Effect of low pressures on the survival of cacao beans insects stored at 18° C

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Abstract

This study forms part of an effort to eliminate the need for fumigation with methyl bromide to control insect infestations in stored cocoa beans, through development novel alternative vacuum-hermetic technology. In this communication the effects of low pressures and exposure time were studied on the mortality of insects at a temperature of 18°C, chosen to simulate cacao bean storage conditions in temperate climates.
Three insects were used, two of which are major pests of cacao beans in producer countries: *Ephestia cautella* (Walk.), and *Tribolium castaneum* (Herbst), while the third, *Oryzaephilus surinamensis* (L.), is a potential storage pest in the destination countries. For *T. castaneum* and *E. cautella* the egg stage was the most resistant to 55 ± 10 mmHg at 18° C, the times needed to obtain egg mortality of 99% was 96 and 149 hours respectively. For *O. surinamensis*, the adult stage was the most resistant with 164 hours being required to obtain 99% mortality.