

ENIGMADIPLOSIS AGAPANTHI, A NEW GENUS AND SPECIES
OF GALL MIDGE (DIPTERA, CECIDOMYIIDAE) DAMAGING
AGAPANTHUS FLOWERS IN ENGLAND

**Keith M. Harris, 81 Linden Way, Ripley, Woking, Surrey, GU23 6LP,
and
Andrew Salisbury and Hayley Jones, RHS Garden, Wisley, Woking,
Surrey, GU23 6QB**

n July 2014, *Agapanthus*

taxonomic advice. Many gall midge larvae were found in affected flower buds, which remained closed or partially opened and variously distorted (Plate 3). Initial examination of larvae indicated that they belong to a species of *Contarinia*, possibly related to *Contarinia quinquenotata* (Löw), which damages developing flowers of *Hemerocallis*. But hundreds of adult midges were reared from the *Agapanthus* sample by the end of September 2014, (with further emergences in spring 2015) and all adults showed characters of the tribe Clinodiplosini, not Cecidomyiini. This enigmatic combination of larval and adult characters merits description of a new species, placed in a new monotypic genus, with authorship of both new taxa attributed to K. M. Harris.

This species is probably native to southern Africa (where *Agapanthus* species are endemic) because an undescribed and unstudied gall midge inducing identical symptoms has been recorded in South Africa (Duncan, 2002).

The Royal Horticultural Society has initiated a research project to elucidate the biology of this species, to establish the extent of its distribution in the UK, and to devise methods of management to limit damage to the flowers of *Agapanthus*, which are valuable ornamental garden plants, cultivated in the UK and elsewhere in warmer parts of the world. Details, including images of symptoms, biological information,

Cecidology. 31 (2016)

***Enigmadiplosis* Harris (new genus)**

This new monotypic genus is erected to accommodate the type-species *Enigmadiplosis agapanthi* Harris, which differs from all known species of Cecidomyiidae in having a unique combination of larval and adult characters. The third instar larvae show diagnostic characters of the genus *Contarinia*, which is currently placed in the tribe Cecidomyiini, but adult characters of reared males and females indicate closer affinity to a different tribe, the Clinodiplosini.

Figure 1 *Enigmadiplosis agapanthi*

Figure 2
E. agapanthi.

Third instar larvae of *Enigmadiplosis* have three of the four pairs of terminal papillae bearing short setae and the fourth, median pair are modified into small short, recurved, stubby hooks (Fig.1) that the fully developed larvae use to ju 53.3ou

***Enigmadiplosis agapanthi* Harris (new species)**

Adults. Fragile, small midges (Plate 3) with wing length up to about 2 mm. Both sexes are uniformly pale orange-yellow, with conspicuous contrasting black eyes and all legs with narrow dark scales along their anterior edges. Antennae have 12 flagellomeres, each with three sets of circumfilar loops in males and with two simple appressed and linked loops in females. Maxillary palps are four-segmented and relatively long (about two-thirds as long as height of head). An occipital process (post-vertical peak) is present, bearing a pair of setae. The wing venation is indistinct, with R5 curved backwards in distal third and joining the costa beyond the wing apex. Legs are long, with simple untoothed tarsal claws curved evenly in distal half, sharply pointed and slightly longer than empodia.

Male Genitalia (Fig. 2). Gonocoxites are large, elongate cylindrical with quadrate medial enlargements at bases; gonostyles are elongate, curved and slightly widened in distal third; the aedeagus is long, extending well beyond hypoproct and with about 8 sensory pits distally; hypoproct as long as cerci and divided into two narrow lobes, each bearing a small apical seta; cerci triangular, with 4-5 short setae in posterior half and a pair of larger setae almost crossing medially.

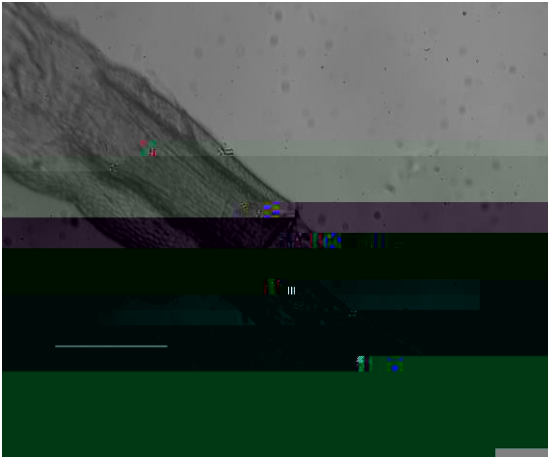


Figure 3

Enigmadiplosis agapanthi.

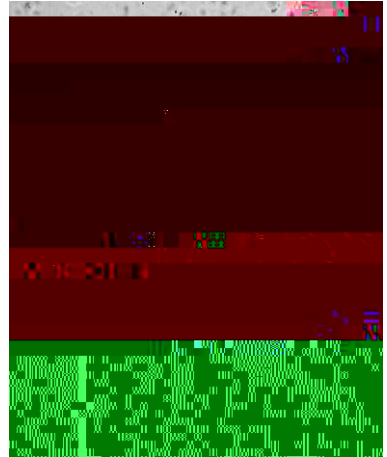


Figure 4 *Enigmadiplosis agapanthi*

Cecidology. 31 (2016)

Female ovipositor (Fig. 3) extendable, retracting telescopically into abdomen; terminal cerci elongate elliptical, about four times as long as wide.

Larvae. Fully developed third instars are up to 2-3 mm long, cream-yellow with green gut contents visible. A sternal spatula is present in fully developed third instars; shaft long and anterior blade bilobed (Fig. 4). Three pairs of terminal papillae bearing short setae and fourth pair modified into short stubby processes (Fig. 1).

Material Examined

Holotype male no. 20658, UK, Wisley, Surrey, from *Agapanthus* flower buds, 30.vii.2014 (A. Salisbury). Paratypes, same data as holotype; males, nos. 20659,

