

Theerawat Sonthiha 2010: Control of Chili Anthracnose by Using Plant Extracts.

Master of science (Agricultural Research and Development), Major Field: Agricultural Research and Development, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Chalida Leksomboon, Ph.D. 65 pages.

The efficacy of three medicinal plant (*Zingiber cassumunar* Roxb, *Alpinia galanga* Linn. and *Plumbago indica* Linn.) ethanolic extracts were assessed *in vitro* against *Colletotrichum gloeosporioides* and *C. capsici*, the causal agent of chili anthracnose. It was found that the three plant extracts inhibited significantly the fungal growth. *Z. cassumunar* and *P. indica* extracts at 20,000 mg/l completely inhibited the mycelial growth of all tested isolates. The plant extracts were evaluated for control of anthracnose on chili (*Capsicum annuum*) cultivars CA 365 and TVRC 758 in greenhouse and field conditions. The plant extracts were sprayed on plants 24 hour after inoculation with the causal agent of anthracnose, and at weekly interval. Inoculation was done by spraying the spore suspension on the individual plants at the flowering stage. In greenhouse studies, controlling of anthracnose by the three plant extracts were tested in a completely randomized design experiment with 10 replications. The results showed that the plant extracts reduced anthracnose incidence significantly compared to the control. Furthermore, the plant extracts had no effect on flower drop and fruit set. In field experiment, the experimental design was 3 x 2 factorial in randomized complete block design with 6 replications consisting of three plants treatments (no plant extract, *Z. cassumunar* extract and *A. galanga* extract) and the chili cultivars CA 365 and TVRC 758. The results showed that the plant extracts caused a significant decrease disease development. Out of these, *Z. cassumunar* extracts was found to be best in reducing the anthracnose in the third fruit generation. However, application of *Z. cassumunar* and *A. galanga* extracts was found to be equally effective in reducing the disease in the other fruit generations. The effect of *Z. cassumunar* and *A. galanga* extracts on quality of chili fruits were assessed in the field too. Results showed that the plant extracts had no effect on thickness, size and fresh weight of chili fruits in both cultivars

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