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SCIENTIFIC NOTE

AEDES ALBOPICTUS IN ALLENDE CITY, NUEVO LEÓN, MEXICO

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ABSTRACT. Nuevo León was the only 1 of the 3 northeastern states of Mexico where *Aedes albopictus* previously had not been shown to occur. However, of 195 samples of larval *Aedes* received during 1997 from the State Health Laboratory for identification from the 7th Sanitary District, Allende City, Nuevo León, 53 (27.2%) were identified as *Ae. albopictus.*

KEY WORDS *Aedes albopictus,* Mexico, dengue, *Aedes aegypti*

Since 1987, The Department of Health in Mexico has been carrying out entomological surveillance to detect the presence of *Aedes albopictus* (Skuse) in Mexico, after its probable introduction from neighboring Texas, USA. *Aedes albopictus* was 1st reported in Mexico in 1988 in Matamoros, Tamaulipas State (Francy et al. 1990). By 1992, *Ae. albopictus* was established in that city (INDERESSA, 1993). Thereafter, *Ae. albopictus* was found in 3 cities of Coahuila State (Ibáñes-Bernal and Martínez-Campos 1994, Rodríguez-Tovar and Ortega-Martínez 1994). Before the present survey, only a single report had been made of a larva of *Ae. albopictus* collected in a tin can on October 25, 1993, in Linares, Nuevo León (Orta Pesina, unpublished data), in spite of a systematic monitoring program for the species (INDRE-SSA 1993).

Allende City is located at 25°17′N, 101°01′W at an elevation of 674 m, in southeastern Nuevo León State, on the Gulf of Mexico coastal plain. Allende City has a temperate climate, with an annual median temperature of 18°C, rainfall of 69 mm, and relative humidity of 24%. Allende City is located along the path of many large cargo trucks going to and coming from the USA (Anonymous 1988).

By using standard collection methods for *Aedes* mosquitoes, 195 larval samples were obtained during 1997 in 8 localities in Allende City by dengue prevention and control personnel of the 7th Sanitary District. Samples were preserved in 70% alcohol and sent to the State Health Laboratory for identification with the keys of Darsie and Ward (1981) and Darsie (1986). Table 1 summarizes larval collections received for identification during 1997. Of the total number of larval samples, 53 (27.2%) were positive for *Ae. albopictus.* The 1st positive sample was collected during the 2nd week of June. Additional positive collections were made later in June and in July, August, and November. Among 8 neighborhoods in Allende where *Ae. albopictus* was detected, its relative positivity rate with respect to containers sampled was: Buena Vista, 19; Valle Dorado, 10; Diego López, 10; Nuevo Repueblo, 4; Benito Juárez, 3; Loma Prieta, 3; Fraccionamiento Río Ramos, 3; and the downtown city area, 1. Overall, more larvae of *Ae. albopictus* were collected than of *Aedes aegypti* (L.) in both permanent and disposable containers (Miller et al. 1992), with ratios of 1.32:1 and 1.2:1, respectively. Table 2 provides details of the breeding sites where both *Ae. albopictus* and *Ae. aegypti* were found. Of these, most containers were located outside houses (48 or 90.7%), whereas only 5 (9.4%) were situated indoors. Of the sites sampled, 39 (73.6%) were exposed to direct sunlight and 14 (26.4%) were in shaded areas. Rainwater was present in 32 (60.4%)

Table 1. Numbers of *Aedes albopictus* and *Aedes aegypti* collected in containers in Allende City, Nuevo León, Mexico, during 1997.

No. breeding sites	Epidemiological week	*Ae. albopictus*	*Ae. aegypti*	Ratio of *Ae. albopictus*: *Ae. aegypti*
Permanent				
1	24	1	2	0.50
3	25	15	1	15.00
9	29	15	29	0.52
10	30	38	22	1.73
0	31	0	0	0.00
2	35	8	4	2.00
0	45	0	0	0.00
Totals				
25		77	58	1.3
Disposable				
3	24	7	4	1.75
2	25	7	10	0.70
3	29	13	23	0.57
11	30	43	54	0.80
2	31	23	3	7.67
6	35	36	11	3.27
1	45	2	14	0.14
Totals				
28		131	119	1.2

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Table 2. Type of container, quantity, and frequency at which *Aedes albopictus* and *Aedes aegypti* were collected in Allende City, Nuevo León, Mexico, during 1997.

Type of container	Category[1]	Quantity	No. larvae produced		Ratio of *Ae. albopictus*:*Ae. aegypti*
			Ae. albopictus	*Ae. aegypti*	
Plastic container[2]	P	10	38	20	1.90
Aquatic plant[3]	P	9	24	21	1.14
Water drums[4]	P	3	3	8	0.37
Artificial pools	P	3	12	9	1.33
Bottle[3]	D	7	27	14	1.93
Plastic trays[5]	D	6	39	9	4.33
Tin plate	D	1	2	7	0.28
Glass bottle[4]	D	1	7	0	—
Used tires[4]	D	7	35	67	0.52
Toilet tanks	D	3	6	14	0.42
Washer tank	D	2	13	7	1.85
Not identified	D	1	2	1	2.00
Totals		53	208	177	1.2

[1] P, permanent; D, disposable.
[2] One container had *Ae. albopictus* and *Culex quinquefaciatus*; 1 had *Ae. albopictus, Ae. aegypti,* and *Ochlerotatus epactius;* and 2 had only *Ae. albopictus.*
[3] Four containers with *Ae. albopictus.*
[4] One container with only *Ae. albopictus.*
[5] Two containers with only *Ae. albopictus.*

of the containers and tap water was present in 21 (39.6%). Thirty-six (67.9%) breeding sites were shared by *Ae. albopictus* and *Ae. aegypti*; 1 (1.9%) site was shared by *Ae. albopictus* and *Culex quinquefasciatus* (Say); and 1 site was shared by *Ae. albopictus, Ochlerotatus epactius* (Dyar and Knab), and *Cx. quinquefasciatus.* Only *Ae. albopictus* was found in 15 (28.3%) of the 53 breeding sites sampled. Of the 36 breeding sites shared by *Ae. albopictus* and *Ae. aegypti, Ae. aegypti* was the more abundant species in 21 (58.3%), *Ae. albopictus* was more abundant in 12 (33.3%), and larvae of the 2 species were present in equal numbers in 2 (5.6%).

Allende City is the 1st city in Nuevo León State where *Ae. albopictus* has been detected. The results of this study demonstrate that *Ae. albopictus* can grow in a variety of permanent and disposable containers in Allende City. Nevertheless, because more larvae of both *Ae. albopictus* and *Ae. aegypti* were collected in disposable containers than in permanent containers (250 vs. 135 for both species), local citizens were advised to handle and discard disposable containers properly. Stress also was placed on the critical role of the participation of local citizens in preventing dengue outbreaks. The discovery of *Ae. albopictus* in used tires suggests a possible source of introduction to Allende City.

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