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## A pictorial key to the species of *Aedes* (*Ochlerotatus* and *Coetzeemyia*) in the Afrotropical Region (Diptera: Culicidae)

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### Abstract

Six species of the subgenus *Ochlerotatus* and one species of the subgenus *Coetzeemyia* of the genus *Aedes* in the Afrotropical Region are treated in a pictorial key based on diagnostic morphological features. Brief remarks on the new reclassification of the genus *Aedes* are also included.

**Key words:** Culicidae, mosquitoes, identification key, Africa

### Introduction

Accurate species identification is of the utmost importance to any field studies of mosquitoes. Precise and simple keys are essential tools to successfully identify any target species. To assist entomologists and other field workers in identification of mosquitoes from Africa, we prepared a supplemental pictorial key to adult males and females of *Aedes* (*Ochlerotatus* and *Coetzeemyia*). This key will assist in the identification of *Aedes* species that may potentially carry viruses and other pathogens. Correct identifications are essential to the management and control of vector species, including prevention of epidemics of infectious diseases in many areas. A few diagnostic characters, indicated by a double asterisk (\*\*), were added where necessary to facilitate identification. Images of the diagnostic morphological structures of the adult head, thorax, leg and wing are also included in the supplemental pictorial key.

The term “Afrotropical Region” as used herein is the recommended term in zoogeography for the old name “Ethiopian Region” (Crosskey & White, 1977). This area is approximately encompassed within 35° south to 20° north latitude, and 18° west to 52° east longitude (see Map 1, in Huang 1990: 59). This area also corresponds to the “Ethiopian Area” of the World Mosquito Faunal Areas (see Belkin 1962, Vol. 2, page 18).

### Material and methods

This study is based on specimens in the Department of Entomology, National Museum of Natural History, Smithsonian Institution (USNM). Other specimens were borrowed from individuals and institutions mentioned in the acknowledgments.

The terminology follows Harbach & Knight (1980, 1982) with the exception of “tarsal claws”, which is retained for “ungues”. The wing venation follows Belkin (1962).

## Subgenus *Coetzeemyia*

### 1. *Aedes* (*Coetzeemyia*) *fryeri* (Theobald, 1912b)

**Medical Importance.** *Aedes* (*Ochlerotatus*) *caballus* (Theobald) has been reported as a vector of Rift Valley fever (Gear *et al.* 1955), Wesselsbron Virus and Middelburg Virus (Kokernot *et al.* 1957, 1958, 1960). Moreover, individuals of this species were found to be naturally infected with West Nile Virus (Arbovirus Unit, SAIMR, unpublished; McIntosh 1973). McIntosh *et al.* (1962) isolated the Spondweni Virus from a pool of 42 female mosquitoes identified as either *Ae. fryeri* or *Ae. (Aedimorphus) fowleri* and collected in Lumbo, Mozambique.

**Remarks.** Due to taxonomic confusion in the past, *Ae. (Och.) caballus* included three species (*Ae. caballus*, *Ae. chelli*, and *Ae. juppi*).

Although Reinert *et al.* (2004, 2006, 2008, 2009) substantially revised the classification of the tribe Aedini, and some of their conclusions are warranted, we do not accept herein their classification because their results were based on partial treatments of several groups. Consequently, a large number of species remains without subgeneric placement. The African subgenus *Ochlerotatus*, for example, which currently consists of six species, has three species (*Ae. caballus*, *Ae. chelli*, *Ae. juppi*) placed in their new subgenus, *Ochlerotatus* (*Juppius*); however, the other three species (*Ae. breedensis*, *Ae. caspius*, *Ae. harrisoni*) remain unplaced (see Reinert *et al.* 2009). Thus, the new reclassification of the genus *Aedes* proposed by Reinert *et al.* (2004, 2006, 2008, 2009) is incomplete and needs comprehensive taxonomic analysis.

In the present paper, we follow Edwards' (1932) classification of the genus *Aedes*, retaining both *Ochlerotatus* and *Coetzeemyia* as subgenera of the genus *Aedes*.

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