LARVAL BREEDING SITES AND MOSQUITOES SPECIES ASSOCIATED FROM WEST NILE OUTBREAKS IN VENETO REGION

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INTRODUCTION

West Nile virus (WNV) is a mosquito-borne virus belonging to the family *Flaviviridae*. The natural cycles involved birds and mosquitoes, particularly *Culex* spp. and *Aedes/Ochlerotatus* spp. In Italy the first focus was reported in 1998 but in summer 2008 new WN outbreaks occurred in North-Eastern Italy. Following these cases, in October and November, five horse stables with WN cases, confirmed serologically positive by the National Reference Centre for Exotic Diseases, were visited looking for breeding sites and mosquitoes.

Fig 1 –Farms monitored looking for mosquitoes.

MATERIALS & METHODS

The farms were located in the Rovigo province (Veneto region) (fig.1). Adults mosquitoes were collected by CO_2 traps placed near the animals or by aspiration, whereas the larvae were caught on the same sites in temporary or stable breeding sites using a dipper. Larvae and adults were identified based on identification keys for Italian mosquitoes (Istituto Superiore di Sanità). The specimens were pooled and tested by RT-PCR for Flavivirus (1). Positive samples were tested for WNV (2).

RESULTS

In total, 210 specimens (larvae, adults and eggs) were collected. The larvae were collected in manhole, settling tanks, pneumatic tires and irrigation ditches (fig. 2). Larvae of the species *Cx. pipiens* and *Ae. albopictus* were found in manhole, larvae of *Culex* spp. and *Aedes/Ochlerotatus* spp. in pneumatic tires; in irrigation ditches only *Aedes/Ochlerotatus* spp. larvae were found. The CO_2 traps was able to collect adults of *Cx. pipiens*, *Ae. albopictus* and *Oc. caspius,* whereas aspiration collected only *Cx. pipiens*. The last species was the most prevalent as adults (64%) and the genera *Culex* as larvae (78%). Fifty-seven pools were tested by RT-PCR for Flavivirus and five were positive (8.7%). The positive pools are shown in table I. None of them was positive for WNV.

Fig. 2 – Breeding sites monitored. 1- settling tanks in Ariano Pol.; 2- pneumatic tires in Canaro; 3 irrigation ditches in Trecenta.

Date	Sites	Mosquitos	N°	Stage	PCR Flavivirus pool pos/pool tot.
07/10/08	Trecenta	*Culex sp.*	5	eggs	1/1
		Culex sp.	57	larvae	0/12
		Culex sp.	2	adults	0/1
		Culex pipiens	3	adults	1/2
		Ochlerotatus caspius	25	adults	0/8
		O. detritus	2	adults	0/1
		Aedes vexans	2	adults	0/1
		Aedes/Ochlerotatus	7	adults	1/2
		A. albopictus	2	adults	1/2
		Aedes/Ochlerotatus	17	larvae	0/3
23/10/08	Canaro	*Culex sp.*	11	larvae	0/3
		Aedes/Ochlerotatus	2	larvae	1/1
03/11/08	Ariano Polesine	*C. pipiens*	73	adults	0/19
		O. detritus	2	adults	0/1
	Ariano Polesine		0		
	Porto Viro		0		
Total			**210**		**5/57 pool**

Tab 1 – Mosquitoes collected and tested by PCR.

CONCLUSIONS

All mosquitoes identified at species level could be considered vectors of WNV and some of these, such as *Cx.pipiens*, *Ae.albopictus* and *Ae.detritus,* could play a role as possible bridge vector, being able to feed both on birds and humans. The mosquito population has never been screened before at the local level, so this study offer the first information on the occurrence of potential vectors of Flavivirus infection.

Bibliography

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