

Effect of Non-chemical Materials on Control of Fruit Diseases of Wax Apple¹

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Abstract

The purpose of this research was to investigate the effect of non-chemical control on fruit disease of wax apple. In 2011, we tested 800-fold dilution of *Trichoderma* sp., 1000-fold dilution of *Bacillus subtilis*, and phosphorous acid (1 g/l) in field trials. Among tested non-chemical materials, the application of 1000-fold dilution of *B. subtilis* showed best efficacy to reduce fruit decay. The data indicated that the average control rate was 67.2%, and similar with 63.0% of the fungicide-treated group. The following year, we tanked-mix and sprayed phosphorous acid with *B. subtilis*. And the finding suggested that the mixed treatment significantly reduce disease incidence and severity, compared with the separate formulation of *B. subtilis*. In order to clarify the effects of *B. subtilis* and phosphorous acid on Pestalotiopsis fruit rot and anthracnose incidence respectively, a further investigation was conducted. The results revealed that *B. subtilis* can inhibit fruit rot occur, but ineffective against anthracnose of wax apple. Phosphorous acid (1 g/l) was not effective against the above diseases. In summary, sequentially spraying with *B. subtilis* during blossom stage of wax apple can effectively prevent fruit rot. Additionally, this study also shows that mixed spraying with phosphorous acid can improve the effectiveness of disease prevention. All the effective applications will be promoted to farmers in future.

Key words: wax apple, *Pestalotiopsis* fruit rot, anthracnose, *Bacillus subtilis*, phosphorous acid, non-chemical measures.

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