

ABSTRACT

Grain damage that occurs in storage is generally caused by post-harvest pest attacks. One method of control that does not cause negative effects is the use of inert dust. This study aims to determine the effectiveness of a single application of inert dust to control postharvest pests *S. oryzae* and *T. castaneum* on rice grain. The research was conducted at the Laboratory of Plant Pests and Diseases, Agroecotechnology Study Program, Faculty of Agriculture, Malikussaleh University. The research was conducted from February to May, 2024. The research was conducted in the form of laboratory experiments with treatments arranged in a completely randomized design (CRD). The test methods included single toxicity testing and mixed toxicity testing. The concentration levels of coconut shell ash and rice straw ash were 1.25, 2.5, 5, 10, and 20 grams/100 grams of whole rice grain. The concentration of coconut shell ash and rice straw ash mixture at 1:1 ratio was 0.625 mg/g, 1.25 mg/g, 2.5 mg/g, 5 mg/g, 10 mg/g, and control. The results showed that the concentration of coconut shell ash and rice straw ash had a very significant effect on the mortality of *S. oryzae* and *T. castaneum* imago at 2-10 DAT. The results of probit analysis showed that coconut shell ash application caused mortality of *S. oryzae* at 6 DAT followed by 7, 8, 9, and 10 DAT. In rice straw application, the mortality of *S. oryzae* imago against rice straw ash application occurred at 6 DAT followed by 7, 8, 9, and 10 DAT. The results of probit analysis showed that the application of coconut shell ash has caused mortality in *T. castaneum* occurred at 7 DAT followed by 8, 9, and 10 DAT. Mortality of *T. castaneum* imago to rice straw ash application was highest at 7 DAT followed by 8, 9, and 10 DAT.

Keywords: coconut shell, Inert dust, rice straw, *Sitophilus oryzae*, *Tribolium castaneum*