D44 INSECT-PLANT RELATIONSHIPS : STUDIES ON INSECT GALLS

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A comparative investigation was carried out on the leaf galls of Cinnamomum zeylanicum (Lauraceae), Ficus glomerata (Moraceae) and Syzygium malaccensis (Myrtaceae) with regard to the causative agent, gall morphology and anatomy and some physiological changes in the leaf due to gall formation.

Galls on all three plants were caused by a common group of insects called "Psyllids" (Order-Hemiptera). The galls were epiphyllous pouch galls with a single cavity and a minute ostiole on the lower side. Each gall engulfed a developing nymph. The adult insect emerged out from the underside of the gall. Gall tissue consisted of a relatively undifferentiated mass of parenchyma with a rich supply of vasculature indicating its heavy dependence on the substances moving in the xylem and/or phloem of the leaf. Presence of the insect was necessary for the growth and maintenance of the gall, for the gall quickly dried up after the emergence of the adult.

Gall tissue had 8-10 times less chlorophyll than the healthy leaf tissue. In Cinnamon, galled leaves had much less oil content than non-galled leaves. Dry matter content of galled tissue was also significantly less than in healthy tissue. However, inspite of less chlorophyll and less dry matter, gall tissue had 2-3 times more reducing sugars than the adjacent healthy tissue. Galls therefore act as localized 'sinks' for soluble carbohydrates probably for the nourishment of the insect.