

Microwave treatment for killing the silo insect pest *Sitophilus zeamais* Motsch in maize

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Abstract

Maize represents an important source of feed as well as raw material for food. One of the problems normally faced in tropical countries is pest infestation by the insect *Sitophilus zeamais* Motsch during the storage of maize in silo. This research aimed to study the influence of microwave treatment to the mortality of insect pest *Sitophilus zeamais* Motsch and to the content of starch and protein of treated maize. The research was conducted in the Laboratory of Agricultural Energy and Laboratory of Food Chemistry, Bogor Agricultural University. The sample of 200 g of dry maize was infested by 50 insects and heated in a microwave exposed at 240, 480 and 720 W, respectively, for 60, 90 and 120 s. The results showed that 100% mortality could be achieved using microwave treatment with 720 W in 60 s which generated temperature of 74°C. The treatment used a very short time (60 s) compared to the use of hot air oven which needed 22 min exposure for a similar temperature. The short time heating by microwave had an advantage to maintain 68.5% starch content, and 9.4% protein while killing the insect pest totally.