**Mortality and Phytotoxic Effect of Selected Biopesticides on 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*

*\*yulajisanjana@gmail.com*

Plesispa beetle (*Plesispa reichei* Chapuis) is one of the serious insect pests found in coconut nurseries in Sri Lanka. Both adults and larvae cause damage by feeding on the folded blades. The test compounds were BioSolex (Neemsal (2.5%), Organic acids (0.5%), Camper (2%), and other ingredients (95%)), Flipper (Fatty acids, C14-20, Potassium salts 479, 8 GLI), and Agro Safe Liquid (ASL) (liquid extracts of Neem, Ginger, Tobacco, and Garlic). Carbosulfan 20% was the positive control and distilled water was the vehicle control. Adult and larval stages were tested for the mortality at the exposure of 24, 48, and 72 hours. The biopesticide concentrations which showed 90 % lethality interpolated from concentration inhibition curves were tested for phytotoxic effects by the affected leaf area percentage out of the whole leaf area. Data on mortality and phytotoxic effects were statistically analyzed by one-way ANOVA and Dunnet’s multiple mean comparison test. The 50 and 90 % lethal concentrations were interpolated from a non-linear regression curve fit model. Three biopesticides showed concertations and a time-dependent increase in mortality. A previous study has displayed a botanical extract, tobacco recorded higher mortality on *Plesispa reichei* larvae (83.80%) and adult (100%) (Rajapaksha *et al.*, 2016). The lowest LC50 value was exhibited by the BioSolex compared to Flipper and ASL (BioSolex LC50 = 1.43 x 104 ppm < Flipper LC50 = 19.42 x 104 ppm < ASL LC50 = 39.59 x 104 ppm for adult at 48 hours exposure and BioSolex LC50 = 0.03 x 104 ppm < Flipper LC50 = 15.60 x 104 ppm < ASL LC50 = 36.71 x 104 ppm for larvae at 48 hours exposure). BioSolex does not show any phytotoxic effect. A cost-benefit analysis should be conducted before recommending. In summary, BioSolex is effective on Plesispa beetle compared to Flipper and ASL.

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