

ISOLATION OF DENGUE VIRUS TYPE 1 FROM LARVAE OF *Aedes albopictus* IN CAMPOS ALTOS CITY, STATE OF MINAS GERAIS, BRAZIL

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A serological survey carried out in the western part of Minas Gerais state, Brazil, in 1991, showed autochthonous dengue type 1 infections in 12 of 23 municipalities (J. C. Serufo et al., 1993, *Rev. Saúde Publ.*, São Paulo, 27, in press). Campaigns for the control of *Aedes aegypti* were then carried out in the urban communities of the region and an active epidemiological surveillance for dengue virus transmission was established.

From June 1992, 2,953 serum samples from suspected cases were examined; by April 1993, the presence of three confirmed cases in the city of Campos Altos, where no *Ae. aegypti* was detected, directed attention to this city. A team from the Virus Laboratory, Fundação Ezequiel Dias (FUNED) then initiated studies in the area.

The city of Campos Altos (about 19°S, 46°W), with nearly 11,100 inhabitants and 3,000 houses, is close to coffee plantations and to remaining forests. In May and June 1993, mosquito larvae and adults were collected in 14 breeding sites in urban and peripheral areas. These mosquitoes were pooled by species, each pool containing a maximum of 30 specimens. The distribution of mosquito species in the pools is shown on Table.

The mosquitoes were triturated in L-15 tissue culture medium, filtered and inoculated into the C6/36 line of *Ae. albopictus* mosquito cells at the FUNED Laboratories, Belo Horizonte. The isolated viruses were identified by immunofluorescence using monoclonal antibodies in a standard procedure (H. G. Schatzmayr

et al., 1986, *Mem. Inst. Oswaldo Cruz*, 81: 245-246). Sera obtained from 192 suspected dengue cases in the city were also examined. Eleven of these were confirmed as current or recent dengue infections by virus isolation and/or IgM capture ELISA.

Dengue virus type 1 was isolated from two pools of *Ae. albopictus* larvae collected in the breeding site 2 (Table) in old tires discarded in a canyon close to the urban area. The viruses were reisolated from the original pools and the results were confirmed at the Dengue Reference Laboratory, Fundação Oswaldo Cruz, by virus isolation and PCR (polimerase chain reaction) technique from one of the original larvae pools and by IgM capture ELISA of patient sera. No viruses were found in any of the other mosquito pools.

TABLE

Larvas and adult mosquitoes collected in urban areas and outskirts of Campos Altos City, state of Minas Gerais, June 1993

Breeding sites	Number of larvae/Number of adults		
	<i>Ae. albopictus</i>	<i>Ae. fluviatilis</i>	Other species
01	–	–	15/8
02	^a 743/92	–	181/54
03	–	–	6/3
04	–/1	–	28/–
05	–	–	233/–
06	–	–	36/–
07	–	–	87/–
08	385/–	–	–
09	–	41/–	631/22
10	–	–	26/–
11	–	–	–/18
12	–	–	17/–
13	–	–	29/–
14	–	114/4	39/6
Total	1,128/93	155/4	1,328/111

a: Dengue type 1 virus isolated from two larvae pools.

Vertical transmission of dengue virus by a Brazilian strain of *Ae. albopictus* was previously established by laboratory experiments (C. J. Mitchell et al., 1990, *J. Am. Mosq. Control Assoc.*, 6: 251-253) but the isolates from Campos Altos represent the first dengue viruses from naturally infected larvae of *Ae. albopictus* in Brazil.

The importance of this finding for the country is noteworthy, because it suggests that the methodology in use for vector control in urban areas, mainly directed to *Ae. aegypti*, may not eliminate dengue infections where *Ae. albopictus* is already established, as shown in the Campos Altos area.

The vector competence of *Ae. albopictus* for yellow fever is also an important factor to be considered in field evaluation and control programs of flavivirus in Brazil.

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