

1831 Pongamia oil:An effective synergist for the MFO mediated pyrethroid resistance in *Helicoverpa armigera* Hub

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Monooxygenase (MFO) and to some extent carboxyl esterase(CE) were found to be involved in *Helicoverpa armigera* resistant to cypermethrin and fenvalerate. Inhibitory action of action of Pongamia oil (PO) on MFO and carboxyl esterase activities in cypermethrin and fenvalerate resistant *H. armigera* was assessed in comparison with piperonyl butoxide (Pbo). MFO activity was assessed in larval homogenates after feeding cotton leaves treated with cypermethrin and fenvalerate alone as well as co applied with PO/Pbo. Cypermethrin and fenvalerate induced MFO enzyme; the maximum at recommended dose 3 hours after treatment. The induction of MFO was to the extent of 74.5-76.3 nmol. min⁻¹ mg protein⁻¹ and 79.5-84.8 nmol. min⁻¹ mg protein⁻¹ when compared 42.6 - 44.5 nmol. min⁻¹ mg protein⁻¹ in check and 649.6 nmol. min⁻¹ mg protein⁻¹ and 738.5 nmol. min⁻¹ mg protein⁻¹ of CE when compared to 366.5 - 390.0 nmol. min⁻¹ mg protein⁻¹ in check in cypermethrin / fenvalerate treated *H. armigera* larvae respectively. Suppression of MFO enzyme activity by PO/Pbo was observed.. Similarly the CE activity was suppressed by Pbo but not by PO.