

Development of Essential Oil Based Tablets from *Cinnamomum Zeylanicum* Leaves and *Cymbopogon Nardus* Against The Stored Grain Pest Insect, *Sitophilus Oryzae* in Traditional Rice Varieties in Sri Lanka.

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Essential oils have been used as an alternative method to reduce postharvest losses from rice weevil, *Sitophilus oryzae* in traditional rice varieties cultivated in Sri Lanka. In the present study essential oils extracted from Cinnamon leaves (*Cinnomomum zeylanicum*) and Citronella leaves (*Cymbopogon nardus*) were used to control rice weevil, in three traditional rice varieties, Rathkanda al, Pachchaperumal, Suwandal along with a hybrid variety, White raw rice cultivated in Sri Lanka. Kaolin pellets treated with test essential oil mixture, *C. zeylanicum* and *C. nardus* (2: 1 v / v) were used to test the effect on rice. The major components of the essential oils of *C. zeylanicum* leaf oil and citronella oil were eugenol, citronellal and geraniol. Number of *S. oryzae* in treated rice samples throughout the test period were significantly decreased compared with the controls. A significant decrease of % seed damage was also observed during the 6 months of storage of rice in polyethylene bags. Flavor, aroma, and stickiness of cooked rice have enhanced significantly in all treated rice varieties compared to controls. The physical and organoleptic properties of cooked rice were not significantly different with controls after 6 months of treatment. Only 5 % weigh loss of kaolin tablets was revealed after completing the test. The insecticidal activity of the above essential oil mixture showed the highest effect on the rice type Suwandal.

Keywords: *Cinnamomum zeylanicum*, *Cymbopogon nardus*, *Sitophilus oryzae*, *Post-harvest damage*, *Organoleptic properties*, *Essential oils*, *Traditional rice varieties*.

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