
Foliar Galls in *Trewia nudiflora*, L. – Morphological, Anatomical and Biochemical Changes Induced by Ant Infestation

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Abstract

Trewia nudiflora Linn. (Euphorbiaceae) commonly known as false white teak is one of the important medicinal plants and also reported as a host of foliar gall caused by *Trioza fletcheri*, CRAWF. Gall-inducing insects have profound effects on their hosts. These insects live within plant tissues and induce tumor-like growths that provide the insects with food, shelter and protection from natural enemies. Pathogens inject some elicitors and lead to the synthesis of different type of enzymes and some secondary metabolites at high amount in the plant which plays an important role in gall resistance in plants. In order to understand the actual mechanism of gall formation by *Trioza fletcheri*, CRAWF., we have studied the morphological, anatomical and biochemical changes in *Trewia nudiflora*. Morphological study showed numerous simple pouch like galls are covering the upper surface of the leaf blades. Anatomical study revealed the presence of completely deformed cells compressed to form a hollow cavity. Each cavity measured approximately 0.5-2.0 cm in naked eye. Within the gall cavity we observed an ant species which may be *Brachymyrmex sp.* of the family Formicidae. Biochemical studies revealed positive correlation between activity of antioxidant enzymes (namely catalase and peroxidase) and phenolics with different stages of gall formation whereas chlorophyll content, sugar content and Alpha amylase activity decreases. However, there is no report about ant infestation on gall in *Trewia nudiflora* leaves. Ants have a series of ecological relationships with gall-makers, as predators, mutualists or successors. The entering-exiting behaviour of the ants in respect to open galls could thus result simply from their own searching behaviour or, alternatively, from a situation of reward coming from the gall in the form of these exudates which conferring an additional defense against predation and/or parasitism of the galls through attraction of such predatory ants.

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