LIFE CYCLE OF THE MANGO GALL FLY, PROCONTARINIA MATTEIANA

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INTRODUCTION
Gall midges of the family Cecidomyiidae, eg Procontarinia spp, often cause deformation of mango (Mangiferaeindicae) leaves (Boucek, 1986). Mango trees in southern Africa suffered extensive damage in the early sixties by Procontarinia matteiana (Annecke & Moran, 1979).

Interest in this insect was recently renewed when it was speculated that P. matteiana could act as a vector for bacterial black spot (Van Zyl, Kotzé & Steyn, 1987). In this paper, some aspects concerning the life cycle of the gall fly are elucidated.

MATERIALS AND METHODS
Keitt mango trees with galls caused by P. matteiana, obtained from Lisbon estate, were kept in a greenhouse at a temperature of ca 29°C. Galls were cut at regular intervals and the developmental stage of P. matteiana was recorded.

RESULTS AND DISCUSSION
Life cycle
From observations made in the greenhouse, as well as from existing literature, the following life cycle for P. matteiana is proposed:

Eggs are deposited on leaves. The first instar larvae burrow into the leaves to form galls (Gangwar, 1979). These larvae are cylindrical and slightly flattened dorsoventrally, with the thorax being the broadest part of the body. Anteriorly the head carries two antennae, each consisting of twelve segments (P. mangifoliae differs in this respect in that it has only two segments). At this stage the body is approximately 0.165 - 0.185 mm long.

Second instar larvae resemble the first but the eyes are more sclerotised and the fat bodies are readily visible.

Third instar larvae measure 1.3 - 1.9 mm with a light-yellow colour and clearly sclerotised head capsule. Colour of fourth instar larvae changes to pale yellow.

Larvae pupate within the gall. The pupae are elongated, slim and thinner towards the posterior end. 1.87 - 2 mm in length. Initially the pupae are yellow with greyish transparent wings and red eyes. The abdomen remains yellow, while the thorax eventually turns dark-brown.

The body of the matured mango gall fly is 2 mm long, 0.7 mm wide and consists of three thoracic and nine abdominal segments. The abdomen is yellow to grey and the grey wings are covered with dense fur. The veins on the wings are greatly reduced. Leg segments consist of a coxa, trocanther, femur, three tibia segments and three tarsi segments.

Two generations of mango gall fly consecutively appear annually. The first generation completes a full life cycle within three months, reaching maturity during February and March, while the second generation completes its full life cycle in six to seven months with the mature stage occurring from September to October. Apparently the second generation correlates with the beginning of the rainy season and new flushes of mango leaves. Temperature and climate can affect the initiation of the various stages.

Parasitism
The mango gall fly is biologically controlled by natural enemies such as parasitic wasps (Order Hymenoptera). In South Africa, a prevailing wasp in mango plantings is Achrysocharis pulcherima.

REFERENCES

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