

Title Insecticidal effect and adherence of PyriSec[®] in different grain commodities
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 Oats; Rye; Triticale; Rice; Maize

Abstract

Exposure studies were carried out in the laboratory to assess the insecticidal effect of the formulation PyriSec[®], which contains diatomaceous earth with natural pyrethrum and piperonyl butoxide, against *Rhizopertha dominica* (F.). PyriSec[®] was applied to eight grain commodities: wheat, whole barley, peeled barley, oats, rye, triticale, rice and maize, at three doses 0.75, 1 and 1.5 g/kg of grain. Dead *R. dominica* adults were counted after exposure to treated grain for 24 h, 48 h, 7 d and 14 d at 26 °C and 55% r.h. After the termination of the 14-d-interval count, the treated quantities remained in the same conditions for an additional 60-d incubation period, and the progeny production was recorded. Mortality of *R. dominica* adults notably varied according to the commodity, but, in most cases more than 50% of the exposed adults were dead after only 24 h of exposure. After 14 d of exposure, adult mortality was $\geq 95\%$ in all grains treated with the highest PyriSec[®] dose, with the exception of peeled barley, where the respective figure was 84.2%. No progeny was found in the grains treated with the highest PyriSec[®] rate, but the number of F₁ individuals was low even in the case of the lowest PyriSec[®] rate. Significant differences in the degree of PyriSec[®] retention in kernels were noted among the eight grains tested. The highest retention level was noted for rice (91.4%) and the lowest for maize (10.1%). However, the degree of retention to a given grain was not indicative of the effectiveness of PyriSec[®] against *R. dominica*.