A Literature Review of Pupal Seta 13-CT in the Family Culicidae (Diptera) and a Report of Its Occurrence in *Aedes aurotaeniatus* Edwards[1]

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ABSTRACT. Seta 13-CT on the pupal cephalothorax of *Aedes aurotaeniatus* is described and illustrated. A literature review of the presence of this seta in other culicid taxa is given.

An undescribed seta on the cephalothorax (CT) of the pupa of *Aedes aurotaeniatus* Edwards was noted during a taxonomic study of this species. The seta is located on the metanotum (Mtn) laterad and very slightly caudad of seta 12-CT. This seta, designated 13-CT following Peyton (1973), is illustrated in Figure 1 and is approximately 0.4 of the length of 12-CT. It occurs on the pupal exuviae of both sexes of this species and was present in all specimens on both sides (one specimen was damaged and had the setae missing; however, well developed setal alveoli were present). Three pupal specimens of *Ae. aurotaeniatus* are currently known and are as follows: 456-100, 456-105 and 456-106. They are deposited in the U. S. National Museum, Washington, D. C., and possess the following collection data: Republic of the Philippines, Mindoro Island, Victoria District, Mataptap; E. L. Peyton and Y-M. Huang collectors; 15 July 1969; from the leaf axil of a banana plant.

Belkin (1952), while discussing the pupal chaetotaxy of *Uranotaenia quadrimaculata* Edwards, stated, "It is of interest to note that one or two "extra" hairs are occasionally present on the metanotum of this species. One of these is associated with hair 12 in the same relationship as larval hair 4 bears to larval 3, while the second more lateral hair cannot be homologized directly. All the anomalous pupal hairs and their alveoli in particular are generally weaker than the normal ones. It appears that such anomalies may have taken part in the evolution and differentiation of some groups of mosquitoes through their hereditary retention . . ." It is possible that seta 13-CT of *Ae. aurotaeniatus* is an anomalous seta similar to the one described by Belkin above; however, it is doubtful that the seta is anomalous since it is well developed and present in all the known specimens of this species.

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In 1962, Belkin illustrated an unnumbered seta (indicated by dashed lines) on the figures of *Aedes (Stegomyia) futunae* Belkin and *Ae. (Stg.) rotumae* Belkin which corresponds to the location of seta 13-CT. Huang and Hitchcock (1980) illustrated a seta (labeled 5-C on the metanotum) of the pupae of *Ae. (Stg.) upolensis* Marks and *futunae* which is clearly seta 13-CT. Within the genus *Aedes* Meigen a well developed seta 13-CT is also found in the pupae of a few African species of the subgenus *Aedimorphus* Theobald (E. L. Peyton, personal communication).

The pupa of *Orthopodomyia flavithorax* Barraud has the metanotum with a fourth pair of setae each of which is three or four branched (Zavortink 1968). Zavortink's illustration shows this unnumbered seta to be mesocaudad of seta 12-CT. He stated, "The development of the fourth pair of hairs on the metanotum of this species is unique in the genus."

Berlin (1969) reported "an accessory hair caudad of hair 12-C" on the pupal metanotum of *Toxorhynchites (Toxorhynchites) gigantulus* (Dyar and Shannon). His illustration shows this seta to be single and approximately 0.5 of the length of seta 12-CT. There is no doubt that this seta is 13-CT.

In 1973, Zavortink illustrated a seta (designated x) on the pupae of *Anopheles (Kertezia) neivai* Howard, Dyar and Knab and *pholidotus* Zavortink which corresponds in location to seta 13-CT. Seta 13-CT also has been observed occasionally on the pupae of *Anopheles* Meigen species of the subgenus *Nyssorhynchus* Blanchard (M. E. Faran, personal communication).

Peyton (1973, 1977) found that the pupae of most species of *Uranotaenia* Lynch Arribalzaga possess either a well developed seta, an alveolus or a small spicule/spur located slightly caudolaterad of seta 12-CT. He designated this seta 13-CT and stated he believed its presence to be a general characteristic for the genus *Uranotaenia*.

Marks (1976) noted the presence of seta 13-CT on the pupae of two species of the genus *Bironella* Theobald [*confusa* Bonne-Wepster and *soesiloi* (Strickland and Chowdhury)].

Seta 13-CT on the pupal metanotum is probably a primitive feature which has been lost in many extant species of mosquitoes. This premise is supported by the fact that this seta is found consistently in only a relatively few taxa of the family Culicidae and that it occurs sporadically in others as noted in the preceding records.

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Fig.1