

Fig. S1. Percentage of response to an appetitive stimulation (35°C) of *Aedes aegypti* females, when tested at four different time windows. Groups of 10 six days old females were placed in plastic containers and exposed to the artificial feeder described in Fig. 1 during 5min. The number of females responding to a close range thermal stimulation was recorded for each group and the mean percentage of response was calculated for each time frame. 8-10h, early morning (63.6%; $n=11$ repetitions); 12-14h, noon (42.5%; $n=16$ repetitions); 16-18h, late afternoon (59.2%; $n=14$ repetitions); 01-03h, night (43.3%; $n=9$ repetitions). Different letters indicate significant differences (Pearson's Chi-squared test with Yates' continuity correction; $P<0.05$).

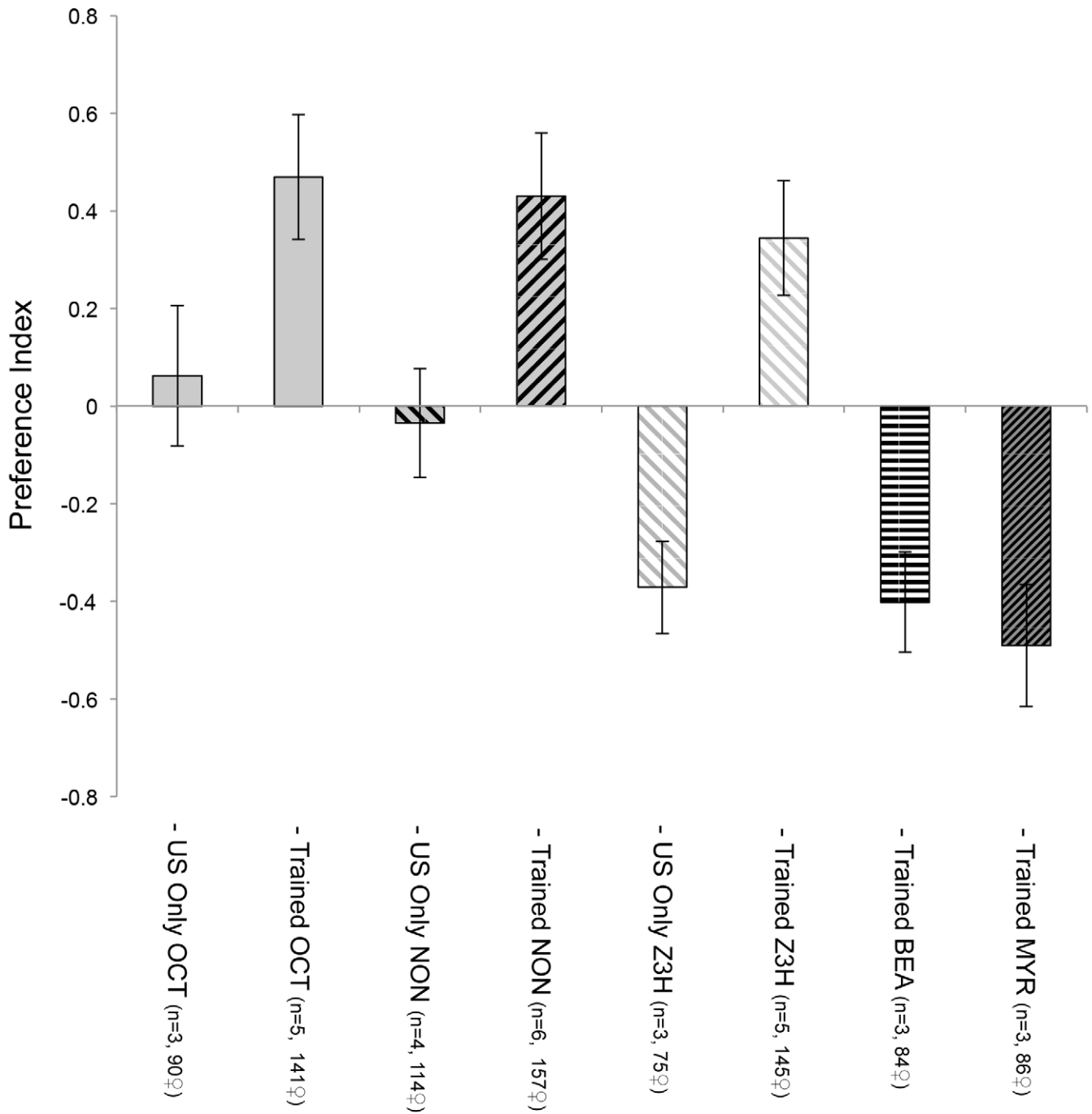


Fig. S2. Distribution of group trained *Aedes aegypti* females that were group tested in the olfactometer and given the choice between an olfactometer arm bearing clean air (white bars) versus an arm loaded with either: 1-octen-3-ol, OCT (grey bars), nonanol, NON (black hatching on light-grey background bars); hexenol, Z3H (grey hatching on white background bars); benzyl alcohol, BEA (black vertical stripes on grey background bars) and myrcene, MYR (black hatching on dark grey background bars). Preference is represented by the percentage of mosquitoes choosing each of the two test arms. Each bar represents an experimental group: *US Only*, untrained groups, exposed to the US alone during the first session; *Trained*, appetitive-conditioning groups. The relatively low number of repetitions in these preliminary experiments did not allow any reliable statistical analysis.

