

# Research and application the anti-microbe to control the organic plant disease

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## Abstract

We separated *Bacillus* spp., *Trichoderma* sp. and antagonistic yeast from root with different soil pathogens in Miaoli county. These isolates were assayed in vitro for antagonism on the fungal pathogen of rice seedling, strawberry and citrus diseases, Irrigation of *Bacillus subtilis* BS15-4  $10^7$ CFU/ml fermentation broth, could reduced morbidity from 66.7%(CK) to 16.7%. Better than *Bacillus subtilis* 3<sup>R</sup>:41.7% and neutralized phosphorous acid solution: 50.0%, chemical treatment morbidity: 0%. Eighteen *Trichoderma* spp. isolates were assayed using cellophane paper method. Results showed that the mycelial suppressed rate of *Phytophthora parasitica* are 84-100%, *Botrytis cinerea* are 53.8-97%, and *Colletotrichum gloeosporioides* are 56.8-73.1%. For strawberry seedling anthracnose field test, ML001、ML031 and ML056 were chosen for biocontrol assay. After six weeks treatment, results showed that the disease rate of ML031  $10^5$  spore/ml was 5.56%, compared with control, the disease rate was decreased. The preliminary result showed that *Trichoderma* sp. could inhibit the crown rot of strawberry. Treatment of C8 antagonistic yeast  $7.9 \times 10^6$  CFU/ml on citrus cuticle be inoculated *Penicillium* spp.  $10^4$  spore/ml, could reduced infection rates to 20.8%, compared with the control 83.3% are significant differences. Antagonistic yeast by the survey found that the increase in the wound can increase over time. Reached a peak at 20 hours, proliferation was 4.56 times the original. This result such as

spraying or early inoculation antagonistic yeast, would further contribute to the prevention of the effect of *Penicillium* sp.

**Key words :** *Bacillus subtilis* 、 strawberry diseases 、 antagonistic microorganism 、 seedling blight 、 antagonistic yeast