

Title Desiccation increases the efficacy of *Beauveria bassiana* for stored-grain pest insect control
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Abstract

The effect of desiccation stress on the efficacy of *Beauveria bassiana* for controlling stored-product insects was investigated in laboratory bioassays. The mortality of *B. bassiana*-treated *Plodia interpunctella* larvae was greater at a vapor pressure deficit (VPD) of 2.42 or 1.87 kPa than at 1.06 kPa. Moisture also had significant effects on the mortalities of adult rice weevils, *Sitophilus oryzae* and maize weevils, *Sitophilus zeamais*. Mortality of *S. zeamais* was higher at 2.42 and 1.87 kPa than at 1.06 kPa, while mortality of *S. oryzae* was higher at 1.87 kPa than at either 2.42 or 1.06 kPa. Higher control mortality at the higher two VPDs indicated that *S. zeamais* was less desiccation tolerant than *S. oryzae*. The mortalities of *B. bassiana*-treated adult *Cryptolestes ferrugineus*, larval *Lasioderma serricorne* and larval *Oryzaephilus surinamensis* were not significantly affected by VPD. These results demonstrate that dry stored-grain conditions are favorable for *B. bassiana* efficacy.