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Czech Journal of

FOOD SCIENCE

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Czech J. Food Sci.

**Kučerová Z., Kýhos K.,
Aulický R., Stejskal V.:**

Low-pressure treatment to control food-infesting pests (*Tribolium castaneum*, *Sitophilus granarius*) using a vacuum packing machine

Czech J. Food Sci., 31 (2013): 94-98

Since recently, the food industry has been faced with serious problems regarding pest-infested food commodities and deregistration of many chemical biocides by the EU Biocide Directive. These conditions have created an urgent need for a physical method of protecting food against pests. Therefore, a vacuum packing machine was used for laboratory testing of the effectiveness of vacuum packaging on the mortality of the red flour beetle (*Tribolium castaneum*) and granary weevil (*Sitophilus granarius*) at different temperatures and exposure times. There were significant differences in the susceptibility to low pressure

(vacuum) between the adult insects of both tested species: *T. castaneum* was approximately 10 times more susceptible to low pressure than *S. granarius*. A higher temperature significantly shortens the vacuum exposure time necessary to reach 100% mortality in the tested beetle under a constant low-pressure value (1 kPa). The lethal times (LT_{99}) for adult *T. castaneum* were 15.1 h at 25° C and 30.8 h at 15° C. The lethal times (LT_{99})