

# Effect of Certain Plant Oils on the Viability and persistent Toxicity of *Bacillus thuringiensis* var, *kurstaki* Kurstak against *Spodoptera litura* (Fab.)

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## ABSTRACT

The field persistent toxicity of *Bacillus thuringiensis* var, *kurstaki* Kurstak (B t K; Delfin WG, Serotype-3a, 3b, SA 11) in combination with plant oils such as cottonseed oil (*Gossypium hirsutum* L.) neem oil (*Azadiracgata india* A. Juss.), sesamum oil (*Sesamum indicum* L.), citronella oil (*Cymbopogan winterianus* Stapf.) and karanj oil (*Pongamia glabra* Vent.) against third instar larvae of *Spodoptera litura* (Fab.) revealed at one, three and five days after treatment that B.t.k 0.2% + neem oil 5% recorded significantly the highest larval mortality (65.0 to 77.5%), whereas at seven and nine days after treatment, significantly the highest larval mortality was observed in B.t.k 0.2% + cottonseed oil 5% (40.0 and 13.3%, respectively). The combinations of B.t.k with plant oils tested for viability revealed that B.t.k. 0.2% + cottonseed oil 5% recorded the highest number of viable spores at three, five, seven and nine days after application that ranged from  $16.3 \times 10^4$  to  $35.3 \times 10^4$ , when compared to B.t.k. combinations with neem oil 5%, citronella oil 5%, karanj oil 5% and sesamum oil 5% ( $7.3$  to  $30.0 \times 10^4$ ).

**Key words :** *Bacillus thuringiensis*, Persistent Toxicity, Plant Oils, Viability.