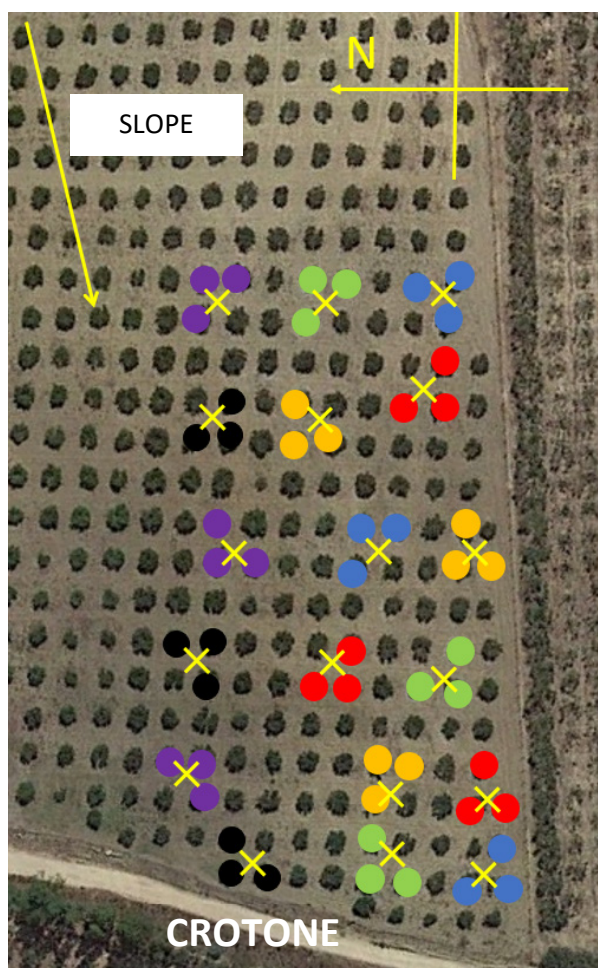
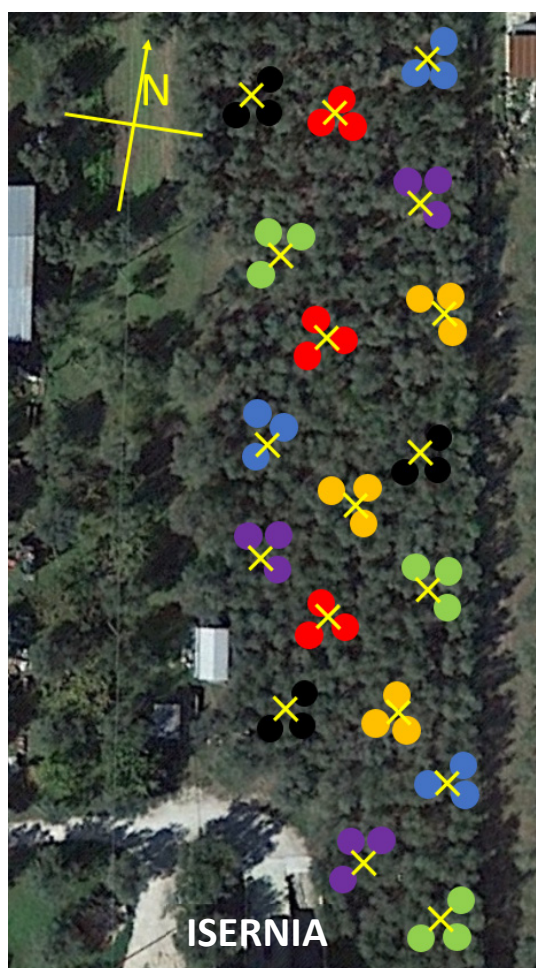


