Title Biological activity of Novaluron, a new chitin-synthesis inhibitor, on the major stored product insect pests.

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Abstract

Novaluron is a novel chitin-synthesis inhibitor from the benzoyl phenyl ureas group of insect growth regulators. It has a broad-spectrum activity on various insects, but very low toxicity to mammals (LD50>5000 mg/kg). The objective of the study reported was to evaluate the efficacy of Novaluron against the main stored product insect pests, as a possible alternative to standard pesticides for stored-product pest control. The test insects were the beetles *Sitophilus oryzae*, *Rhyzopertha dominica*, and *Tribolium castaneum*, and the moth *Plodia interpunctella*. According to the differences in the life cycle and conditions for development of the test insects, adults of *S. oryzae* and *R. dominica*, and larvae of *T. castaneum* and *P. interpunctella*, were used. Concentrations ranging from 0.1 to 10 ppm of Novaluron were mixed with three kinds of food media: whole wheat grain for the internal pests *S. oryzae* and *R. dominica*, ground grain for the external feeder *P. interpunctella* and flour for *T. castaneum*. Theresults showed that Novaluron at 1 ppm reduced the number of new generation adults of *S. oryzae* and *R. dominica* by 95% compared with the control, and prevented the emergence of adults of *P. interpunctella*. At this concentration, Novaluron also yielded total mortality of *T. castaneum* third instar larvae. At 0.1 ppm, Novaluron had no effect on the insects tested.