Comparison of ovicidal effect of essential oils of medicinal plants on one-day old and 3-day old eggs of Indian meal moth, Plodia interpunctella Hübner (Lep., Pyralidae)

Rafiei-Karahrroodi, Z.1, S. Moharramipour2, H. Farazmand3 and J. Karimzadeh-Esfahani4

1.Department of Entomology, College of Agriculture, Islamic Azad University Arak branch, Arak, Iran, r_zrk@yahoo.com
2.Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, moharami@modares.ac.ir
3.Agricultural Entomological Research Department, Iranian Research Institute of Plant Protection, Tehran, Iran, hfarazmand@yahoo.com
4.Agricultural and Natural Resource Research Centre of Isfahan, Isfahan, Iran

Indian meal moth Plodia interpunctella Hübner is one of the most important pests of stored products. Some chemical pesticides used for controlling it, regards as numerous risks of using synthetic pesticides, is necessary to replace them with safe compounds. Plant essential oils are suitable candidates for replacing them. In this research, percent of egg mortality have been induced by different essential oils on 1-day old and 3-day old eggs compared. Ovicidal effect of essential oil of L. angustifolia, Melissa officinalis L., Artemisia dracunculus L., C. zelanicum, Rosmarinus officinalis L. and S. multicaulis on 3-day old eggs were significantly more than 1-day old eggs. Also essential oil of C. zelanicum showed highest mortality on eggs with lowest concentration. These results revealed that for controlling this pest in storehouses, essential oils are more effective at late of egg stage, because of mortality on both stages egg and 1-day old larvae. Essential oils of C. carvi, C. zelanicum had considerable ovicidal effect at used concentrations. Regard as fumigant property of essential oils it seems Essential oils of C. carvi, C. zelanicum are suitable candidates for replacing them with synthetic pesticides in warehouses to control Indian meal moth.