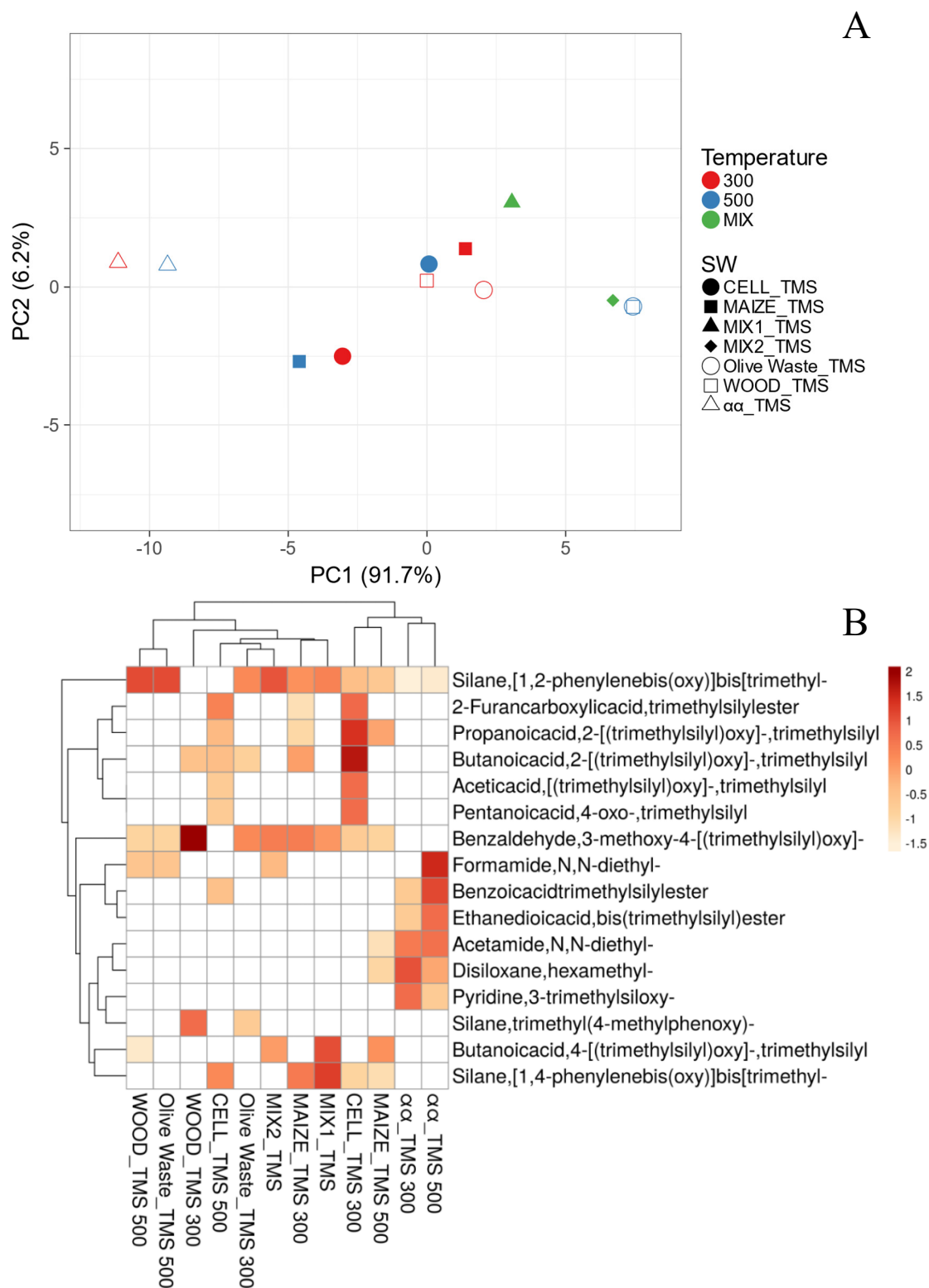
# 1 SUPPLEMENTARY MATERIALS



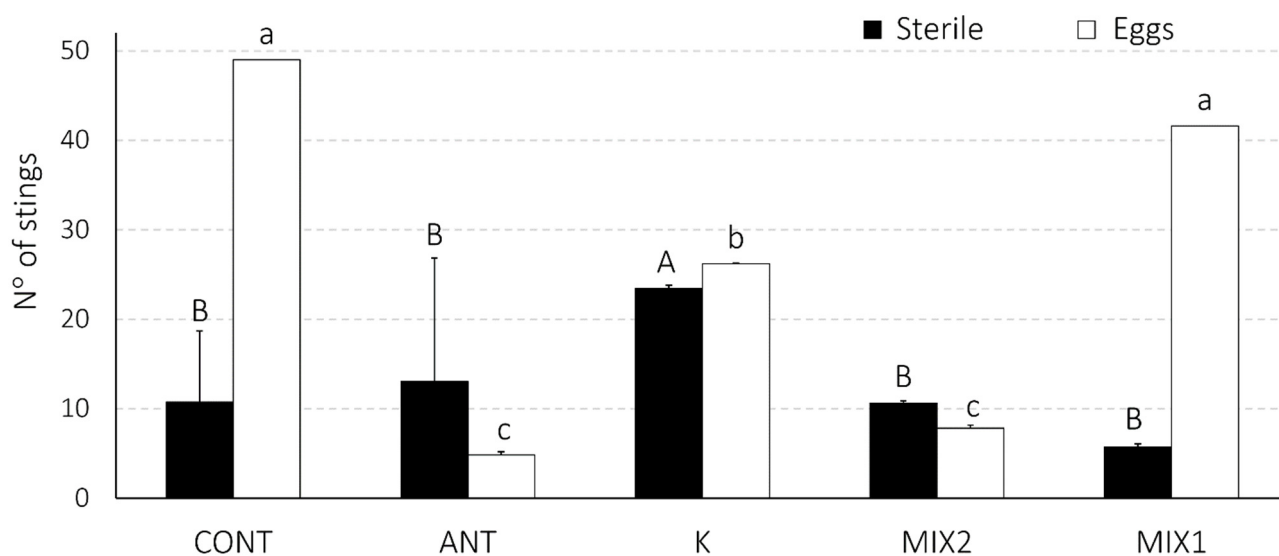
**Supplementary Figure S1a.** Cluster disposition during the trials carried out in Crotone (Calabria – Italy) during 2020. CAO (●) = Kaolin clay sprayed on the crowns; MIRI (●) = Isopropyl-Myristate, 15 ml per dispenser; MIX1 (●) = Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500 °C, 15 ml per dispenser; MIX2 (●) = Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 e 500 °C , 15 ml per dispenser; YT + attr. (●) = Control (Yellow Trap), panel + food bait and pheromone; YT (●) = Control (Yellow Trap); ✕ trap position.



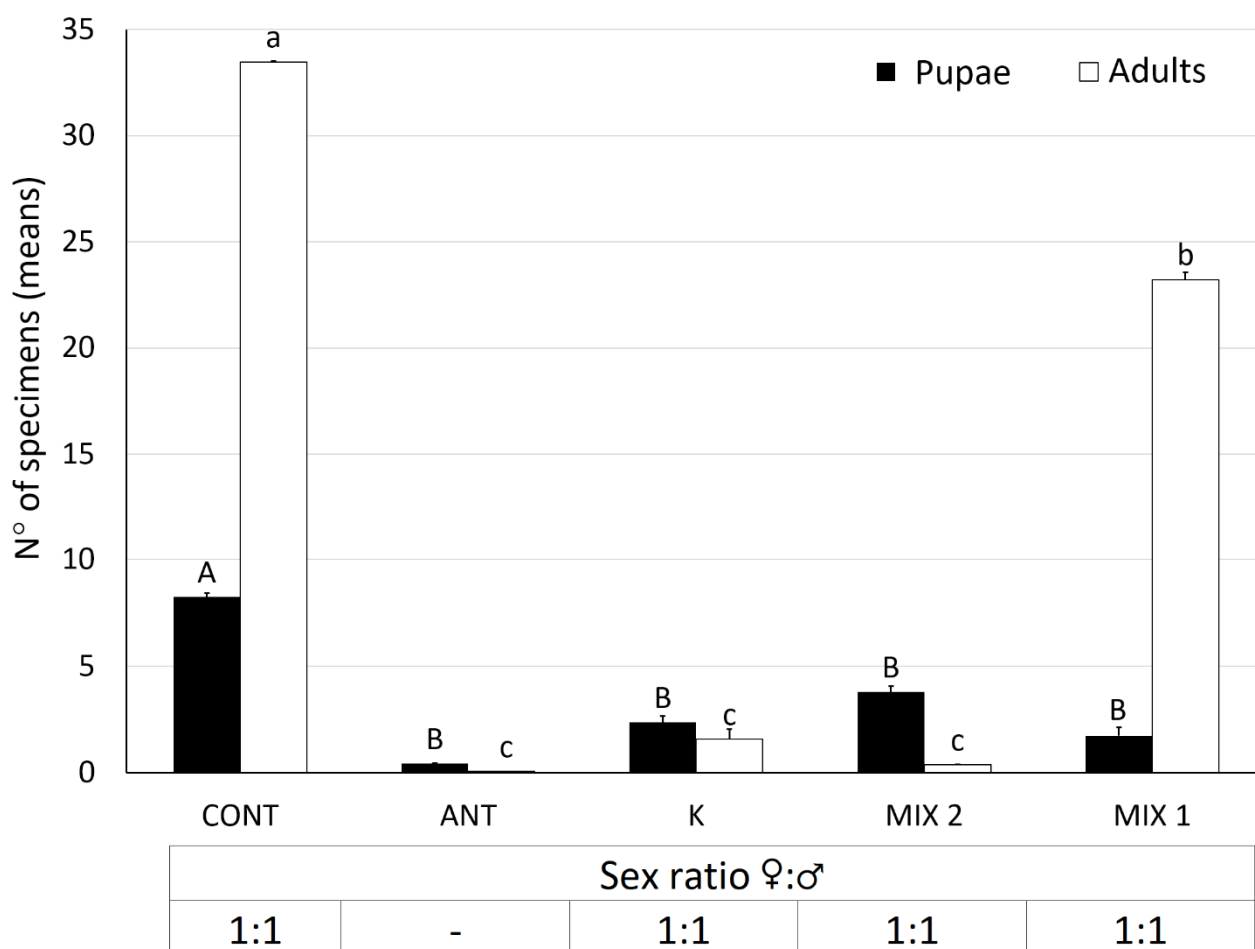
**Supplementary Figure S1b.** Cluster disposition during the trials carried out in Pozzilli (Isernia, Molise – Italy) during 2020. CAO (●) = Kaolin clay sprayed on the crowns; MIRI (●) = Isopropyl-Myristate, 15 ml per dispenser; MIX1 (●) = Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500 °C, 15 ml per dispenser; MIX2 (●) = Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 e 500 °C, 15 ml per dispenser; YT + attr. (●) = Control (Yellow Trap), panel + food bait and pheromone; YT (●) = Control (Yellow Trap); ✕ trap position.



