

A VARIETY OF ANOPHELES *KARWARI* COLLECTED
COORG, S. INDIA

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FROM

THE INDIAN JOURNAL OF MEDICAL RESEARCH, Vol. XVI, No. 2, Oct. 1928.

CALCUTTA

THACKER, SPINK & CO

1928

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[Received for publication, May 28, 1928.]

A. karwari var. *majidi*.

DURING March and April, a considerable number of anopheline, which appears to be a variety of *A. karwari*, was bred out from larvæ collected in grassy slow running streams.

As this anopheline differs in its markings from the characteristics assigned to this species in the 'Synoptic Table for the identification of the *Anopheline Mosquitoes of India*,' issued by the Central Malaria Bureau (Bulletin No. 2), it appears to be worthy of description.

Palps.—Instead of four white bands on the palps, this variety has only three white bands (Plate XXXIX, fig. 3).

The distal segments of the palps have a white tip, behind which is a black band, succeeded by a white area at the basal portion of the fourth segment. This white area is continued over the joint to the apical portion of the median palpal segment, thus forming a white band which is equal in area to the broad white band at the apex.

At the joint between the second and third segments there is a narrow white band, and except for a very small share in this, the two basal segments of the palp are entirely black.

Wing.—These differ in some of their markings from those described for this species by James and Liston (1911).

The costa shows five large dark scaled areas, owing to the coalescence of the two small areas on the basal portion into one long black area (Plate XXXIX, fig. 1).

The black areas on the first costal vein do not correspond to the black scaled areas on the costa.

That portion of this vein, which is opposite the black area on the inner quarter of the costa, is white, and is unbroken by the two black spots described by James and Liston. The third and fourth black areas on this vein are halved by a white area which may or may not show a few black scales (Plates XXXIX, fig. 1).

The other wing veins show some minor and inconstant variations from the type of the species.

Occasionally, a few white scales may indicate the white break on the inner quarter of the costa, but in the majority of our specimens the costa is all black, and the first costal vein all white in this situation; in other respects the mosquito conforms to the type description.

Legs.—The legs are entirely unspckled, and the shape of the scales on head, thorax and abdomen is according to type.

Larval Characteristics.

These were determined from larval skins of hatched-out and identified specimens of this variety.

The anterior clypeal hairs are absolutely unfrayed and unbranched, the external being about half the length of the internal (Plate XXXIX, fig. 2).

The posterior clypeals are small and unbranched, and situated midway between and behind the origins of the anterior clypeals.

The basal hair is plumose.

The thoracic palmate hairs are vestigial.

The abdomen carries seven pairs of palmate hairs; those on segment 1 are somewhat smaller than those on segments 2 to 7, but are quite definitely recognisable as such, both in size and shape (Plate XXXIX, fig. 5).

The leaflets are 'steepled' and have well-marked terminal filaments which are about quarter the length of the 'blade' (Plate XXXIX, figs. 4 and 5).

These features agree with the larval characters given by James and Liston, who state that 'the median and external frontal hairs are simple and unbranched. The thorax does not carry palmate hairs.'

They do not agree with those given by later observers.

Strickland (1927), in his identification table of Indian Anopheline larvæ, states that the clypeal hairs are frayed, that there are palmate hairs on abdominal segments 2 to 7 only, and that the leaflets are truncate, and he gives figures in illustration thereof.

Knowles and Senior-White, in their key to the larvæ of Indian Anophelines (1927), also state that the clypeal hairs are frayed and that the leaflets of the palmate hairs are truncate.

We have satisfied ourselves from a critical examination of the considerable number of these larvæ that have been through our hands, that the clypeal hairs

of this variety are absolutely unfrayed (Plate XXXIX, fig. 2), and that the palmate hairs terminate in a filament (Plate XXXIX, figs. 4 and 5).

We can find no reference to the characters of the basal hairs in the descriptions to which we have at the moment access.

We are advised by Major J. A. Sinton, v.c., o.b.e., I.M.S., Director, Malaria Survey of India, that, in the specimens of *A. karwari* in the Malaria Bureau in Kasauli, although none of them seem to have a dark inner quarter of the costa, in some of them the white spot is very small, and he points out that Rodenwaldt (1924), in the Dutch East Indies, describes a variety in which the basal portion of the costa has more black than the Indian variety.

