TOPIC: 2) Mosquito-borne diseases (dengue, malaria, fiebre amarilla, zika, chikungunya)
APPROACH: 2. Vector biology and eco-epidemiology

Possible biotic interactions that are affecting the presence of *Aedes albopictus* (Diptera: Culicidae) in Misiones, Argentina

Keywords: mosquito-borne diseases; vector biology; eco-epidemiology; biotic interactions; *Aedes albopictus*.

LIZUAIN, Arturo A.[1]; LEPORACE, Marina[2]; MAFFEY, Lucia[3]; GARZÓN, Maximiliano[3,4]; SCHWEIGMANN, Nicolás[3,4] & SANTINI, María S.[4,5]

1. Centro Nacional de Diagnóstico e Investigación en Endemoepidemias (CeNDIE). ANLIS "Malbrán". CABA. Argentina.
2. Fundación H.A Barceló, Laboratorio de Control de Vectores Entomológicos de Importancia Sanitaria. Santo Tomé, Corrientes. Argentina.
3. Grupo de Estudio de Mosquitos. UBA-FCEyN. CABA. Argentina.
4. Consejo Nacional de Investigaciones Científicas y Técnicas. CONICET. CABA. Argentina.
5. Instituto Nacional de Parasitología (INP). ANLIS "Malbrán". CABA. Argentina.
E-mail address: arlizuain@gmail.com

In Argentina, despite local *Aedes albopictus* presents a certain degree of egg dormancy that would allow to be present at temperate latitudes its distribution is limited to two provinces with a subtropical climate: Misiones and Corrientes. Therefore, it is possible that other factors are limiting the expansion of this vector. To evaluate possible interactions that are affecting population and spread of this specie, we sampled artificial breeding site in Eldorado (urban environment) and Colonia Aurora (rural environment), Misiones province, in October 2015, April and November 2016 and April 2017. We performed generalized linear mixed models to evaluate which variables (type of container, volume of water, and environment) are associated with the presence of *Ae. albopictus, Ae. aegypti*, and mosquito predators (*Lutzia bigoti* and *Toxorhynchites* spp.). Also, in each environment, relationship between *Ae. albopictus* and *Ae. aegypti* was quantified through Hurlbert's C8 association coefficient. In Eldorado we collected 17195 larvae from 258 containers. *Aedes aegypti* was dominant (66.69%), while *Culex quinquefasciatus* represented 19.06% and *Ae. albopictus* 6.49%. In Colonia Aurora, of 5319 specimens collected from 149 artificial breeding sites, *Cx. quinquefasciatus* was the most abundant species (38.50%), *Ae. albopictus* was the second most abundant (23.82%) and *Ae. aegypti* accounted 12.24%. The presence of *Ae. albopictus* was higher in the rural environment (probability: 0.25±0.08) than in the urban environment (0.14±0.06) ($\chi2$= 4.933; df=1; p= 0.026). It was also higher in containers with 1-10 liters (0.39±0.09) and 10-100l of water (0.42l±0.09) than breeding sites with 0-1l (0.05±0.04) and >100l (0.10±0.06) ($\chi2$= 19.228; df=3, p=2; 453e-4). The presence of *Ae. aegypti* was associated with the environmnet ($\chi2$= 36.196; df=1; p=1.784e-09). It was higher in the urban environment (0.96±0.02) than in the rural (0.38±0.08). The presence of predators was highest in the rural environment ($\chi2$= 4.048; df=1; p=0.044), reaching 29.03% of the breeding sites in November 2016. Regarding C8 index, *Ae. aegypti* was negatively associated with *Ae. albopictus* in Eldorado city (C8=-0.105) and in the rural municipality, these species presented a positive relationship (C8=0.376). These results show that in the urban environments the high abundance of *Ae. aegypti* could be affecting the presence and abundance of the Asian tiger mosquito as evidenced by local studies of larval competition. And, in the rural environment, although the abundance of *Ae. albopictus* is higher, its presence is lower than the presence of *Ae. aegypti*. Possibly, a higher presence of predators in the rural environment is also conditioning the Asian tiger mosquito.