

Chemical Composition and Insecticidal Activity of Essential Oil from *Eucalyptus grandis* Against *Sitophilus oryzae* (Coleoptera: Curculionidae)

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Abstract

Indonesia has a lot of aromatic plants which can be distilled to obtain the essential oil. These essential oils can be used as the main material for botanical pesticides due to some components avoided by insect. The study aimed to determine the composition of essential oil *Eucalyptus grandis* and its potential to control the rice weevil *Sitophilus oryzae*. This study was conducted in the pest laboratory, Indonesian Spices and Medicinal Crops Research Institute (ISMCRI), from January to March 2022. The formula of essential oil *E. grandis* with different concentrations including: 0,25%; 0,5%; 1%; 1,5%; 2%; and control were used to see the mortality of *S. oryzae*. The result shows that the highest mortality value of imago *S. oryzae* at 96 hours after application was 75% at 2% concentration. Thus, the concentration of 1,88 µl/ml of *E. grandis* was effective to kill 50% of *S. Oryzae* on day 1. On the other hand, the concentration of 17,29 µl/ml was effective to kill 95% *S. oryzae* at day 1. *E. grandis* contains the most Eucalyptol which tends to be repellent for insects. However, this suggests that *E. grandis* could be used as an insecticide alternative to control storage pest especially *S. oryzae*.

Keywords: Botanical pesticide, Eucalyptol, Mortalities, rice weevil