# Additional Notes on Coccomyza leefmansi Nijveldt, egg predator of Pulvinaria polygonata Ckll. and Pulvinaria psidii Mask. in West Java

by
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In the garden of the Institute for Plant Diseases and Pests at Bogor, some branches, twigs and leaves of a *Citrus* tree were found in October 1952, covered with a Coccid. Dr MORRISON at Washington identified this Coccid as *Pulvinaria polygonata* Ckll.

The mature females crawled to the nearest leaves and clung to the lower side. Afterwards on the ventral side of their bodies an ovisac of white wax threads was formed which grew large while the Coccid itself shrivelled daily (fig. 1b). Finally, the little shrivelled animal was lifted by the wax that it had produced. Later it died on the top of one end of the broad, clearly undulated ovisac.

An ovisac contains a large number of eggs. The greatest number ever found in Bogor was 970. According to TAKAHASHI (1939) the amount of eggs in an ovisac of *Pulvinaria polygonata* in Formosa was approximately 1400.

On the completed *Pulvinaria* ovisacs were little Itonididae (gall midges), which were described by NIJVELDT as *Coccomyza leefmansi* (1954). In the ovisac the midges deposited small oval reddish eggs, about ¼ mm long (fig. 2).

Gall midges predaceous on eggs of *Pulvinaria polygonata* in Malaya were mentioned by CLAUSEN (1913) under the name of "near *Mycodiplosis*". He further wrote that "many adults were noticed in the act of ovipositing beneath the bodies of the mature females just prior to the formation of the ovisacs". Whether this also happened with the *Coccomyza leefmansi* in question, was not observed.

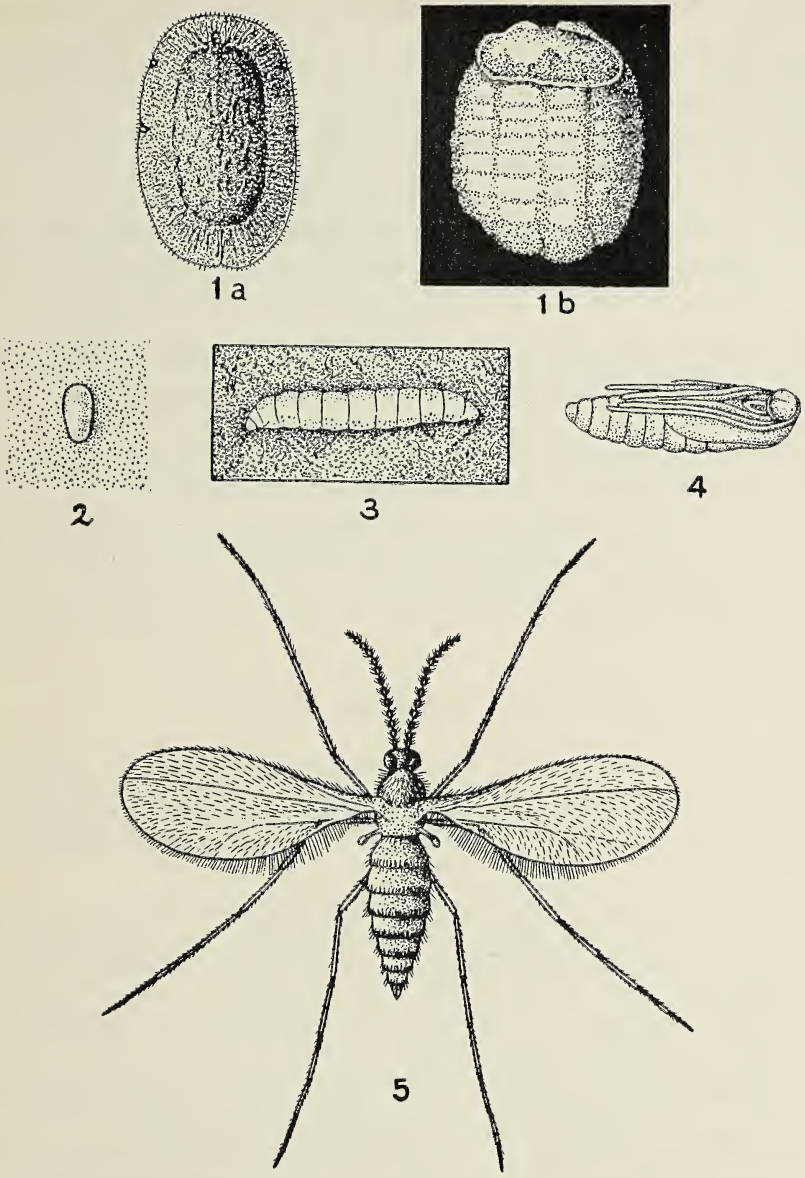
The egg stage of the gall midge at Bogor lasted 2 days (4 observations). The maggot-like larvae were translucent white and had a canary yellow smudge on the dorsum (fig. 3). The fullgrown larvae were 1.5—1.7 mm in length. In one ovisac 4—23 larvae were found feeding on the *Pulvinaria* eggs. In 4 cases it was observed that the larval stage lasted only 3 days. (My assistant SIMIN was a great help with several of the observations).

