IDENTIFICATION OF PTERIDINES IN *AEDES AEGYPTI* (L.) [1]

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Differences in chromatographic patterns of fluorescing components of mosquito extracts have enabled us to characterize and separate taxonomically indistinguishable strains of the yellow fever mosquito, *Aedes aegypti* L. (Micks *et al.* 1966a). More recently, we have extended this method to the *Anopheles gambiae* complex of Africa, an important group of human malaria vectors. In this instance too, the major species (A and B) comprising the complex, which are morphologically alike, were separated by their patterns of fluorescent compounds (Micks *et al.* 1966b, 1967).

With the establishment of the value of this biochemical taxonomic method, it became desirable to know the identity of the fluorescent constituents of mosquitoes on which it is based. A comparison of our chromatograms with those obtained by various *Drosophila* workers, suggested that the components visualized might be mostly pteridine compounds.

Chromatograms were prepared using extracts of adult females of nine strains of *A. aegypti* (Brazza Wild, Brazza Yellow, Cucuta, Isla Verde, Kenya, MD, Trinidad, UTMB, and X_2). The extraction procedure used was that of Murthy and Micks (1962) with the modification of Micks *et al.* (1966a). One-dimensional chromatograms on Whatman 3 mm filter paper developed in darkness in n-butanol-acetic acid-water (4:1:5) for 15 hours yielded thirteen fluorescing components when viewed under ultraviolet light (360 mμ). A second solvent system, propanol-ammonium hydroxide (2:1), was used to help identify these constituents, but not employed for routine chromatography of extracts.

Pure samples of pteridines, kindly supplied by Dr. Hugh Forrest (University of Texas), enabled us to identify five of the fluorescent components as pteridine com-

[1] Supported in part by a grant from the World Health Organization.

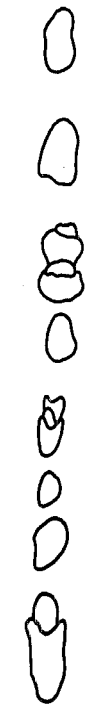

FIG. 1.—One-dimensional chromatogram of chloroform-ethanol extract of *Aedes ægypti* L. adults showing the fluorescing colors and Rf values of the components seen under ultraviolet light.

pounds, i.e., sepiapterin, biopterin, xanthopterin, 2-amino-4-hydroxy-6-carboxypteridine, and isoxanthopterin (Figure 1). Kynurenic acid, xanthurenic acid, the flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD) complexes, including riboflavin, were also identified after comparison of rate of flow values and color with those of commercially available products of relatively high purity. Although the FMN and FAD complexes are well known to be highly labile, containing many components which are extremely difficult to separate and identify, our purpose does not demand such extensive separation for adequate strain identification. The remaining three spots were unidentified.

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