

## **Determination of Mortality of Life Stages of *Tribolium Castaneum* in Rye Using Microwave Energy**

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Rye is the only cereal grain other than wheat to have the necessary qualities to make bread. Due to food safety issues and environmental concerns arising out of use of chemicals to control insects in grain, there is a need for an alternative method of killing insects. Disinfestation of grains using microwave energy could be an alternative for chemical methods. A pilot scale industrial microwave dryer operating at 2450 MHz was used to disinfest the life stages of *Tribolium castaneum* in rye. Rye was conditioned to 14, 16, and 18% moisture contents and 50 g samples were used for the experiments. Mortality experiments were performed at four power levels 200, 300, 400, and 500 W and at two exposure times of 28 and 56 s. The results of this study shows that *T. castaneum* eggs were the most susceptible and *T. castaneum* adults were the least susceptible to microwave energy. There was no significant difference between the mortality of life stages of *T. castaneum* in 14, 16, and 18% m.c. rye. Germination of rye was lowered after treatment with microwave energy.