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Effects of some Insecticides on *Spodoptera exigua* (Lep: Noctuidae) in Black-Eyed Pea Field

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Abstract

The beet armyworm, *Spodoptera exigua* (Hubner), is a cosmopolitan and polyphagous pest which causes serious damages to different crops such as beans in southwestern Iran. Chemical control by broad spectrum insecticides are used as an effective method to control the pest infestation which can result in widespread resistance exigua populations. The aim of this study was to evaluate the efficacy of some chemical, botanical and biological insecticides against the pest population and its qualitative and quantitative damages on black-eyed pea. This study was carried out during the cropping seasons in 2016 and 2017 in a pea field in Khuzestan province, southwestern Iran and the insecticidal effects of indoxacarb, chlorpyrifos, deltamethrin, hexaflumuron, matrin, and *Bacillus thuringiensis* var kurstaki 'Bt', were studied under field conditions. Sampling for estimation of *S. exigua* population was conducted 1 day before treatment and 1, 3, 5, 7 and 10 days after treatment (DAT). According to the results, in both years chlorpyrifos and indoxacarb had the most influence on the reduction of larvae population 1DAT. However, in both years, no significant difference was observed in larval morality among treatments 10 DAT. Bt showed a gradual and progressive effect for control of *S. exigua* larvae, and it was as effective as other insecticides 10 DAT. The botanical insecticide, matrin, had also significant effects on population reduction of larvae 5 DAT. The results of insecticidal effects on growth characteristics of bean showed that in 2016 and 2017, the most bean pods were observed in chlorpyrifos and indoxacarb treatments, respectively. Also, there were the most seeds in each pod in matrin, indoxacarb, chlorpyrifos and deltamethrin treatments. In both years, 100-seed weight increased significantly in all treatments compared to control. In conclusion, Bt and matrin are effective insecticides for control of *S. exigua* larvae and can be recommended as an alternative to chemical pesticides.

Keywords: Beet armyworm, Bt, chlorpyrifos, deltamethrin, hexaflumuron, indoxacarb, matrin

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