Abstract

The lesser pumpkin fly, *Dacus ciliatus* Loew (Dip.: Tephritidae) is an agricultural pest of major significance worldwide that primarily attacks cucurbit crops. Dynamic population studied by random sampling of cucumber fruits and using pheromonal traps. Studies were conducted to evaluate the toxicity of methanol (MeOH) extract of *Ferula asafoetida* and *Sclerorhachis leptoclada* leaves to adult and larvae of the lesser pumpkin fly, *Dacus ciliatus* (Dip.: Tephritidae). Direct-dip bioassays for larvae and topical bioassays for adults of fly used to assess mortalities. The chemical constituent of extract was analyzed by GC/MS. The results shown the population density increased from August to October and then decreased afterward. The toxicity of *F. asafetida* for larvae (LC_{50}= 7.3 mg/ml) and adults (LC_{50}= 0.41 mg/insect) were about 14 and 11 times more than *S. leptoclada* lethal effects, respectively. The test showed that the repellency was concentration-dependent and the repellency increased significantly with increasing concentration. Ethanol extract of *Ferula asafoetida* contained thiol compounds such as Thiophene and Phenolic compounds. Ethanol extract of *Sclerorhachis leptoclada* contained Terpenoide compounds.

Keywords: Pheromone trap, Insecticide, Extract, Fruit fly, Sampling

University of Zabol
Graduate school
Faculty of Agriculture
Departmant of Plant Protection

The Thesis Submitted for the Degree of M.Sc. (in the field of Agricultural Entomology)

Study on population dynamics and lethal effect of *Ferula foetida* and *Sclerorhachis leptoclada* extracts on *Dacus ciliatus* in Birjand

Supervisor:
Dr. A. Khani

Advisors:
Dr. K. Mohammad Poor
Dr. A. Mirshekar

By:
S.H. Zamani

October 2013