

First Record of *Anopheles albimanus* from St Kitts

H Mohammed^{1,2}, J Smith³

ABSTRACT

Objective: Previous mosquito surveys performed in the Federation of St Kitts and Nevis identified *Anopheles albimanus* in Nevis but there is no recorded occurrence of this mosquito in St Kitts. To determine the presence of this and other species in St Kitts and Nevis, a mosquito survey was conducted.

Methods: Surveys were performed in two phases – the dry season (March 16–23, 2010, in St Kitts), and the rainy season (October 18–25, 2010) in St Kitts and Nevis. BG Sentinel™ mosquito traps baited with BG Lure® and CO₂ were set in a variety of habitats (urban, rural, semi-urban, dry forest and mangrove). Identification was performed using morphological keys.

Results: The most abundant species during both phases were *Culex quinquefasciatus*, *Aedes taeniorhynchus* and *Aedes aegypti*. A new record for St Kitts was *Anopheles albimanus* which was trapped during the rainy season near a mangrove site.

Conclusion: This is the first time a potential malaria vector has been identified in St Kitts.

Keywords: *Anopheles*, St Kitts, new record

Primer Registro de *Anopheles albimanus* de Saint Kitts

H Mohammed^{1,2}, J Smith³

RESUMEN

Objetivo: Las encuestas previas sobre mosquitos realizadas en la Federación de Saint Kitts y Nevis identificaron al *Anopheles albimanus* en Nevis, pero no hay registro de este mosquito en Saint Kitts. El objetivo de esta investigación fue determinar la presencia de esta u otra especie de mosquito en Saint Kitts.

Métodos: Se realizaron encuestas en dos fases – la estación seca (16–23 de marzo de 2010, en Saint Kitts), y la estación lluviosa (18–25 de octubre de 2010) en Saint Kitts y Nevis. Trampas BG Sentinel™ para mosquitos preparadas con BG Lure® y CO₂ se colocaron en diversos habitats (urbano, rural, semi-urbano, bosque seco y manglar). La identificación fue realizada usando claves morfológicas.

Resultados: Las especies más abundantes durante ambas fases fueron *Culex quinquefasciatus*, *Aedes taeniorhynchus* y *Aedes aegypti*. Un nuevo registro para Saint Kitts fue *Anopheles albimanus*, atrapado durante la estación de lluvias cerca de un manglar.

Conclusión: Esta es la primera vez que se identifica un vector potencial de la malaria en Saint Kitts.

Palabras claves: *Anopheles*, Saint Kitts, nuevo registro

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From: ¹University of Trinidad and Tobago, Arima, Trinidad and Tobago, West Indies, ²Ross University School of Veterinary Medicine, West Farm, St Kitts and Nevis, West Indies and ³Fairfax County Health Department, Fairfax, Virginia, USA.

Correspondence: Dr H Mohammed, University of Trinidad and Tobago – O'Meara Campus, Lots 74–98 O'Meara Industrial Park, Arima, Trinidad and Tobago, West Indies. E-mail: hamish.mohammed@utt.edu.tt

INTRODUCTION

Classic surveillance studies on the mosquitoes of the Caribbean were performed in the 1960s (1) but these predate the major range expansions of invasive species such as *Aedes albopictus* [Skuse] (2). At that time, the numbers of mosquito species identified in St Kitts and Nevis were eleven in St Kitts and nine in Nevis (1). Of note, *Anopheles albimanus* Wiedemann mosquitoes were collected in Nevis but no *Anopheles* species mosquito has ever been reported from St Kitts (3). The objective of this study was to perform a mosquito survey of St Kitts and Nevis, in an attempt to update previous records. For the purpose of this brief report, select findings from St Kitts will be discussed.

METHODS

Adult mosquitoes were collected using the BG Sentinel™ mosquito trap (Biogents AG, Germany) baited with BG Lure® and approximately 2 kg of dry ice as a CO₂ source. Trap sites were selected throughout St Kitts and included urban, semi-urban, dry forest and mangrove habitats. Trapping occurred during two phases: (i) the dry season (March 16–23, 2010), and (ii) the rainy season (October 18–25, 2010) in eleven and nine sites respectively. Identification was done using species descriptions and morphological keys.

RESULTS

In the dry season, 4279 female mosquitoes were trapped in St Kitts in 73 trap periods. In the rainy season, 2626 female mosquitoes were trapped in St Kitts and Nevis in 56 trap periods. The most abundant species during both phases were *Culex quinquefasciatus* Say (68% dry, 40% rainy), *Ae taeniorhynchus* Wiedemann (19%, 42%), and *Ae Aegypti* [L] (8%, 11%). Urban and semi-urban sites mainly yielded *Cx quinquefasciatus* and *Ae Aegypti* while those near mangroves yielded more species diversity. A new record for the island of St Kitts was *An albimanus*, the primary vector of malaria in Central and northern South America (4); two of these adult mosquitoes were trapped during the rainy season in separate trap periods on the edge of a coastal mangrove in Conaree. This site was located 3.7 km north-east of the capital, Basseterre, and within 10 m of the coast. Each of these two collections also contained numerous specimens of *Ae taeniorhynchus*, *Cx quinquefasciatus* and *Cx bahamensis* Dyar and Knab.

DISCUSSION

This is the first time a malaria vector has been collected on the island of St Kitts. Previous research has confirmed the presence of *An albimanus* in various islands of the Greater Antilles and Northern Caribbean, including the neighbouring islands of Nevis, Antigua and Barbuda. However, St Kitts has previously been regarded as free of *Anopheles* spp infestation. This has been attributed to its relatively small size

(168 km²) and limited ecological niches (3) but this report attests to the potential of mosquitoes to traverse international waters possibly *via* air travel on trade (5). A recently published report (3) stated that there were only 6 imported malaria cases reported from St Kitts and Nevis over the period 1980–2005. However, the recent outbreaks of malaria in Jamaica (6), chikungunya in Italy (7) and dengue in the Florida Keys (8), all highlight the risk of importation of vector-borne diseases after travel. As viable vectors exist throughout the region, continued surveillance for malaria in the non-endemic countries of the Caribbean is essential.

This survey was conducted over an 8-day period in the dry season and a 9-day period in the rainy season. It should be noted that the inability to trap a particular species does not rule out its presence in St Kitts. However, this is the first time a potential malaria vector has been identified on this island. Health authorities should be aware of the potential for autochthonous transmission of malaria in St Kitts, and include malaria on the differential for compatible illnesses.

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