

EFFICACY OF PLANT DERIVED ESSENTIAL OILS AGAINST *SITOPHILUS ORYZAE* (L.) IN STORED WHEAT GRAINS

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Abstract: Certain plant derived essential oils are known as a source of secondary metabolites and used as insecticides to repel insects. As part of an effort aimed at the development of reduced-risk pesticides based on plant essential oils, the toxicity of essential oils was investigated against rice weevil *Sitophilus oryzae* L. under laboratory conditions i.e. 28±2°C temperature, 60±5% relative humidity and a 16:8 light:dark photoperiod in BOD. The treatments were the essential oil from various botanicals i.e. Eucalyptus (*Eucalyptus globules*), Lemongrass (*Cymbopogon citrates*), Citrus (*Citrus maxima*) and their different combinations. Data was recorded for various parameters viz. per cent adult mortality, grain damage, weight loss and progeny emergence. Study revealed that the combination of essential oils of Eucalyptus (0.5 %) + Lemon grass (0.5 %) was found to be significantly superior among all the treatments and recorded consistently increased rate of adult mortality 61.67, 78.33 and 96.67 % after 7, 14 and 21 days and progeny emergence 60.28, 56.17 and 54.78, respectively. This treatment also recorded with minimum loss in weight and minimum grain damage after 75 days of insect release. The minimum adult mortality, maximum grain damage and maximum weight loss were recorded in control. The validated information provides ample scope for the use of essential oils against store grain pests.

Keywords: Wheat, *Sitophilus oryzae*, Management, Essential oils

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