

## First isolation of dengue 1 virus from *Aedes aegypti* in Federal District, Brazil

Primeiro isolamento do vírus dengue 1 a partir de *Aedes aegypti*  
no Distrito Federal, Brasil

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**Abstract** Dengue is present in the Federal District since 1991 and virological studies of the vector began in 1998. Two strains of DEN1 were isolated from 9 pools of female *Aedes aegypti* (78 mosq.), collected in April in Gama county, where the Breteau index was 5.4, and 32 autochthonous human cases were notified.

**Key-words:** Isolation. DEN1. *Aedes aegypti*. Federal District.

**Resumo** A dengue está presente no DF desde 1991 e estudos virológicos sobre o vetor iniciaram-se em 1998. Duas amostras de DEN1 foram isoladas de 9 lotes de fêmeas de *Aedes aegypti* (78 ind.), coletadas em abril no Gama, onde o índice de Breteau era 5,4 e 32 casos autoctones foram notificados.

**Palavras-chaves:** Isolamento. DEN1. *Aedes aegypti*. Distrito Federal.

Imported dengue cases have been notified and laboratory-confirmed in Federal District (FD) since 1991<sup>4</sup>, with 9 isolations of DEN 2 virus<sup>8</sup>. From 1993 onwards, the number of cases increased, with detection of five autochthonous cases in 1997. During the first half of 1998, 296 and 13 cases were confirmed serologically (MAC ELISA) and by viral isolation, respectively. Of these, 75 were autochthonous, and the local transmission of DEN 1 virus was confirmed by 3 isolations. The Gama county alone, located at the border of Goiás State, provided 32 autochthonous cases (2 DEN 1 isolates) and was thus considered a high risk area.

Entomological surveys were conducted in houses where cases were suspected to be autochthonous. Mosquitoes were collected as they landed on people during afternoon. They were anaesthetized by cold, pooled (20 spec. max.) by species and sex, and conserved at -70° C until inoculation. The pools were inoculated in C6/36 cell cultures (*Ae. albopictus*). In the absence of cytopathic effect until the 7<sup>th</sup> day, a blind passage was done and then tested on 14<sup>th</sup> day by indirect immunofluorescence test with monoclonal antibodies to dengue 1-4<sup>9</sup>.

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A total of 117 mosquitoes (78 females and 39 males) was collected in 5 houses in Gama county, and pooled (9 and 7 pools of female and male, respectively). DEN 1 virus<sup>5</sup> was isolated from 2 pools of 4 *Aedes aegypti* females, collected on 27 April 1998, in Engenho das Lages, located 30 km from Brasilia on road BR060. Two other pools, made of 21 males, were negative. The owner of the house from which the positive mosquitoes originated began illness on 1<sup>st</sup> April, thus approximately 4 weeks before the capture of the mosquitoes was 0.45 mosq/man x hour (during mid afternoon) and, during the month of April, the larval house and Breteau indexes in Gama county were 3.8% and 5.4, respectively.

To our knowledge, isolation of dengue virus from *Ae. aegypti* in Brazil has been reported only

three times, despite the rise in epidemics during the last 15 years<sup>3</sup>. Some attempts failed to isolate any strain from mosquitoes, despite the great numbers of human cases<sup>1,10</sup>. The present study reports isolation of dengue 1 virus from adult female mosquitoes, in a context of low transmission rate (no. human cases / inhabitant) and low mosquito density, in contrast with former studies in other regions of Brazil<sup>2,7</sup>. In the study done in Niterói during an epidemic, isolations from mosquitoes were associated with high house and Breteau indexes (35.2% and 102, respectively)<sup>2</sup>. On the other hand, transmission with a low level of mosquito density has been already reported in Asia by K.T. Goh<sup>5</sup>, and S. K. Lam<sup>6</sup>. More studies are necessary to understand the characteristic eco-epidemiological factors of such regions as the Federal District.

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<sup>5</sup>isolates nr. 98043050 and 98043052