

# Comparative testing of two sticky traps to monitor resting *Aedes albopictus* and *Aedes koreicus* (Diptera: Culicidae) in Italy.

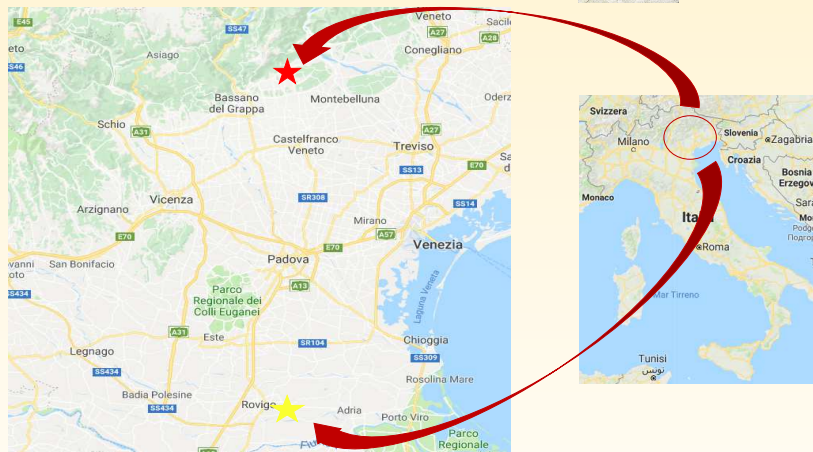
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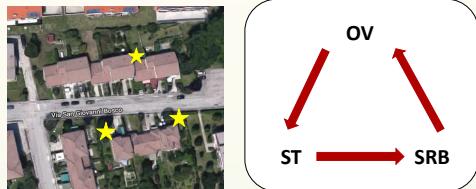
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**Introduction:** invasive *Aedes* species spreading in Europe, *Aedes albopictus*, *Ae. japonicus* and *Ae. koreicus* are currently present in Italy. Collection methods used for their sampling are based on ovitraps to collect eggs and BG-Sentinel to catch host-seeking mosquitoes; effective tools to collect blood-fed resting females are currently unavailable, despite the interest in studying the species feeding behaviour. We here present a comparative evaluation of the effectiveness of two sticky devices: **Sticky Trap (ST)** and **Sticky Resting Box (SRB)**, to collect resting and blood-fed females of the two species. The ST has been developed and tested for sampling of *Ae. albopictus* whereas the SRB was used in outdoor sampling of *Anopheles spp.* in Africa.



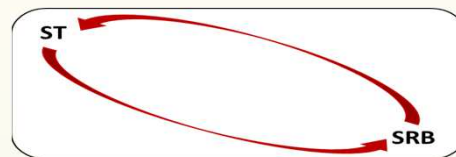
**Field test:** the test was performed in an area where *Ae. koreicus* and *Ae. albopictus* are sympatric (Cavaso del Tomba) and in an area where only *Ae. albopictus* is present (Rovigo). The two traps were also compared with ovitraps (OV) by a 3x3 Latin square.



**Results:** in the field, ST collected higher number of females than SRB (mosquito/trap/day: SRB-*Ae. albopictus* 0.52; SRB-*Ae. koreicus* 0.04; ST-*Ae. albopictus* 5.74; ST-*Ae. koreicus* 0.30; Kruskal-Wallis  $P < 0.0001$ ) and no blood-fed *Ae. koreicus* females were sampled with SRB (*Ae. albopictus* in ST=39; in SRB=1). The fed specimens sampled were all *Ae. albopictus* (ST=39; SRB=1).

	OVITRAP		STICKY TRAP		STICKY RESTING BOX	
	CT	RO	CT	RO	CT	RO
Eggs	1755 (73.1)	1852 (205.8)				
<i>Ae. albopictus</i> ♀			144 (5.7)	232 (25.8)	12 (0.4)	34 (3.8)
<i>Ae. albopictus</i> ♂			11 (0.4)	39 (4.3)	2 (0.1)	6 (0.7)
<i>Ae. koreicus</i> ♀			7 (0.3)	1 (0.0)	1 (0.0)	0 (0.0)
<i>Ae. koreicus</i> ♂			1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
<b>Total</b>	<b>1755 (73.1)</b>	<b>1852 (205.8)</b>	<b>163 (6.0)</b>	<b>271 (10.0)</b>	<b>15 (1.7)</b>	<b>40 (4.4)</b>

**Semi-field test:** test was performed in a green-house (3 m x 4 m x 2,6 m) where 30 fed ♀ *Ae. albopictus* and 30 fed ♀ *Ae. koreicus* of each species were contemporarily exposed to the two traps.



**Results:** in the green-house, ST and SRB showed non-significant differences for both species (three replicates; median rates: SRB-*Ae. albopictus* 5%; SRB-*Ae. koreicus* 6%; ST-*Ae. albopictus* 17%; ST-*Ae. koreicus* 3.5%; Kruskal-Wallis  $P = 0.44$ ).

Date	ST		SRB	
	<i>Aedes albopictus</i>	<i>Aedes koreicus</i>	<i>Aedes albopictus</i>	<i>Aedes koreicus</i>
Sept. 06th, 2017	1	4	0	3
Sept. 07th, 2017	7	0	3	2
Sept. 08th, 2017	9	0	1	1
Sept. 09th, 2017	15	3	2	2
Sept. 13th, 2017	1	1	0	0
Sept. 14th, 2017	0	1	1	1

**Conclusions:** ST is confirmed as a good tool to collect *Ae. albopictus*. Both devices may effectively collect the two species, although the very low *Ae. koreicus* densities outdoors did not allow to definitively assess the field effectiveness of SRB. Due to the rapid expansion of *Ae. koreicus* and its establishment in new territories, ST and SRB should be employed as additional tools to improve the surveillance of invasive mosquito species and to obtain new information about its ecology.