

RESEARCH NOTE

Susceptibility Status of *Aedes taeniorhynchus* to Organochlorine and Organophosphate Insecticides

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Aedes taeniorhynchus play an important role in the transmission of Eastern Equine Encephalomyelitis (EEE), an important medical-veterinary arbovirus. A Fernandez et al. (1973 *Rev Cub Hig Epid* 19: 35-40) isolated EEE virus from *Ae. taeniorhynchus* in Havana, incriminating it as a vector and demonstrating its involvement in arbovirus transmission. Chemical control strategies against *Ae. taeniorhynchus* are very important to control vector populations and transmission of EEE. However, it is first necessary to determine the susceptibility status of vector population to various insecticides. Hence, we

reported data on this subject using organophosphorus (5) and organochlorine (1) insecticides.

Larvae susceptibility tests in the laboratory followed the WHO procedure (WHO/VBC 81.807) using stock solutions of malathion, fenthion, fenitrothion, temephos, chlorpyrifos and DDT obtained from WHO. Late-third or early-fourth instar of *Ae. taeniorhynchus* larvae, collected in Rosario Beach, Guines, Habana Province were used. Eight tests were done for each insecticide. Each test consisted of four replicates each of six concentrations obtained by serial dilutions from each solution. Water used in the tests was obtained from immature habitats and ranged from 10-12 mg/l salinity (pH values ranged from 7.5 to 8.0 and were not significantly different).

Tests were conducted with mosquito samples collected during the rainy (May-October) and dry (November-April) seasons.

LC50 and LC90 values were calculated by probit analysis (M Raymond 1985 *Cahiers ORSTOM* 23: 117-121). Control mortality was corrected using Abbott's formula (WS Abbott 1925 *J Econ Entomol* 18: 265-267). Replicates with larval mortality > 20% were discarded and repeated. All tests were conducted under laboratory conditions at 26 ± 1°C.

LC50 and LC90 values are shown in the Table. *Ae taeniorhynchus* was more susceptible to chlorpyrifos than the other insecticides tested. According to the WHO procedure, above mentioned, we found the following discriminating doses to chlorpyrifos (0.008 mg/l); DDT (0.02 mg/l); fenthion (0.02 mg/l); fenitrothion (0.04 mg/l); malathion (1.0 mg/l) and temephos (0.008 mg/l). LC50 and LC90 values reported here for fenthion and malathion insecticides are very

TABLE

Susceptibility of *Aedes taeniorhynchus* larvae to organochlorine and organophosphate insecticides collected in Habana Province, Cuba, 1991-1992

Insecticides	95% Fiducial limits for LC 90		Regression					
	LC 50 (mg/l)	LC 90 (mg/l)	LCL	UCL	Equation	F	F	χ^2
Chlorpyrifos	0.00043	0.00107	0.00093	0.00129	5.16 + 3.2 lnX	12.90***		9.37
DDT	0.00172	0.00352	0.00318	0.00400	5.33 + 4.1 lnX	153.61***		4.38
Fenthion	0.00131	0.00318	0.00281	0.00373	5.26 + 3.3 lnX	11.52***		5.84
Fenitrothion	0.00149	0.00441	0.00377	0.00533	5.22 + 2.7 lnX	25.26***		8.64
Malathion	0.02588	0.09535	0.08260	0.11366	5.63 + 2.2 lnX	123.19***		8.94
Temephos	0.00068	0.00152	0.00136	0.00173	5.12 + 3.6 lnX	6.14**		5.44

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similar to those found by AH Boike et al. (1978 *Mosq News* 38: 210-217) using a susceptible strain from Florida, U.S.A.

Discriminating insecticide dosages for

Ae. taeniorhynchus obtained here, for the first time in Cuba, provide baseline data for monitoring the development of resistance to those insecticides used against this mosquito.