Pupation took place in the ovisac. The colour of the pupa was yellow-brown and its length was 1.3—1.9 mm (fig. 4). After 2—6 days (on an average 3 days, based on 43 observations), the midges almost simultaneously emerged. At first they flew in little swarms around the ovisacs and afterwards spread in all directions.

The lifecycle of a gall midge was 7—11 days, on an average 8 days (4 observations).

The female as well as the male were only 1.2 mm long (fig. 5). The head is brown or dark brown, the thorax orcheous and the abdomen bright red without dark transverse bands (NIJVELDT, 1954).

Close observation showed that a majority of the *Pulvinaria* eggs on the above mentioned *Citrus* tree were destroyed by the *Coccomyza* larvae.




*Pulvinaria polygonata* Ckll.: fig. 1a. ♀ (× 8); fig. 1b. Ovisac with shrivelled ♀. (Kosasih del.; × 8). *Coccomyza leefmansi* Nijveldt: fig. 2. Egg (× 30); fig. 3. Fullgrown larva (× 20); fig. 4. Pupa (× 20); fig. 5. Adult (× 30).

A small number of more or less mature female Coccids were killed by some disease, as a result of which they first turned dull yellow-brown and later on dull dark brown and then dried out. Some egg producing females were also affected and died.

Moreover it was observed that the larvae and beetles of *Cryptolaemus montrou-*

*zieri* Muls. and *Chilocorus melanophthalmus* Muls. fed heavily on *Pulvinaria* eggs.

Attacked by so many enemies, the Coccid disappeared by the end of November 1952; no further observations were made.

The ovisacs of *Pulvinaria psidii*, which were numerous on the broad leaves of *Anthurium* sp., later on also proved to be severely infested by gall midges, which Mr. NIJVELDT once more kindly identified as *Coccomyza leefmansi*.

It is probable that the midge in the ovisac of *Pulvinaria psidii* on coffee, mentioned by KONINGSBERGER (1901), also belongs to the same species.

### Literature

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## Fucicole acalyptrate Diptera

door

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Het aantal uitsluitend fucicole (wierbewonende) Diptera-soorten is niet groot en bedraagt slechts zes. De Anthomyidae, die fucicool zijn, worden thans niet nader beschouwd.

De soorten, welke aan de orde worden gesteld, zijn de Dryomyzidae: *Helcomyza ustulata* Curt., *Heterochila buccata* Fall., de Coelopidae: *Orygma luctuosa* Mg., *Coelopa pilipes* Hal., *Phycodromia sciomyzina* Hal. en de Cordyluride: *Scatomyza litorea* Fall.

Van al deze soorten is de larve nog steeds onbekend, behalve van *Helcomyza ustulata* Curt. en *Scatomyza litorea* Fall.

De levenswijze van alle fucicole soorten stemt overeen. Hoogstens zou men ze misschien kunnen verdelen in xerophiele en hygrophiele soorten.

De xerophiele zijn wit bestoven door een vetachtig exudaat, dat het uitdrogen in de sterke winden voorkomt. Tevens kunnen zij daardoor niet nat worden.

Bij *Helcomyza* schilfert het witte exudaat af en wordt voortdurend vervangen door nieuwe afscheiding van bepaalde klieren. Deze soort is m.i. niet hygrophiel. Zij komt nooit in de duinen voor, maar uitsluitend langs het strand. Ik ving bij Zandvoort herhaaldelijk exemplaren, die ik in de duinen vrijliet. Deze proef was alleen uitvoerbaar bij bewolkt weer, omdat het anders bijna onmogelijk is deze sterk phototrope dieren te vangen. De in vrijheid gestelde exemplaren vlogen altijd naar het strand terug. Wanneer zij op de grond zitten, stellen zij zich dadelijk met hun kop naar de wind.