

Biological control of plant pathogens using *Bacillus Subtilis* and *Streptomyces lydicus*

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ABSTRACT:

We have isolated a *Bacillus subtilis* YT-1 and a *Streptomyces lydicus* from a fermented fertilizer of Yen-Ten Biotech Corp. The *Bacillus subtilis* YT-1 which produced metabolites (iturin A) with antifungal activity to pathogens *Fusarium oxysporum* f. sp. *Vasinfectum*, *Alternariasolani*, *Phytophthora capsici*, *Colletotrichum gloeosporioides* on PDA supplement with peptone. The optimal medium for the carbon and nitrogen sources were 2% sucrose and 2% soybean protein respectively by using shaking culture. The most iturin A of 476 mg/l was achieved by using a 5 liter fermenter. Production of iturin A was associated with sporulation from vegetable cell. The amount of iturin A production was more than the most other published results.

The *S. lydicus* showed antibiotic activity against pathogenic fungus such as *Rhizoctoniasolani*, *Fusarium oxysporum*, *Collectotrichum gloeosporioides*. Recent studies also showed the antimicrobial activity of *S. lydicus* against *Ralstoniasolanacearum*. In this study, tomato and bell pepper were planted on the soil contaminated with *Ralstoniasolanacearum*. The culture broth of *S. lydicus* was added to the soil that planted tomato and bell pepper. The results indicated that *S. lydicus* could protect the plants growth on the *Ralstoniasolanacearum* soil. It is also interesting to find *S. lydicus* can promote the bell pepper production.