

INTRODUCTION

Keys for the identification of *Anopheles* mosquitoes are required for studies on the epidemiology and transmission of malaria. Many of the illustrated keys to the *Anopheles* of Thailand (Peyton and Scanlon, 1966; Rattarithikul and Harrison, 1973) are of limited value, as these were published more than 20 years ago and significant advances in our knowledge of the *Anopheles* mosquitoes have occurred in the intervening years. The purpose of the keys presented in this paper is to assist entomologists to identify larvae and adult female *Anopheles* mosquitoes. The keys can be used to initially identify specimens to species group and then to species. Discriminating characteristics are highlighted in drawings and, whenever possible, were chosen so that they could be differentiated using a hand lens (10x) or dissecting microscope (10-40x). The morphological characters used here are based on original observations and previous usage in the literature. The following references were especially helpful: Christophers (1933), Colless (1956, 1957), Reid (1968), Harrison (1972, 1980), Harrison and Scanlon (1975), Rattarithikul and Green (1986), Harbach *et al.* (2005), Linton *et al.* (2005), and Sallum *et al.* (2005). Nomenclature for morphological characters follows Harrison and Scanlon (1975), Harbach and Knight (1980, 1982), and Wilkerson and Peyton (1990). Generic and subgeneric abbreviations are those of Reinert (2001), Tanaka (2003), and Harbach *et al.* (2005).

SIBLING SPECIES AND GENETIC VARIATION IN ANOPHELINE MOSQUITOES

Combinations of morphological and other systematics methods have proven very useful in the recognition of sibling species in many groups of insects, most notably the medically important anopheline mosquitoes. Many anopheline taxa previously recognized as medically important in Southeast Asia have recently been found to be complexes of morphologically indistinct species. These discoveries suggest that in many Asian countries there is a need for the reassessment of primary vector species that were originally recognized solely on morphological methods. Important vector species should be reconfirmed using a combination of other appropriate techniques, including cytogenetic, biochemical, and molecular methods as exemplified by Baimai (1988a-d), Green (1982), Green *et al.* (1992), Panyim *et al.* (1988), and Rongnoparut *et al.* (1996, 1998, 1999), rather than relying on morphological criteria alone. The non-morphological methods are particularly useful if one has access to adult progeny (with associated larval and