



IBMBB



Institute of Biochemistry, Molecular
Biology and Biotechnology
University of Colombo

**Proceedings of the 12th
Annual Scientific Sessions of the IBMBB**

31st May 2023

Institute of Biochemistry, Molecular Biology
and Biotechnology

University of Colombo



Our Vision

**“To be an International Centre
of Excellence In
Molecular Life Sciences ”**

**Preliminary study to identify shoot and fruit borer (*Leucinodes orbonalis* Guenee)
resistance brinjal varieties in Sri Lanka**

Jayasooriya JANC¹, Suvanthini T², Gajapathy K¹

¹Department of Zoology, Faculty of Science, University of Jaffna

²Department of Agricultural Biology, Faculty of Agriculture, University of Jaffna

Brinjal is a commercially important vegetable grown in Sri Lanka which is severely affected by brinjal shoot and fruit borer (*Leucinodes orbonalis*). Utilizing host plant resistance is a promising strategy for reducing this pest infestation. This study aimed to assess the resistance of selected brinjal varieties to *L. orbonalis* based on selected physical and biochemical properties. Under natural, consistent management approaches, seven brinjal varieties were grown, such as Amanda F1, HORDI Lenairi 1, Thinnaweli purple, Madduvil muddiyan, Raal kuli, Plastic cultivar, and Eerku vellai. The plots were established with three replications and 25 plants per replicate were selected for the analysis. The resistant status was classified based on the mean fruit and shoot infestation. Simple linear correlation analysis and one-way ANOVA tests were done to explore the influence of selected physical characters, total phenol, and total sugar contents. Results showed significant differences ($p < 0.05$) in fruit and shoot infestation levels among the brinjal varieties. Amanda F1 and Madduvil muddiyan showed minimum shoot infestation of 1.13% and 1.39% and fruit infestation of 12.31% and 13.75%, respectively while HORDI Lenairi 1 recorded the highest shoot and fruit infestation of 6.54% and 29.63%, respectively. Physical properties such as short pedicel and calyx, compactly arranged seeds, thin shoot, and thick pericarp were found to be tolerant to *L. orbonalis* infestation. The moderately tolerant Raal kuli showed the highest amount of total phenol (0.81 mg/g) and susceptible HORDI Lenairi 1 had 0.53 mg/g. The resistant Madduvil muddiyan contained 0.59 mg/g of total phenol and 21.59 mg/g of total sugar. Susceptible Eerku vellai had the highest total sugar (22.77 mg/g). Fruit infestation had a positive (0.3832) correlation coefficient with total phenol and a negative (-0.5394) with total sugar. Amanda F1 and Madduvil muddiyan were found resistant to *L. orbonalis*. Physical properties of them are more responsible for resistance than the analyzed biochemical properties. These varieties can be utilized as potential resistance sources in future breeding programmes and these findings might contribute to develop a key for resistant and susceptible brinjal varieties.