

of each of these following generations, post former treatment of parent one, causing apparent undesirable effects, that appeared at the beginning of each of them.

Key words: Psidium guajava, Cymbopogon citratus, Phthorimaea operculella, guava and lemon grass fine dusts.

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EFFECT OF KAOLIN, DIATOMACEOUS EARTH AND ESSENTIAL OILS OF MENTHOL AND EUCALYPTUS ON OVIPOSITION DETERRENCY OF THE VINE CICADA, *PSALMOCHARIAS ALHAGEOS* (KOL.) (HOMOPTERA: CICADIDAE)

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The vine cicada, *Psalmocharias alhageos* is an important pest of vineyards in most parts of Iran, Afghanistan, Pakistan, southern areas of Russia, Turkey and Iraq. The nymphs of cicada damage the trees by feeding on root, adult insects on young bud and by oviposition under branch barks. The high density oviposition of adult insects inside young barks causes withering of branches. The resulted damage on vine products is 40% which is one of the most important factors in product reduction in vineyard. This study investigated the efficiency of kaolin, diatomaceous earth and essential oils of menthol and eucalyptus in inhibiting of cicada laying eggs on the grape tree branches in Qom province of Iran. Treatments consisted of 10% kaolin clay and diatoms (10%), 10% menthol and eucalyptus oil and control. Experiment was carried out in a randomized complete block design with four replications. Variables measured were number of infested and healthy branches, rate of egg laying, batches of egg and product yields. The collected data were analyzed using SAS software and means were compared by Duncan Multiple Range Test. The results showed that the highest performance and the lowest infestation was related to the treatment of 10% kaolin and diatomaceous earth mixture and the lowest performance and the highest infestation was for control group ($P \leq 0.05$). The effects of essential oils of menthol and eucalyptus group on production rate and infestation were almost the same as control group. Other treatments were listed in the other groups. Treatment of 10% kaolin and diatomaceous earth mixture was the most effective treatments on prohibiting laying eggs, damage and increasing the product yields. Moreover there was a synergistic relationship between kaolin and diatomaceous earth. In overall, application of kaolin could be recommended instead of chemical insecticides to control of *P. alhageos* in the vine gardens.

Key words: vine cicada, *Psalmocharias alhageos*, Kaolin, diatomaceous earth, essential oils