**Supplementary Figure S2.** PCA analysis (A) and heat-map (B) of relative abundance of the different compounds identified in the SWs and their mixtures analyzed by GC–MS after the derivatization with Tetramethylsilane (TMS). αα 300 = SW obtained from alfalfa at 300 °C; αα 500 = SW obtained from alfalfa at 500 °C; MAIZE 500 = SW obtained from corn at 500 °C; MAIZE 300 = SW obtained from corn 300 °C; WOOD 500 = SW obtained from wood at 500 °C; WOOD 300 = SW obtained from wood at 300 °C; CELL 500 = SW obtained from cellulose at 500 °C; CELL 300 = SW obtained from cellulose at 300 °C; Olive Waste 500 = SW obtained from olive mill waste 500 °C; Olive Waste 300 = Smoke Water obtained from olive mill waste 300 °C; MIX2 = Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 and 500 °C; MIX1 = Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500 °C.



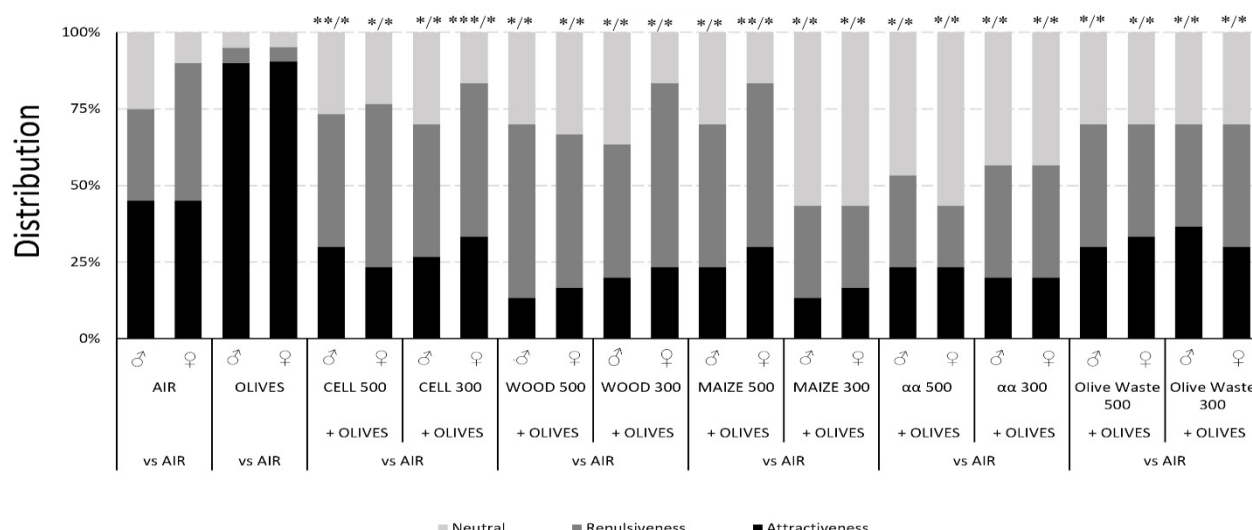
**Supplementary Figure S3.** Number of laying stings made by adult OLF and recorded after the ingestion bioassays: i) Sterile (black), without laying eggs; ii) Eggs (white), with eggs laid. CONT = Positive control corresponding to sucrose diet; ANT = Negative control corresponding to sucrose diet supplemented with the Piperacillin antibiotic; K = Karrikinolide 0.0001%; MIX2 = 150  $\mu$ l of Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 and 500  $^{\circ}$ C; MIX1 = 150  $\mu$ l of Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500  $^{\circ}$ C. Same letters means same significance (one way ANOVA test, Post-hoc test: Student-Newman-Keuls). Uppercase and lowercase letters are exclusively referred to Sterile stings and laid eggs respectively.



