

VALIDATION OF ARTIFICIAL DIETS FOR REARING OF *GALLERIA MELLONELLA* LARVAE AND MASS MULTIPLICATION OF ENTOMOPATHOGENIC NEMATODES FOR USE IN THE CONTROL OF FRUIT FLIES

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Entomopathogenic nematodes (EPN) have great potential as biological control agents for a majority of insect pests. The greater wax moth, *Galleria mellonella* is a pest of honeybee and is being used in the mass multiplication of EPN in the laboratory. Artificial diets prepared with varying proportion of essential ingredients were assessed for the rearing of the greater wax moth larvae, which in turn will be used for mass multiplication and evaluation of EPN *Steinernema carpocapsae* against maggots and pupa of the common guava fruit fly, *Bactrocera correcta*. Separate laboratory experiments were carried out following completely randomized design to identify the best diet (6 diet treatments in 4 replications each with 100 wax moth eggs or larvae) for the multiplication of wax moth larvae, the production (density) of infective juveniles (IJ) of EPN (5 treatments in 3 replications each with 10 late instar larvae), and the effective concentration (density) of EPN IJs (6 treatments in 3 replications each with 40 third instar maggots or 40 pupae) against maggots and pupae of fruit fly. Results revealed that the artificial diet with 340 g wheat powder, 240 g corn powder, 200 g honey bee, 100 g milk powder, and 140 g glycerin was superior for the growth and development of wax moth larvae. The best density of EPN for multiplication was found to be 20 IJs per late instar larva of *G. mellonella*, which yielded about 175,478.94 EPN IJs from each larva. EPN bioassay data showed that treatment of fruit fly maggots with 250 and 300 EPN IJs/dish (40 maggots) were more effective resulting in 95.79 and 96.58 mortality in five days period. However, treating fruit fly pupa with EPN IJs was less effective with mortality recorded below 15%. These results indicated the potential use of EPNs in the control of fruit flies where *G. mellonella* could be conveniently reared on artificial diets using indigenous materials and be used for mass production of EPN in the laboratory on a reasonable scale.

Keywords: greater wax moth, *Galleria mellonella*, artificial diets, *Steinernema carpocapsae*, *Bactrocera*