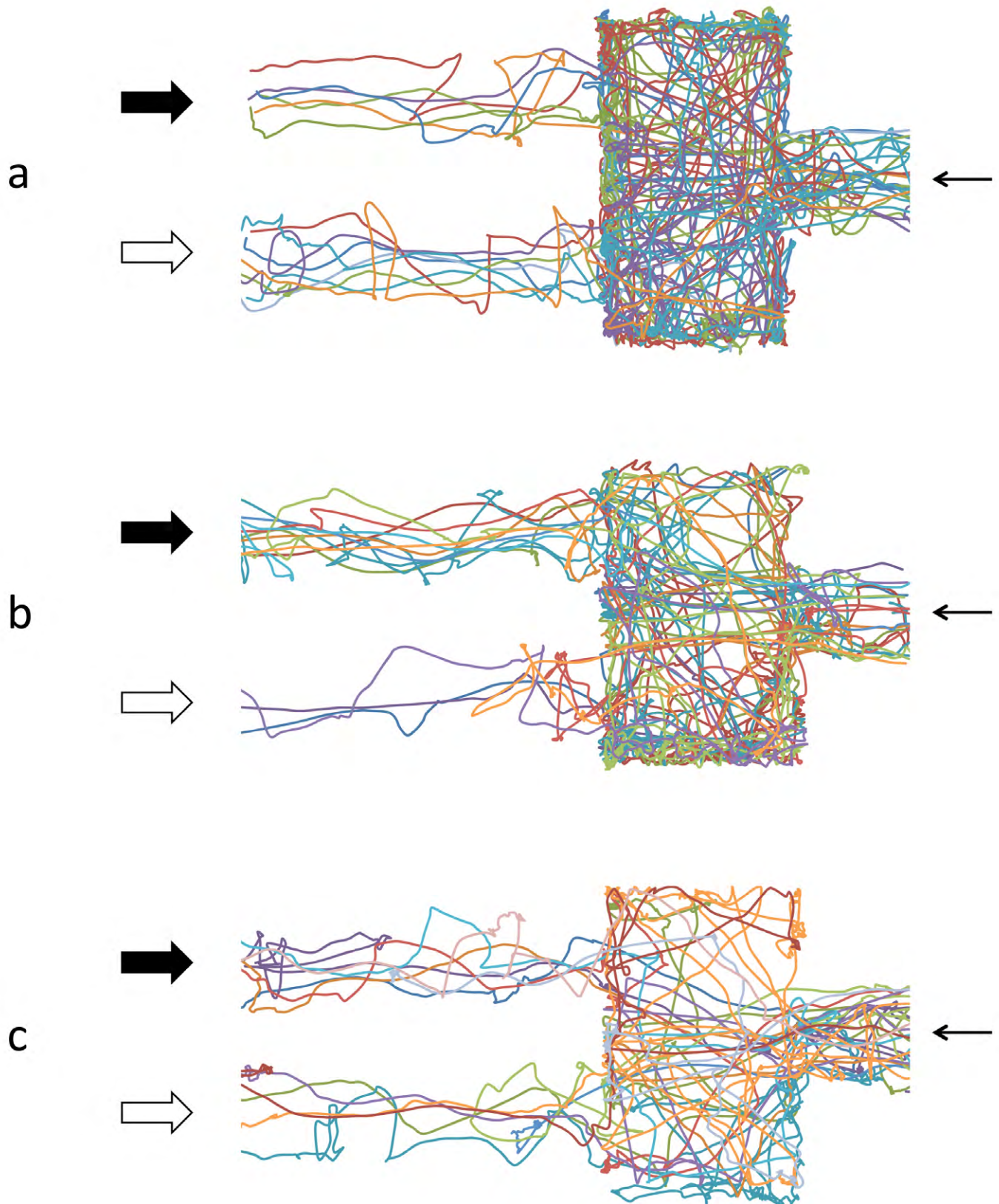


Fig. S3. Flight tracks of individually treated *Aedes aegypti*. Female mosquitoes were individually tested in the olfactometer and given the choice between two stimuli: clean air (white arrows) versus L-lactic acid, LA (black arrows). Thin arrows indicate the starting position of mosquitoes. a, naïve untrained insects (42% LA; $n=12$); b, trained untreated females (75% LA; $n=12$); c, trained females treated with 35 mmol l^{-1} CXM (54% LA; $n=11$). Each track represents one individual mosquito.

