Evaluation of efficiency of two common insecticides (thiodicarb and deltamethrin) on the diamondback moth, Plutella xylostella (L.) (Lep.: Plutellidae) in south of Tehran

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The diamondback moth, Plutella xylostella is one of the most destructive pests of crucifers’ family (Brassicaceae) in the south of Tehran and every year it causes severe damage to these plants. There are frequent reports about the resistance of P. xylostella to common insecticides including thiodiocarb (Larwin® DF80) and deltamethrin (Decis® EC2.5). All bioassays were performed in 25°C and 65±5 RH at laboratory condition. Experiences included seven concentrations and each concentration was repeated with six replications. For each replication, ten 3rd larval instars were used. 10% larval mortality rate was observed at the lowest concentration (50 ppm) and 90% for the highest concentration (4000 ppm) of thiodicarb on the 3rd larval instars. The lethal dose (LC50) of thiodicarb was the 576 ppm. For deltamethrin, 3.33% mortality rate was observed at the lowest concentration (250 ppm) and 60% for highest concentration (20000 ppm) on the 3rd larval instars. The results showed that, not only no significant mortality was observed at high concentration (20000 ppm) of deltamethrin, but also it caused plant phytotoxicity. Therefore it can be concluded that, due to incorrect and frequent usage of deltamethrin in the cabbage fields of the south of Tehran, probably P. xylostella is become resistant to this insecticide and more experiments are needed to demonstrate this phenomena.