In regard to the palps, he advises us that he can find no mention of a three-banded palp in this species but that in the Kasauli specimens the basal band may be very narrow, especially the proximal one.

In none of our specimens is there any trace of a fourth band on the female palps, and in the male palps also, there are but three white bands—two broad distal bands and one narrow proximal band.

In view of the fact that the three-banded palp of this variety, as collected by us in Coorg, introduces a difficulty in the use of the synoptic table employed by so many Indian workers, this, taken in conjunction with the difference in the characteristics of its larva as compared with the descriptions given by recent workers, seems to us to justify the suggestion that this variety is sufficiently definite to warrant recognition. If so, this variety may perhaps be named *A. karwari* var. *majidi*, after the junior writer who first collected it.

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EXPLANATION OF PLATE XXXIX.

Camera lucida drawings of *A. karwari* var. *majidi*, adult and larva.

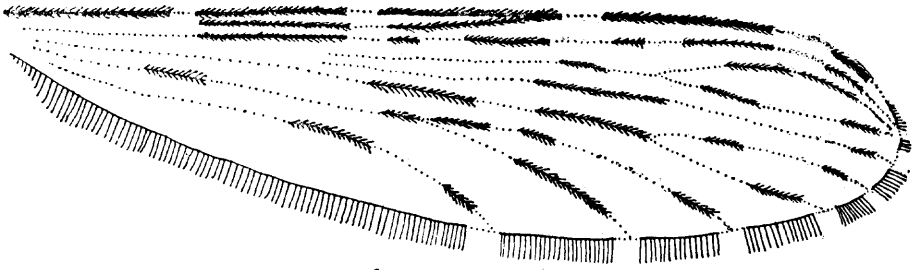
Fig. 1. Wing ♀.

„ 2. Cast skin of larval head.

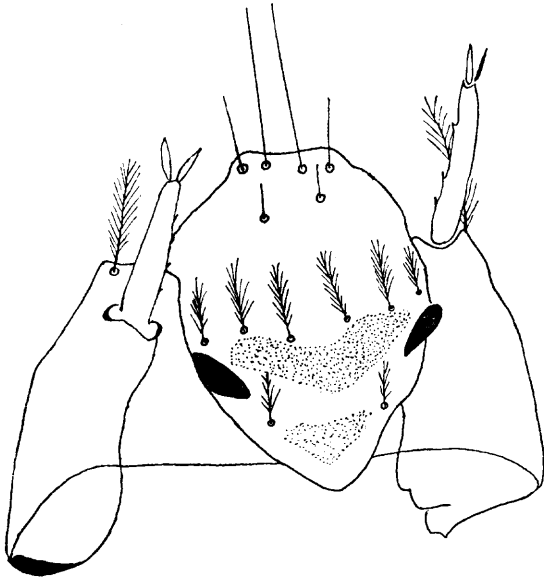
„ 3. Palp ♀.

Figs. 4 and 5. Palmate hairs of larva.

PLATE XXXIX.



1



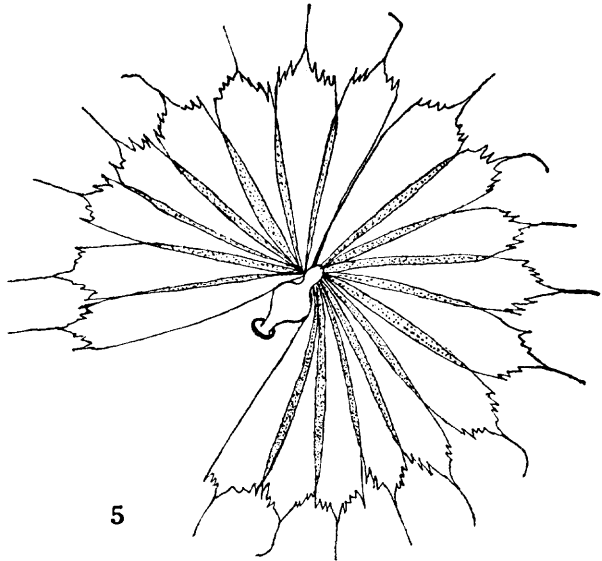
2



3



4



5

