

**Nano Essential Oils against cotton leaf worm,
Spodoptera littoralis (Boisduval) (Lepidoptera: Noctuidae)**

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Abstract : Background: *Spodoptera littoralis* is a highly destructive insect pest. Use of insecticides to control larvae has led to several problems and hazards such as development of resistance and residual effects. **Purpose:** Evaluate the impact of the essential oils (bulk and Nano phase) of Purslane; Mustard and Castor oil were tested for their impacts against larvae of *Spodoptera littoralis*. **Methods:** The tested essential oils were obtained by steam distillation of dried plants and Encapsulation of Nano particles is a method over which a chemical is slowly but efficiently released to the specific host for insect pests control. **Results:** The most impact oil was Purslane oil (bulk and Nano) then Mustard and the least one was Castor. The high concentration % mortality of larvae was 70.0, 40.2 & 15.5 % and 90.4, 80.8 & 62.2 % in Purslane, Mustard and Castor (bulk and Nano phase), respectively. The number of laid eggs decreased with increasing tested oils concentrations. **Conclusion:** Purslane essential oil showed good effect against the *S. littoralis* larvae followed by Mustard and Castor as Bulk and as Nano.

Keywords: Nano, Bulk, Purslane oil, Mustard oil, Castor oil, *Spodoptera littoralis*.

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