

EFFECT OF VOLATILE CONSTITUENTS FROM *Securidaca longepedunculata* ON INSECT PESTS OF STORED GRAIN

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Abstract—*Securidaca longepedunculata* Fers (Polygalaceae) is commonly used as a traditional medicine in many parts of Africa as well as against a number of invertebrate pests, including insects infesting stored grain. The present study showed that *S. longepedunculata* root powder, its methanol extract, and the main volatile component, methyl salicylate, exhibit repellent and toxic properties to *Sitophilus zeamais* adults. Adult *S. zeamais* that were given a choice between untreated maize and maize treated with root powder, extract, or synthetic methyl salicylate in a four-way choice olfactometer significantly preferred the control maize. Methyl salicylate vapor also had a dose-dependant fumigant effect against *S. zeamais*, *Rhizopertha dominica*, and *Prostephanus truncatus*, with a LD₁₀₀ achieved with a 60 μ l dose in a 1-l container against all three insect species after 24 hr of exposure. Probit analyses estimated LD₅₀ values between 34 and 36 μ l (95% CI) for all insect species. Furthermore, prolonged exposure for 6 days showed that lower amounts (30 μ l) of methyl salicylate vapor were able to induce 100% adult mortality of the three insect species. The implications are discussed in the context of improving stored product pest control by small-scale subsistence farmers in Africa.

Key Words—*Securidaca longepedunculata*, Polygalaceae, methyl 2-hydroxybenzoate, methyl salicylate, olfactometer, fumigant toxicity, *Sitophilus zeamais*, *Rhizopertha dominica*, *Prostephanus truncatus*.

INTRODUCTION

Interest in the discovery of new chemicals for the control of insect pests has continued to increase despite the commercial difficulties of bringing new products

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