

Abstract

Aphids are the most important economic pests and passants of many viral diseases in greenhouse and field products. Due to the frequent use of pesticides, many species of aphids have become resistant to many insecticide compounds. The essential oil of *Valeriana officinalis* and *Cuminum cyminum* will be done with Clevenger apparatus and preliminary tests and bioassays in Contact Method will be done for determination of LC 50% plant essential oils on adult aphids. After doing necessary calculation, bean leaf with LC 20% for each essential oil are treated and after 24 hours newborn aphids would be recorded on the leaves of bean plants on a daily basis until the death of the adult aphids and mortality of insects were recorded on a daily basis. Recorded data related to fertility life table aphids would be registered and relevant parameters were estimated by use of Jackknife technique. Amount of calculated LC 50% are 3098.9 and 2708.7 ppm for Cumin and valerian essential oils and LC 20% are 496.6 and 670 ppm for Cumin and valerian essential oils. It shows that black bean aphid is more sensitive to Cumin essential oils compared to valerian. The average intrinsic rate of increase bean aphids is calculated 0.2415 against Cumin essential oils and it is calculated 0.254 against essential oil of valerian. Mean of net reproductive rate (R_0) black bean aphids are 82.28 for valerian oil and 70.22 for Cumin essential oils. So data show higher survival rate and formation nymphs under effect of oil valerian to Cumin essential oils.

Keywords: Intrinsic rate of increase, Bean Aphid, Cat grass, Cumin



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