**Supplementary Figure S4.** Number of recorded specimens in the first OLF generation after the ingestion bioassays: i) Adults (white), emerged adults; ii) Puparia (black), specimens dead during the pre-imaginal stages; iii) sex ratio in the new emerged adults (lower tab). CONT = Positive control corresponding to sucrose diet; ANT = Negative control corresponding to sucrose diet supplemented with the Piperacillin antibiotic; K = Karrikinolide 0.0001%; MIX2 = 150 µl of Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 and 500 °C; MIX1 = 150 µl of Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500 °C. Different letters mean significance, one-way ANOVA test, Post-hoc Student-Newman-Keuls test. Uppercase and lowercase letters are exclusively referred to Pupae and Adults respectively.

<i>Number of copies</i>					
CONT	ANT	K	MIX1	MIX2	
1211.17	36.901	180.81	1801.00	146.80	<b>BULBS</b>
0.0196	0.0002	0.0031	0.1267	0.0109	<b>ABDOMENS</b>

**Supplementary Table S1:** Number of copies of “*Ca. Erwinia dacicola*” recorded with Real-Time qPCRs on OLF Oesophageal bulbs (BULBS) and abdomens (ABDOMENS) after ingestion assays. CONT = Positive control corresponding to sucrose diet; ANT = Negative control corresponding to sucrose supplemented with the Piperacillin antibiotic; K = Karrikinolide 0,0001%; MIX1 = 150 µl of Mixture in equal parts of the SWs obtained from olive mill waste at both 300 and 500 °C; MIX2 = 150 µl of Mixture in equal parts of the SWs obtained from cellulose, wood, corn and alfalfa at both 300 and 500 °C.



**Supplementary Figure S5.** Distribution (%) of the answers among attractiveness (black), repulsiveness (grey) and neutral (light grey) of the males (♂) and females (♀) OLF adults in olfactometry tests with the ten SWs presented, at 10% concentration. AIR vs AIR = control with both the lateral chambers left empty; AIR vs OLIVES = control with 12 olives, attractives, in contraposition with clean air; CELL 500 + OLIVES vs AIR= SW obtained from cellulose at 500 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; CELL 300 + OLIVES vs AIR= SW obtained from cellulose at 300 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; WOOD 500 + OLIVES vs AIR = SW obtained from wood at 500 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; WOOD 300 + OLIVES vs AIR = SW obtained from wood at 300 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; MAIZE 500 + OLIVES vs AIR = SW obtained from corn at 500 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; MAIZE 300 + OLIVES vs AIR = SW obtained from corn 300 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; αα 500 + OLIVES vs AIR = SW obtained from alfalfa at 500 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; αα 300 + OLIVES vs AIR = SW obtained from alfalfa at 300 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; Olive Waste 500 + OLIVES vs AIR = SW obtained from olive mill waste 500 °C offered in combination with 12 olives, attractives, and in contraposition with clean air; Olive Waste 300 + OLIVES vs AIR = SW obtained from olive mill waste 300 °C offered in combination with 12 olives, attractives, and in contraposition with clean air.  $\chi^2$  test carried out using the results recorded in the control test as expected ones and displayed referred to both controls AIR vs AIR and AIR vs OLIVES. \* = significance (p value < 0.005); \*\* = significance (p value < 0.01); \*\*\* = significance (p value < 0.05).