EFFECTS OF *DERRIS SCANDENS* AND *SAPINDUS TRIFOLIATUS* EXTRACTS ON BEAN FLY, *OPHIOMYIA PHASEOLI*

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Bean fly, *Ophiomyia phaseoli* (Agromyzidae) is an important pest of legume crops grown in Sri Lanka. Bean fly larvae are cortex feeders and due to their damage younger seedlings wilt and die. However mature plants can tolerate the damage by growing adventitious roots, their damage to petioles results immature defoliation. Currently, chemical pesticides are been used for their control. However health and environmental hazards associated with this practice urge the need of safer alternative methods. This study aims to find plant extracts effective against bean fly and formulate them into useable products for field application.

Studies were carried out at Horticulture Crop Research and Development Institute during 2001-2003. Bean fly culture was maintained on potted bean seedlings in screened cages. In bioassay experiments, potted bean seedlings (bi-foliage, 2 plants/ pot) were sprayed with test solutions (1.5 ml/ plant) using an atomizer and a rotating table. Then five pairs of adult bean flies (2-5 days old) were introduced to each pot and they were individually covered with mylar film cages. Control seedlings were sprayed with water. The experiments were in Completely Randomized Design (CRD) with six replications. The infestation levels were determined using leaf punctures, adult emergence and death of the infested plants.

Several plant extracts, which showed insecticidal activity in our previous studies, were selected for the present study. The extracts of *Toddalia asiatica* (stems, leaves in CH_3OH), *Gnidia eriosephala* (stem in CH_2Cl_2), *Derris scandens* (stem in CH_2Cl_2 and CH_3OH) and *Sapindus trifoliatus* (fruit pericarp in H_2O and 70% CH_3OH /H_2O) were evaluated against bean fly and effective extracts were field evaluated after formulation. In field studies, carbosulfan 200 EC (Marshal®), a commercial synthetic pesticide recommended by Department of agriculture was used as the standard treatment. The field study was in CRBD with five replications.

In laboratory bioassays, plants sprayed with the CH_2Cl_2 extract of *D. scandens* (stem), 70% CH_3OH: H_2O extract of *S. trifoliatus* fruit pericarp and 20% EC formulation developed incorporating these two extracts reduced the numbers of leaf punctures, adult emergence and plant death. The EC formulation was found to be the most effective. However in the field, Marshal 200 EC (3 ml/ l) was found to be the most effective followed by the 20% EC formulation (10 ml/ l) in reducing plant death caused by bean fly damage and their adult emergence. These results suggested that the 20 % EC formulation developed combining *D. scandence* extract with *S. trifoliatus* extract has potential to be used as a pesticide for the control of bean fly infestation.

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