Development on Plant Disease and Pest Control Techniques of Organic Vegetable Cultivation in Greenhouse

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Abstract

1. Development on LED insect trap

In this study, the LED light source is used to attract insects by phototaxis phenomenon and then employs the wind pressure generated by the fan to inhale the insects in wire-netting by the special design trap mechanism to prevent the insects fly away from the wire-netting. The control module is used to control the time interval of light and fan power for power saving. The insect trap consists of light modules, fans, wire-netting and control module.

2. Effect of powdery mildew of melon by using sulfur pancake

Powdery mildew is one of the main diseases for melon, it can effect the yield and quality of melon. In order to solve this question by organic method we research and development the sulfur pancake. The results showed that the yeild of melon can increase 12.5% and the morbidity of powdery mildew can crease 22% by using sulfur pancake.

3. Effects of plant extracts and biological agents on controlling the powdery mildew of Cucumber

The purpose of this project was to select effective plant extracts and biological agents against the powdery mildew of Cucumber and to apply to organic farming system. The extracts of Euphorbia hirta , Morus australis, Blumea glomerata, Salix babylonica and Taraxacum mongolicum were extracted with deionized water and 50％ ethanol. A mixture of aqueous and ethanol extracts was screened to control powdery mildew of Cucumber in greenhouse. The extracts of Morus australis and Blumea glomerata at 100 fold dilution showed effective suppression of disease severity of powdery mildew at the initial stage. The 100 fold extracts of Cinnamomum cassia, Cinnamomum camphora, Chamaecyparis formosensis, Mentha spicata and Chamaecyparis obtusa were tested for control of the powdery mildew of Cucumber in greenhouse . The 100 fold extracts of Cinnamomum cassia could show suppression of disease severity and the infection area . The biological agents of Streptomyces saraceticus , Bacillus subtilis and Trichoderma harzianum were tested for control of the powdery mildew of Cucumber in greenhouse . All the treatments of biological agents were not showed suppression of disease severity.

Key words： insect trap, sulfur pancake, powdery mildew, plant extracts, biological agents, Cucumber powdery mildew.