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Session

PHYSICAL, CHEMICAL AND OTHER TECHNIQUES FOR STORED PRODUCT PEST CONTROL

Session Chairs:
Nickolas G. KAVALLIERATOS (Greece),
Raul N. C. GUEDES (Brazil)
and
Bhadriraju SUBRAMANYAM (USA)

Oral communications: 18
Timetable:
Monday 29th June, 9.00 – 15.30
The potential of Croatian diatomaceous earths as grain protectant against three stored-product insects

Abstract type: oral presentation

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Abstract

The objective of this study was to determine the potential insecticide efficacy of several Croatian diatomaceous earths (DEs) against Sitophilus oryzae (Linnaeus), Tribolium castaneum (Herbst) and Rhyzopertha dominica (Fabricius) adults and to compare their efficacy with the efficacy of the USA standard DE Celatom Mn 51. Diatomaceous earth Mn 51 belongs to a group of DE with medium to increased efficacy for stored agricultural products insects. Six samples of Croatian DEs (MA-4, MR-10, MR-10B, OP-4, OP-4A and PD-1) were collected from three different locations in Croatia, prepared for testing with fractions of particles ≤45 μm and applied at 500 mg/kg. Insect mortality was recorded after 7 and 14 days. The highest lethal effect after 7 and 14 days showed Croatian DE sample MA-4 with 97% and 100% mortality respectively for S. oryzae, 61.5% and 99% mortality respectively for T. castaneum and 26.5% and 33.4% respectively for R. dominica. In all treatments the efficacy of MA-4 was in the same range with the efficacy of the standard Mn 51. The other five tested Croatian DEs had significant lower efficacy in regard to MA-4, although after 14 days mortality was 85.7% for S. oryzae, 5-47% for T. castaneum and 2-5% for R. dominica depending on a different DE sample. These results show that Croatia has DE deposits with good and promising efficiency for tested insects.

Keywords: Croatian DEs, Sitophilus oryzae, Tribolium castaneum, Rhyzopertha dominica, efficacy