**Effect of Selected Biopesticides to Control Plesispa Beetle (*Plesispa reichei*) Under Laboratory Conditions**

WHYS Fernando1, NS Aratchige2\*, WMAUKM Wijesekara1, DH Dilrukshika2 and DPM Silva2

*1Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka*

*2Crop Protection Division, Coconut Research Institute, Lunuwila, Sri Lanka*

*\*ddr@cri.gov.lk*

Plesispa beetle (*Plesispa reichei* Chapuis) is one of the serious insect pest found in coconut nurseries in Sri Lanka. Both adult and larvae cause damage by feeding on the internal tissues of the folded blades. Biopesticides offer an ecologically sound and effective solution for pest control. Therefore, the study was conducted to determine the effect of selected biopesticides to control Plesispa beetle under laboratory conditions, the median lethal (LC50) dose, and to evaluate phytotoxic effect on coconut seedling. The test compounds were BioSolex, Flipper, and Agro Safe Liquid (ASL). Carbosulfan 20% was used as positive control and distilled water was used as vehicle control. Both the adult and larval stages were tested at the exposure of 24, 48, and 72 hours respectively and the mortality percentage was recorded. A preliminary test was performed to determine the upper and lower threshold concentration. The biopesticide concentrations which showed 90 % lethality interpolated from concertation inhibition curves was tested for phytotoxic effects. Data on mortality and phytotoxic effect were statistically analysed by comparison of treatment mean with control means by one-way ANOVA and Dunnet’s multiple mean comparison test. The 50 and 90 % lethal concentrations were interpolated from non-linear regression curve fit model. Three biopesticides showed concertation and time- dependent increase in mortality. At 48 hours, the LC50 values respectively for adult and larvae were 0.14x104 ppm and 0.03x104 ppm on BioSolex, 19.4x104 ppm and 15.6x104 ppm on Flipper, and 39.6x104 ppm and 36.7x104 ppm onASL. Flipper and ASL showed significant differences in mortality at very high concentrations. In summary, BioSolex offered high mortality at low concentrations without any phytotoxic effect. Therefore, BioSolex can be recommended as biopesticide that effective on Plesispa beetle compared to Flipper and ASL.

**Keywords:** *biopesticides, coconut, LC50, Plesispa beetle*