

## *Aedes aegypti* (Diptera: Culicidae) in Bahía Blanca city: incipient colonization in the entrance to Argentinian Patagonia?

GABRIELA ROZAS DENNIS<sup>1,2,3</sup>, MIRNA L. DAMIANI<sup>4</sup>

<sup>1</sup>Secretaría de Salud, Municipalidad de Bahía Blanca, <sup>2</sup>Departamento de Biología, Bioquímica y Farmacia, Universidad Nacional del Sur Bahía Blanca, <sup>3</sup>Grupo de Biofísica, Departamento de Física, Universidad Nacional del Sur, Bahía Blanca,

<sup>4</sup>Departamento de Saneamiento Ambiental, Subsecretaría de Gestión Ambiental, Municipalidad de Bahía Blanca, Buenos Aires, Argentina

E-mail: gabrielarozasdennis@gmail.com

*Aedes aegypti* Linnaeus, is the main vector transmitting Dengue virus, in tropical and subtropical regions, and in recent years Dengue fever has rapidly increased its incidence and severity in Latin American and the Caribbean countries<sup>1</sup>. This mosquito was eradicated in Argentina in 1963 but in 1986 it reappeared in the north-eastern region of the country and by the year 2000 its distribution had rapidly expanded south to Buenos Aires City and its suburbs<sup>2</sup>. In the 2009 outbreak in Argentina, many imported Dengue cases occurred and the first autochthonous ones were reported in Buenos Aires<sup>3</sup>. Besides, during the last dengue national epidemic in 2020, autochthonous cases were recorded as far south as Saladillo city (35°38'00''S, 59°46'00''O)<sup>4</sup>.

Bahía Blanca city is placed in the southwest of Buenos Aires province (38°43'S, 62°16'W), very near the limit of Patagonian region; with temperate climate and an annual average rainfall of 600 mm; this city is an important node connecting North and South regions of Argentina by means of railways, roads, sea ports and airport.

The local Municipality started in 2009 an integral surveillance program consisting in promotion and prevention tasks as well as vector surveillance throughout the city, installing ovipositional traps, *ovitrap*s<sup>5</sup>, in Health Units of Primary Care.

Neither eggs nor adults or other immature stages of *Ae. aegypti* were found until March

2016 when the first *ovitrap* resulted positive; by that same week a first female of *Ae. aegypti* was captured, and the second one in the following week.

Since then, "Focal Controls" started in those houses in which the adults were found and in those of the surrounding eight blocks, eliminating potential breeding sites for *Ae. aegypti*. All the focal controls were negative during 2016.

In February 2017 larvae and pupae of *Ae. aegypti* were found in a 5-litres glass container, not placed at sunlight, with a plant taking roots within dirty water.

Since 2017, the entomological surveillance in Bahía Blanca was reinforced and continued along the four seasons; there are currently different zones of the city in which *Ae. aegypti* is present (unpublished data) thus suggesting the area is already affected by this vector.

Knowledge of *Ae. aegypti* distribution is of great importance for integral programs in which both Estate and Community, have a very important role in vector control leading to determine areas of potential risk of diseases transmission.

The four risk factors for re-establishment of Dengue in Argentina<sup>6</sup> can be found in Bahía Blanca city, i.e. *Ae. aegypti* present, travellers returning from neighbouring endemic countries, human population with no immunity to Dengue Fever and finally, in many cases, substandard living conditions.

Although there have already been sporadic reports of *Ae. aegypti* presence in northern Patagonia region<sup>7,8</sup>, Neuquén and Río Negro, no established populations of this species were found up to date in such places. Instead, the sustained presence of adults and all the immature stages of *Ae. aegypti* in Bahía Blanca, shows a real possibility of the expansion of the species towards all Patagonia region.

We conclude that Government Institutions, such as Municipalities, must continue during the whole year with integral and sustained programmes in which members of the community should be included as main actors, well trained to do surveillance, and thus preventing

the geographical expansion of this vector, its establishment in the area and the consequent risk of emergence of indigenous Dengue Fever cases in it.

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