular or rodlike. A comparison of morphological, physiological and biochemical characteristics with those of other known *Nocardioides* species and related taxa indicated that this actinomycetes represents a new species within the genus *Nocardioides*. The partially purified antifungal substance inhibited the mycelial growth of fungal plant pathogens such as *Fusarium oxysporum*, *Pyricularia oryzae*, *Rhizoctonia solani*, *Botrytis cinerea*, *Pythium ultimum*, *Phytophthora parasitica*, *Collectotrichum lagenarium*, *Alternaria alternata* and *Sclerotinia sclerotiorum*. Structure determination of the compound is in progress.

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Characterization of the Newly Isolated Cellulolytic Fungus

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A fungal strain was isolated from fallen leaves. This isolate was partially identified as *T. harzianum* spp. The cellulase activity of the strain was higher than that of *T. reesei*, *T. harzianum*, and *C. cellulophilum* on CMC, avicel, and PNPG. The optimum pH for enzyme induction was 6.2. The crude enzyme retained 100 % of its original CMCase activity at 50 °C for 1 hour (at pH 5.0), and at pH 5.0 for 24 hours (at 4 °C). The optimum temperature and pH for CMCase activity were 40 °C and 5.0 respectively. There was no effect on CMCase activity by CsCl₂, LiCl₂, MgCl₂, CoCl₂, and FeCl₂. When we treated the crude enzyme with trypsin and chymotrypsin (2 %, w/w) for 10 minutes, the remaining CMCase activity was 70 %, but there was no further loss of activity for 60 minutes at 30 °C. The crude enzyme showed increased rate of hydrolysis for CMC and avicel when combined with the crude enzyme from *T. reesei*, *T. harzianum*, and *S. commune*.