

Title The effect of diatomaceous earth of different origin, temperature and relative humidity against adults of rice weevil (*Sitophilus oryzae* [L.], *Coleoptera*, *Curculionidae*) in stored wheat

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Abstract

Laboratory experiments were carried out to evaluate the impact of diatomaceous earth (DE) samples of different origin with their insecticidal properties to control one of the most important primary pest in stored grain. We tested the efficacy of three local DE, from Serbia, Greece and Slovenia, and commercial formulation SilicoSec against the rice weevil, *Sitophilus oryzae*, adults in stored wheat. The experiments were carried out at three temperatures (20, 25 and 30 °C) and two relative humidity (RH) levels (55 and 75 %). Mortality of pest was counted 7, 14 and 21 days after exposure (DAT) at the following DE dose rates: 100, 300, 500 and 900 ppm. The mortality of adults normally increased with increasing dose rates and DAT. In all samples the mortality of rice weevil adults (dose rate 900 ppm, 21 DAT) was above 90 %, except at Slovenian DE (at 20 °C and 55 % RH) and Greek DE (at 25 °C and 75 % RH), when the mortality was 85.3 and 67.6 %, respectively. With 100 % mortality (14 DAT and at 900 ppm) the most effective was SilicoSec. Slovenian DE was more effective at 55 % RH than at 75 % RH (7 DAT at all temperatures).