

Abstract

Aphis gossypii is one of the most important greenhouse and crop pests with a wide range of hosts, which causes damages through feeding on vegetable sap and transmitting viral diseases. Currently, chemical methods are mainly used to control this pest. Considering the adverse effects of pesticides, it is essential to apply less chemical pesticide in pest control programs. The lethal and sublethal effects of ethanol seed extract of *Agave americana* and *Plantago major* on one-day-old adults of cotton aphid were investigated under laboratory conditions. The bioassay was evaluated for 24h after treatment. Reproductive life table parameters of new emerged aphid surveyed at sub-lethal concentrations (LC20 and LC40) of extract and the biological reproductive table was calculated by Jackknife method. The mortality rate increased significantly with the increasing of extract concentration. The estimated LC50 value of *A. americana* and *P. major* extract was obtained 39/16 and 100/04 mg/ml (28.26 cm²), respectively. Laboratory exposure to sublethal concentrations of extract caused significant decrease in adult female longevity and fertility of surviving aphids and as a result caused significant reduction in the intrinsic rate of natural increase (rm value).

Net reproductive rate (R₀) obtained 139/8 nymphs/female. in control, while R₀ obtained 87/30 and 85/89 female/female at LC20 and 57/03 and 67/88 female/female in LC40 of *A. americana* and *P. major* extract, respectively. The intrinsic rate of population increase (rm) at LC20 of *A. americana* and *P. major* extract and control, were 0/5066, 0/5351 and 0/5604, respectively. While, rm LC40 concentration of *A. americana* and *P. major* extract, were 0/5028 and 0/473, respectively. The results of this study revealed extract of two tested plants could be used as a potential control agent for the aphid.

Key words: *Aphis gossypii*, Plant extract, Contact toxicity, Sublethal



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Lethal and sub lethal effect of *Agave americana* and *Plantago major* leaf extract on *Aphis gossypii* Glover (Hem: Aphididae)

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