Mortality of *Tribolium confusum* on malting barley treated with Turkish natural zeolites: effect of temperatures and exposure time

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Turkish zeolite (TZ1) originated from northwestern Anatolia studied to determine toxicity against adults of *Tribolium confusum* at 18, 24, 30 °C temperatures and % 60±5 relative humidity on malting barley. 7-14 days old adults were exposed at seven rates of 0.25, 0.50, 0.75, 1.00, 1.25, 1.50, 2.00 mg/kg application up to 28 d with weekly mortality assesment. Probit analysis employed to estimate LD_{50} values after 7, 14, 21, and 28 days of the experiments. Total mortality (100%) was only achieved with 2000 ppm after 4 weeks treatment of the raw zeolite which has 0-8 micron particle sizes. LD_{50} values measured as 912 ppm, 821 ppm, and 782 ppm after 14 d at 18, 24, and 30 °C temperatures respectively; 487 ppm, and 677 ppm after 21 d at 18, and 30°C respectively; 516 ppm, and 527 ppm after 28 d at 18 and 30°C C respectively. The lowest LD_{90} detected after 28 d. Consequently, this study show high potential of Turkish natural zeolites as a suitable alternative to synthetic pesticides for the purpose of long-term storage.

Key Words : Zeolite, Malting barley, *Tribolium confusum*,Turkish zeolite, insecticidal efficacy