

6. CONCLUSION AND DELIVERABLES

- i. The detailed description and identification key prepared for immature and adult moth species (Lepidoptera: Geometridae) commonly attacking tea (*Camellia sinensis*) shall be helpful in identifying the defoliators in field as well as in laboratory level.
- ii. Determination of the nutritional indices gives an insight into the consumption capacity of each of these folivorous geometrid species vis á vis an estimate of the crop loss due to their leaf feeding. Such quantification can suggest the kind of pest control measures to be adopted.
- iii. Further, performance study on alternate host of forest origin gives an inkling about the source of infestation and resurgence of tea crop by these geometrid pests.
- iv. As various aspect of basic and applied biological studies of the concerned pests [*Biston* (= *Buzura*) *suppressaria*, *Hyposidra talaca*, *H. infixaria*] require their large scale rearing, their laboratory culture on natural diet and synthetic diet were carried out and compared.
- v. The synthetic diets formulated for all the three geometrid species for the first time could sustain their complete life-cycle with varying but fair survival rates.
- vi. Through experimentation it was found that optimum quantity of lipid and sucrose levels in diet gives better life-cycle traits and survival. Inclusion of fatty acids such as linoleic acid and linolenic acid in right proportion in diet and their substitution by more economical linseed oil in specific quantity for each species was found to be crucial for effective rearing.

- vii. The present work on designing and dispensing of synthetic/artificial diet for successful rearing of the concerned pests of tea for at least three continuous generations, appears to be a pioneering attempt.
- viii. The synthetic-diet based rearing of these geometrid species will allow testing and experimentations with new insecticides or bio-pesticides, studies on pheromones and semio-chemicals, and production of natural enemies on disease-free consistent population of these pests.
- ix. Detection of principal hydrolases and detoxifying enzyme activities in the gut on three food regimes (Tea, Needlewood and Synthetic diets) helped to formulate synthetic diets comprising all basic nutrients (Proteins, Carbohydrates and Lipids). The source of which having negligible allelochemic compounds as compared to that present in the natural host plants.
- x. The findings of the present work shall be of great help to tea industry as well as of pest management in tea plantation at large.