



## Pictorial Keys to the Species of the Subgenera *Albuginosus* and *Aedimorphus* (Grjebinei and Apicoannulatus Groups) of the Genus *Aedes* Meigen in the Afrotropical Region (Diptera: Culicidae)

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### Abstract

Nine species of the subgenus *Albuginosus*, one species of the subgenus *Aedimorphus* Grjebinei Group and two species of the subgenus *Aedimorphus* Apicoannulatus Group of the genus *Aedes* Meigen in the Afrotropical Region are treated in three pictorial keys based on diagnostic morphological features.

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

### Introduction

Precise and simple keys are essential tools for the accurate identification of species of mosquitoes, and correct identifications are necessary for the management and control of vector species, including prevention of epidemics of infectious diseases. The purpose of this paper is to provide pictorial keys to species of the subgenera *Albuginosus* and *Aedimorphus* (Grjebinei and Apicoannulatus Groups), and thus, to facilitate their accurate identification.

Edwards (1941) divided the genus *Aedes* Meigen into nine subgenera in his “Mosquitoes of the Ethiopian Region”. Reinert (1987) removed *Aedes marshallii* (Theobald) from the Apicoannulatus Group of the subgenus *Aedimorphus* Theobald and defined a new subgenus, *Albuginosus*, for that species and its relatives. Reinert included nine species, previously assigned to the subgenus *Aedimorphus*, in *Albuginosus*. Reinert (1987: 307) noted in the introduction that “Adults of *Ae. grjebinei* also were not available for examination, but there is no doubt this species should be included in *Albuginosus* based on the information provided in the original description.” After a critical study of all known specimens, it is apparent that *Ae. grjebinei* should not be included in the subgenus *Albuginosus* because it bears thoracic characters of *Aedimorphus*, and we hereby assign it to its own group (Grjebinei) within *Aedimorphus*.

To assist entomologists and other field workers in the identification of mosquitoes from Africa and to clarify the taxonomic status of *Ae. grjebinei*, we provide three pictorial keys as add-ons to the keys of Huang (2001). A few additional characters, indicated by double asterisks (\*\*), were added as needed to facilitate identification. Images of diagnostic morphological structures of the adult head, thorax, legs and wing are also included in the supplemental pictorial keys.

### Material and methods

This study is based on specimens in the mosquito collection of the Department of Entomology, National Museum

genus, *Elpeytonius* Reinert, Harbach & Kitching, 2009. 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 fully 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. Thus, the new reclassification of the genus *Aedes* proposed by Reinert *et al.* (2004, 2006, 2008, 2009) is incomplete and needs comprehensive taxonomic analysis (Huang and Rueda 2014).

## Medical Importance

Brottes *et al.* (1966) isolated the Bunyamwera Virus from a mixed pool of *Ae. capensis*, *Ae. kummi* Edwards, *Ae. mutilus* Edwards, *Ae. simulans*, and *Ae. tarsalis* group of species in Cameroun. Berge (1975) isolated the Middleburg Virus from *Ae. marshallii* in Natal, South Africa. *Aedes stokesi* was considered to be a potential vector of Yellow Fever Virus in the Ivory Coast (Cordellier and Geoffroy 1974), in the lowlands of Arba-Minch District of Ethiopia (Ardoin *et al.* 1976), and in Senegal (Cornet *et al.* 1978).

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