

**EVALUATION OF EFFECT OF SECONDARY
METABOLITES OF *Beauveria bassiana* AGAINST
SELECTED TEA PESTS**

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ABSTRACT

Beauveria bassiana is an entomo-pathogenic fungus currently used as a biological control agent against a wide range of insects. Two studies were conducted to determine the effect of secondary metabolites of *B. bassiana* against Tea Shot Hole Borer (*Xyleborus fornicatus*) and Tea Tortrix (*Homona coffearia*). *B. bassiana* was inoculated to molishes agar contained petri plates and incubated at room temperature (28 °C) for 14 days. Fungal biomass was kept in the Rotary Shaker with Ethanol 70% (500 ml) for an overnight (24 hours) and contents were filtered by gravity filtration using filter papers. Excess amount of ethanol was evaporated under reduced pressure using the rotary evaporator and the volume was reduced approximately to 5 ml (Temperature = 65 °C, RPM = 20). Two bio assays were conducted to check the mortality of selected pests with respect to the direct application of extracted secondary metabolites and incorporating extracted secondary metabolites into an artificial feed. Bio assays were laid out in Complete Randomized Design with four replicates per each concentration level. Each replicate contained 2 g of artificial feed for the test insects. Six concentration levels were prepared *Viz*: 90%, 70%, 50%, 30%, 10% including a control treatment (Ethanol) and five numbers of same aged larvae were introduced to each replicate in both bio assays particularly for Tea SHB and TT. Under direct application, a volume of 0.5 ml of each concentration level was drenched to each replicate and feed incorporated application was done as 1 ml volume of each concentration was added to 2 g of artificial feed. Mortality was checked in 24 hours, 48 hours, 72 hours and 96 hours. Mean dead counts were log transformed and statistically analyzed. Direct application of secondary metabolites of *B. bassiana* against Tea SHB did not show any significant difference in mean dead number ($F = 0.399$). Secondary metabolites incorporated to the feed recorded a significant difference in mean dead number of Tea SHB registering the highest mean dead number corresponding to the concentration level of 90% ($F = 0.0019$). No any significant difference showed in the mean dead number of TT tested under feed incorporated treatments ($F = 1$). This conclude that the mode of action of secondary metabolites were systemic.

Key words: *Beauveria bassiana*, Secondary metabolites, Tea shot hole borer, Tea Tortrix