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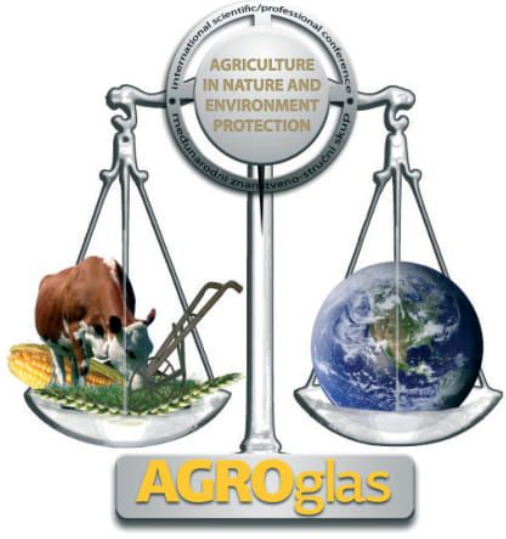

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Sažetak / Abstract

Laboratory testing of two diatomaceous earths against red flour beetle

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Abstract

The aim of this study was to determine the insecticidal efficacy of the two diatomaceous earths against red flour beetle *Tribolium castaneum* (Herbst) on wheat and to determine their optimal dose. Laboratory testing was conducted using three doses (250, 500 and 750 ppm) of two diatomaceous earths: SilicoSec® and Celatom Mn-51®. Wheat (100 g) with moisture content of 14.2% was treated with both diatomaceous earths, respectively, in glass jars (200 ml) followed by the introduction of 20 adults of red flour beetle of different sexes aged 7-21 days. All treatments were set up in four repetitions. The mortality rate of red flour beetle was recorded after 7 and 14 days. Significantly higher mortality rate compared to control treatment was achieved at the 7th day of exposure at the highest dose (750 ppm) for both diatomaceous earths. A significantly higher mortality rate was also observed by prolonging the exposure at 750 ppm for Celatom Mn-51® and at 500 ppm for SilicoSec®. The highest mortality rate (81.25%) in treatment with SilicoSec® was achieved with 750 ppm after the 14th day of exposure, while the highest mortality rate achieved with Celatom Mn-51 was 55.0% with the same dose and exposure. The results indicate on high efficiency of the investigated diatomaceous earths in suppression of red flour beetle on wheat. Further research is required on the impact on offspring development as well as testing combinations with botanicals for better insecticidal efficacy.

Key words: diatomaceous earth, insecticidal efficacy, SilicoSec®, Celatom Mn-51®, red flour beetle

Laboratorijsko testiranje dvjema dijatomskim zemljama u suzbijanju kestenjastog brašnara

Sažetak

Cilj istraživanja bio je utvrditi insekticidnu učinkovitost dijatomejskih zemalja u suzbijanju kestenjastog brašnara *Tribolium castaneum* (Herbst) na pšenici te odrediti njihovu optimalnu dozu. Provedeno je laboratorijsko testiranje dijatomejskih zemalja SilicoSec® i Celatom Mn-51® u tri doze (250, 500 i 750 ppm). Pšenica (100 g) s 14,2 % vlage tretirana je sa svakom dijatomejskom zemljom posebno u staklenkama volumena 200 ml, nakon čega je introducirano 20 odraslih jedinki kestenjastog brašnara različitog spola, starosti 7-21 dana. Svi tretmani postavljeni su u četiri ponavljanja. Mortalitet kestenjastog brašnara utvrđen je nakon 7. i 14. dana ekspozicije. Statistički značajno viši mortalitet u odnosu na kontrolu postignut je nakon 7. dana ekspozicije pri najvišoj dozi (750 ppm) objema dijatomejskim zemljama. Produljenjem ekspozicije postignut je statistički značajno viši mortalitet pri dozi od 750 ppm za Celatom Mn-51® i pri 500 ppm za SilicoSec®. Najviši mortalitet (81,25 %) u tretmanu sa SilicoSec® postignut je pri dozi od 750 ppm nakon 14. dana ekspozicije, dok je najviši mortalitet sa Celatom Mn-51 iznosio 55,0 % pri istoj dozi i ekspoziciji. Rezultati ukazuju na visoku učinkovitost istraživanih dijatomejskih zemalja u suzbijanju kestenjastog brašnara. Potrebna su daljnja istraživanja utjecaja na inhibiciju potomstva kao i testiranju kombinacije s botaničkim insekticidima u cilju postizanja poboljšane insekticidne učinkovitosti.

Ključne riječi: dijatomejska zemlja, insekticidna učinkovitost, SilicoSec®, Celatom Mn-51®, kestenjasti brašnar