The importance of Anopheles darlingi root, 1926 and Anopheles marajoara Galvão and Damasceno, 1942 in the transmission of malaria in the Municipality of Macapá, Amapá State, Brazil*

A importância do Anopheles darlingi root, 1926 e Anopheles marajoara Galvão e Damasceno, 1942 na transmissão de malária no Município de Macapá, Estado do Amapá, Brasil

La importancia del Anopheles darlingi root, 1926 y el Anopheles marajoara Galvão e Damasceno, 1942 en la transmisión de malaria en el Municipio de Macapá, Estado de Amapá, Brasil

Allan Kardec Ribeiro Galardo
Departamento de Zoologia, Laboratório de Entomologia Médica, Instituto de Pesquisas Científicas e Tecnológicas do Estado do Amapá, Macapá, Amapá, Brasil

Introduction: In the Municipality of Macapá, Amapá State, Brazil, malaria cases occur mainly in peri-urban areas, which are characterized by ressacas, forest fragments and disorderly settlements (land invasions). Objective: This study aimed to assess the importance of Anopheles darlingi and An. Marajoara in the malaria transmission cycle in Macapá. The study was performed in the Lagoa dos Índios community from October 2007 to September 2008. Results: Over a period of 360 h, 4,601 mosquitoes were trapped; these mosquitoes included 3,029 specimens of Anopheles marajoara (65.8%), 917 An. darlingi (19.9%), 429 An. braziliensis (9.3%), 203 An. Triannulatus (4.5%), 18 An. peryassui (0.4%), and five An. nuneztovari (0.1%). Of the specimens analyzed, 1,511 (32.8%) were collected inside homes (intradomicile), and 3,090 (67.2%) were collected in the areas immediately surrounding homes (peridomicile). The human/h biting rate for An. darlingi ranged from 0 to 6.5 in intra-domicile and from 0 to 22 in peri-domicile areas; for An. marajoara the rate ranged from 0 to 22 in intra-domicile and from 0 to 175.5 in peri-domicile areas. The analysis of 200 larva and pupa exuviae and the dissection of 100 male genitalia were used to confirm the species identifications, which showed that An. marajoara is the only species of the albitarsis complex that circulates in the area. The number of vectors varied according to the seasonal pattern of local rainfall. An. darlingi was the most abundant species in the beginning and end of the rainy season (50.5%), whereas An. marajoara was detected at high density throughout the rainy period (92%). Of the 4,601 mosquitoes tested by ELISA, 100 were positive for human plasmodia; of these, 71 (2.34%) were An. marajoara, 28 (3.05%) were An. darlingi, and one was An. braziliensis (2.17%). Conclusion: This study showed that both species studied maintain their malaria transmission rates throughout the year, which confirms their importance as vectors of this disease.

Keywords: Anopheles; Insect Vectors; Malaria; Seasonal Variations; Longitudinal Studies; ELISA.

* This dissertation was submitted to the Post-Graduation Program in Biology of Infectious and Parasitic Agents of the Universidade Federal do Pará on March 11, 2010, as a partial fulfillment of the requirements for the degree of PhD in Biology of Infectious and Parasitic Agents. The author was advised by Professor PhD. Marinete Marins Póvoa. Belém, Pará State, Brazil.