Micronesica 33(1/2):165-167, 2000

Trioza suavis Galls on Leaves of *Elaeocarpus joga*

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Abstract—Galls on leaves of native yoga trees have been identified as due to the psylloid *Trioza suavis*. The insect is not a serious threat to the trees.

The yoga tree, *Elaeocarpus joga* Merrill, is a native of Guam and is known only in the Mariana Islands and Palau. It is relatively tall with a tiered, pagoda-form canopy architecture, and is common on the limestone soils of Guam (Stone 1970). A majority of the trees on Guam are mature, and the species is no longer recruiting well (Ritter and Naugle 1999). Recent trends in promoting the use of native plants for landscaping and reforestation have triggered the study of this species by horticulturists and foresters in Guam.

In a recent survey of arthropods on *E. yoga* numerous galls were observed on the leaves. Upon dissection and examination of the galls under a microscope, we found nymphs of psylloids. In this report we present a description of the galls, the causative organism, and a correction of the host plant reported earlier.

Galls become visible on an expanding yoga leaf prior to full expansion. Initially, galls are slightly raised above the level of the adaxial leaf surface and are light green. They contrast with the typical dark green of the adaxial leaf surface (Figure 1), so much so that a leaf with numerous galls visibly contrasts in color with surrounding leaves when viewed from a distance. Beyond increasing in size as the nymphs grow, adaxial phenotype of the galls does not change much until long after the exit event from the abaxial surface. Ultimate diameter of the raised discolored area of the gall is 3 to 5 mm.

The abaxial sides of galls are also light green when young, but the color is similar to that of the abaxial leaf color. A conspicious linear ridge extends across the full width of each gall. The ridge and lower surface of the galls increase in size as the nymphs grow, but do not change in appearance until the exit is initiated. At this time the ridge opens for the exit event, and forms a persistent elliptical or oval hole. Inspecting the adaxial surface of galls cannot be used to determine timing of the exit event, since the appearance does not change at the time of the exit event. The ridge tips on the abaxial surface may extend more than 2

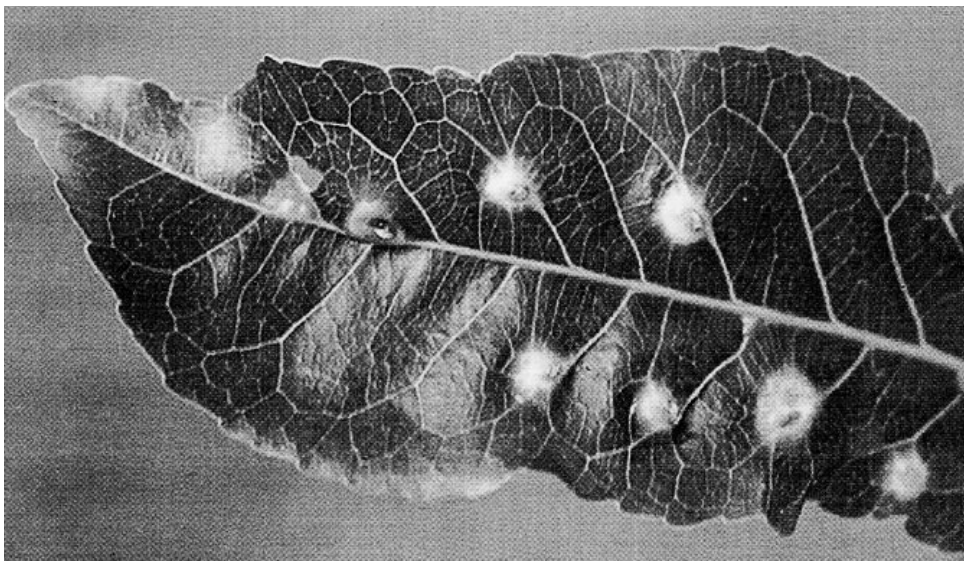

Figure 1. The adaxial surface of a 9.2 cm long *Elaeocarpus joga* leaf with numerous psylloid galls.

mm from the leaf surface following the exit event, and become brown and scarred with time.

Yoga leaves naturally turn red as they begin to senesce (Stone 1970). Presence of psylloid galls hastens this color development in that the first color change on both surfaces of galls is a transition of the light green to red. The red then expands several mm into the lamina beyond the galls. Numerous galls in close proximity allow the expanding red to coalesce.

The adaxial surface of the galls is usually persistent until leaf senescence and abscission. However, sometimes the galls fall out with leaf age and holes remain until leaves abscise. The presence of galls does not appear to hasten senescence and abscission of leaves.

We covered several stems with galled leaves in muslin cloth sleeves and the open ends of the sleeves were secured to prevent the escape of the adults after emergence. Also, some leaves with mature galls were incubated in plastic bags and the adults were collected when they emerged. Additionally, numerous galls were dissected, and the nymphs were collected.

Both adults and nymphs were preserved in 90% alcohol and sent to the Natural History Museum in London for identification. Mr. David Hollis identified them as *Trioza suavis* Tuthill (Triozidae). Tuthill (1951) described this species from the specimens collected by Esaki from Palau in 1938 and 1939. Esaki recorded the host plant as *Ficus* sp. Tuthill (1964) reported the collection of this psylloid from Guam by Krauss in 1957 and 1958. Krauss did not record the host plant. Our collective experiences observing *Ficus* species for the past few decades as well as surveys conducted by Beller (1948), Townes (1946), and Nafus (1997)

in Guam and Micronesia have not identified any psylloid galls on *Ficus* species. Hence, the report of *Ficus* sp. as the host plant of *Trioza suavis* was an error.

Ritter and Naugle (1999) propose that insects are a primary reason for poor recruitment of yoga. Although *Trioza suavis* galls are common, there is great inter-tree, intra-tree, and seasonal variability in gall incidence. Our observations indicate that this insect is not a serious threat to the health or survival of individual or the island-wide population of yoga trees.

Psylloids in general are highly host-specific. Another species, *Trioza indigena* Tuthill has been found to form small galls on *Elaeocarpus kusanoi*, a tree endemic to Pohnpei (Tuthill 1964). A species very close to but distinct from *T. suavis* has been recently collected on *Elaeocarpus angustifolius* from Queensland, Australia (David Hollis, pers. comm.).

Acknowledgements

Guam AES Publication #219.

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Received 13 June 2000, revised 22 June.