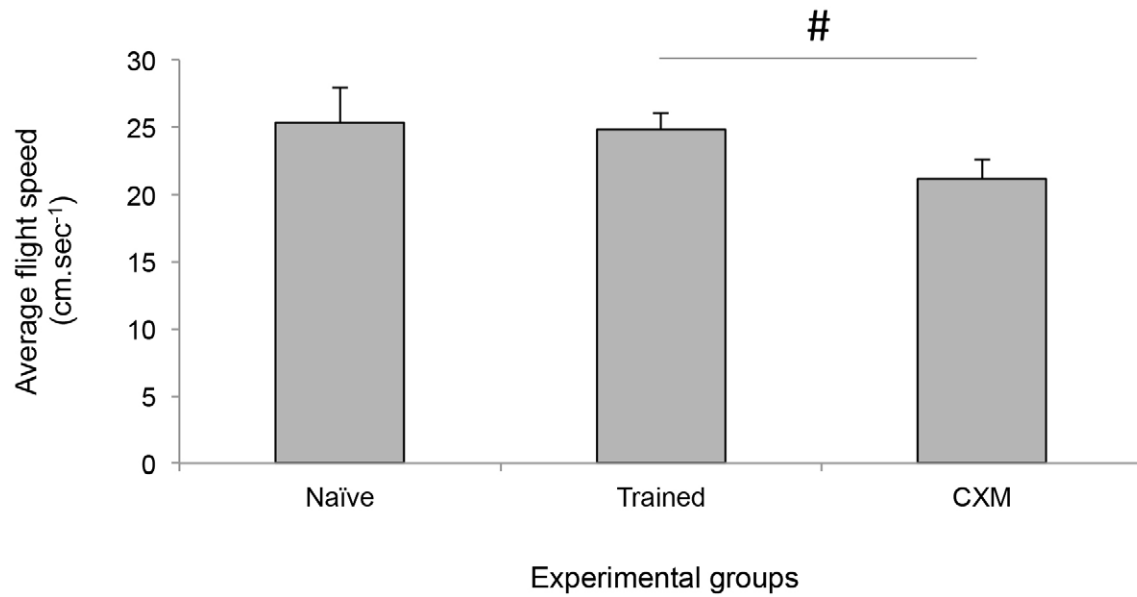


Fig. S4. Average flight speed of *Aedes aegypti* females tested in an olfactometer and confronted with two air currents: clean air versus L-lactic acid. *Naïve*, naïve untrained insects ($n=12$); *Trained*, trained untreated females ($n=12$); *CXM*, trained females treated with 35 mmol l^{-1} CXM ($n=11$). Hash sign indicates that Student's *t*-test: $P=0.064$.