

Impact of Environmental Factors on Infestation of Tea Leaves by *Helopeltis theivora*, and Associated Changes in Flavonoid Flavor Components and Enzyme Activities

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Attack of tea plant (*Camellia sinensis* (L.) O. Kuntze) leaves by the tea mosquito bug *Helopeltis theivora* (Hemiptera: Miridae) was positively correlated to temperature and rainfall, and partially to humidity, as determined in 12 varieties during the period 2000–2002. The insect attack was severe during the months of May–September, which had high temperature and rainfall, and led to severe loss of biomass due to curling and drying up of the leaves. The biochemical response of these 12 varieties of tea to attack by the insect was determined with special reference to oxidative enzymes and flavonoid flavor components. Insect attack led to an increase in the activities of the oxidative enzymes peroxidase, ascorbate peroxidase and polyphenol oxidase. Activities of phenyl alanine ammonia lyase generally decreased as a result of insect attack, which was significant in the United Planters Association of South India (UPASI) varieties. A significant decrease in polyphenols was also obtained in UPASI varieties. HPLC analysis of catechins revealed a decrease in some of the catechins in the infested leaves. Analysis of theaflavins from infusion of healthy and *Helopeltis*-infested tea leaves revealed no changes.

KEY WORDS: Tea; *Helopeltis theivora*; tea mosquito bug; enzymes; phenols; catechins.

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