

WHERE ARE THE RESTING-PLACES OF *ANOPHELES AQUASALIS* MALES?

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Anopheles (Nyssorhynchus) aquasalis Curry, 1932 is a brackish water mosquito with a geographic range primarily restricted to the Atlantic coast, from Nicaragua to Southern Brazil, and known as a vector of malaria along the coastal lowlands of this country.

A study on the biology of this anopheline is being performed on a farm in Guaraí, a lowland area influenced by the tides in Guapimirim, Rio de Janeiro State, Brazil, at 22° 41' S, 42° 57' W. The flat terrain is covered by pastures, with some trees and small banana and sugar-cane plantations. Very few houses are scattered on the farm and there is an open wooden stable for the cattle overnight resting. A house 100 m from this stable was selected as a station for domiciliary captures. *An. aquasalis* is the dominant species in the locality, accounting for 99% of the total anophelines collected.

Mosquito captures were carried out using three types of tools: the traditional manual collector tube (see O. P. Forattini, 1962, *Entomologia Médica*, Univ. São Paulo, vol. 1, 662 p.), an insect aerial net and a portable suction apparatus (D. Natal & D. Marucci, 1984, *Rev. Saúde Públ.*, S. Paulo, 18: 418-420 p.) slightly modified.

Captures were performed three times a month: (1) indoors, at night, on the walls of the domiciliary station, from November, 1991 to December, 1992; (2) on the internal wooden surfaces of the stable, at night, from January to December, 1992; and (3) during the day, in various potential natural resting-places in the adjacent area, from May to November, 1992.

Results (Table) indicate the preference of the males to rest outdoors: out of a total of

6,603 specimens of both sexes taken in all types of capture, only 39 (1.1%) of the 3,533 caught indoors were males. It is also clear that the eventual presence of cattle did not attract the males, since only 0.1% of the total 2,679 specimens captured in the stable were of this sex. On the contrary, females represented more than 98.9% of the specimens caught indoors and almost 100% of those found in the stable.

Among the natural resting places males definitely preferred the shaded and very humid lower side of decayed tree trunks, where, 1,470 *An. aquasalis* were captured, of which 1,265 (86.1%) were males. On these trunks mosquitoes rested within 25 cm of the ground. These places were more protected from the wind, had lower temperatures and light intensity and high humidity.

Banana plantations were second in preference as outdoor resting-places for *An. aquasalis* males (Table). The mosquitoes were found on the lower parts of banana stems near the ground, on old banana leaves fallen to the ground and on the stumps of recently chopped trees, the latter being favoured by the males, which seemed to be feeding on fluids or resin oozing from the cut edges.

Along the pasture, *An. aquasalis* mosquitoes were primarily detected deep inside grass tufts but no higher than 40 cm. Here, only 75 males were caught, representing 9.7% as against 695 females.

Most of the females captured in all natural resting places had recently taken a blood meal.

There is scanty information on the resting-places of neotropical anophelines of the subgenus *Nyssorhynchus*, particularly those used by males. Usually, very few males are collected in surveys. The results presented here show that *An. aquasalis* males are rare in domiciliary captures but abundant in natural

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TABLE

Anopheles aquasalis adults captured at different resting places in Guaraí, Rio de Janeiro State, Brazil

Resting – places	Number		Total	% Males
	Males	Females		
Artificial				
Indoors at the domiciliary station	37	817	854	4.3
Interior wooden surfaces of the stable	2	2,677	2,679	0.1
Sub total	39	3,494	3,533	1.1
Natural				
Tree trunks	1,265	205	1,470	86.1
Banana plantation	364	466	830	43.9
Grass	75	695	770	9.7
Sub total	1,704	1,366	3,070	55.5
Total	1,743	4,860	6,603	26.4

resting-places. Similar resting-places were described by R. C. Shannon (1935, *Amer. J. Trop. Med.*, 15: 67-81 p.), R. C. Barnes (1945, *J. Econ. Ent.*, 38: 114 p.), M. Bates (1949, *The Natural History of Mosquitoes*. The Macmillan Co., New York, 378 p.) and O. P. Forattini (loc. cit.) for other species. The fact that we caught more males inside the house than in the stable is probably because there they were protected from the sea-breeze and moderate winds common in the locality.

The most striking information coming out from these ongoing field observations is that

An. aquasalis males prefer to rest in open terrain, on humid decayed tree trunks. These places are additional targets for insecticide spraying in campaigns against this malaria vector, besides the traditional treatment of indoors walls. Reducing male density by insecticide spraying of these resting places could reduce, indirectly, the local population by diminishing the insemination rates of females.

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