

Collecting record of the machilus leaf gall midge, *Daphnephila machilicola* YUKAWA (Diptera, Cecidomyiidae) from Formosa

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The machilus leaf gall midge, *Daphnephila machilicola* YUKAWA (1974) is known to produce barrel-shaped pyxidial galls on the under surface of the leaves of its host plants, *Machilus thunbergii* SIEB. et ZUCC. (Fig. 1). Special attention has been paid to this species by the present author as one of the representatives of insects inhabiting broad-leaved evergreen forests in Japan. Because the galls provide life table data in a convenient way for estimating population densities of the gall-making insect, field populations of the species have been surveyed for more than 10 years to promote a better understanding of natural regulation mechanisms in insect populations.

This species was originally described based on the specimens collected mainly from Kagoshima prefecture (YUKAWA, 1974). Subsequent field surveys conducted by the author and his collaborators revealed that this gall midge is commonly distributed in Honshu, Shikoku, Kyushu and Okinawa Is. where the host trees grow naturally (USUBA, 1977; YAMAUCHI et al., in preparation).

This paper is intended to record collecting data of the species, for the first time, from Formosa and to refer briefly to its life cycle in the tropics. Three female specimens were examined by the author at the British Museum (Natural History) in 1974. The specimens have been mounted on slides and labelled as follows: [Cecid. 3300-3302, bred 3 ♀♀; Formosa, Taihoku; *Machilus* bell gall; R. TAKAHASHI, 13.6.1936, mt. 17.11. 1937, H. F. BARNES]. This label indicates that the three females emerged in June 1936 from the machilus bell-shaped galls collected in Taihoku by a Japanese entomologist, Dr. R. TAKAHASHI, and they were mounted on slides by Dr. H. F. BARNES in 1937. This species was identified by the author as *Daphnephila machilicola* YUKAWA based particularly on the characters of its ovipositor which is not aciculate but relatively short and tapered. This species has also been distinguished by having an incised tegmen of male genitalia (YUKAWA, 1974) from three closely related Indian species of the genus which were reared from other Lauraceae-species (KIEFFER, 1905).

This species is known to be normally univoltine and to emerge in late April and May in Kagoshima prefecture, synchronized with the development of new leaf buds of the host plants (YUKAWA, 1974; OHNO et al., 1977). Throughout the period of their extremely short life span, females lay their eggs on the under surface of the new leaves which are about to open. Judging from the above-mentioned bionomics of the species in Japan, the collecting data in Formosa are considered to indicate an unusual delay in emergence, because adult midges are naturally expected to emerge in January or

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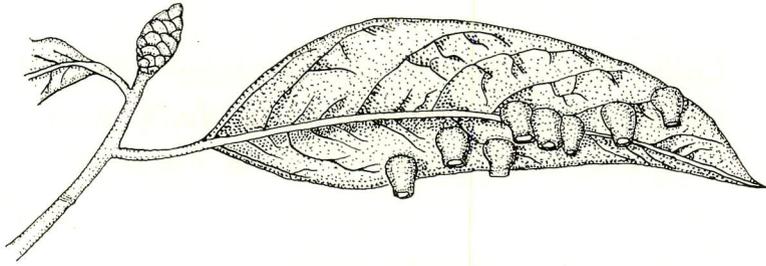


Fig. 1. Barrel-shaped galls produced by the machilus leaf gall midge, *Daphnephila machilicola* YUKAWA on the under surface of the leaf of its host plant, *Machilus thunbergii* SIEB. et ZUCC.

February synchronized with earlier development of the host buds in the tropics. This phenomenon may be explained by the possibilities that the host plant has an extraordinary wide range of leaf emergence season in the tropics and that the gall midge can repeat more than one generation per year by utilizing the host buds provided throughout a considerably longer period of the year.

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