

Using Botanical Materials to Control Tea Mosquito Bugs in Guava Orchards¹

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Abstract

Guava (*Psidium guajava*) is one of the characteristic fruit trees in the Yilan and Hualien country. However, due to the difficulty of controlling certain pests and diseases through organic methods, conventional cultivation practices remain predominant in the area. Among the major pests, the tea mosquito bug (*Helopeltis fasciaticollis*) is particularly challenging to manage organically. To identify effective plant-based materials for controlling *H. fasciaticollis*, this study tested combinations of neem oil, tea saponin, and matrine in pairs. In laboratory trials, treatments combining all three materials resulted in mortality rates exceeding 70%, showing a significant difference compared to the control group's 13.3%. However, in field trials conducted in 2023 and 2024 at an organic guava orchard in Jhihsyue, Shoufeng Township, only the combination of neem oil and matrine showed a roughly 20% reduction in damage rate on severely affected guava leaves compared to the control. No significant protective effects were observed on buds or young fruits. It is speculated that the lack of efficacy in the field was likely due to heavy rainfall during the testing period, which affected the persistence of the sprayed materials. Considering the influence of environmental conditions on spray applications, future studies may explore alternative control techniques, such as the development of attractants for tea mosquito bugs, to be incorporated into an integrated pest management (IPM) approach. Further field validation trials are recommended to confirm efficacy consistency and to assess overall cost-effectiveness.

Keywords: guava, *Helopeltis fasciaticollis*, botanical materials.

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