

Supplementary material

Table S1 Amounts of Mandibular gland components from thoraces washes of pheromone carriers and synthetic QMP (PseudoQueen®) strips extracted at the end of experiments

	Amount in μg						
Thorax Wash	HOB	9- ODA	HVA	9- HDA	10- HDAA	10- HDA	Totals
Pseudoqueen 1	0	0	0	0	0	0	0
Pseudoqueen 2	0	0	0	0	0	0	0
Pseudoqueen 3	0	0	0	0	0	0	0
Pseudoqueen 4	0	0	0	0	0.01	0	0.01
Pseudoqueen 5	0	0	0	0	0	0	0
Marked worker 1	0	0	0	0	0	0	0
Marked worker 2	0	0	0	0	0	0	0
Marked worker 3	0	0	0	0	0	0	0
Marked worker 4	0	0	0	0	0	0	0
Marked worker 5	0	0	0	0	0	0	0
Marked worker 6	0	0	0	0	0	0	0
Marked worker 7	0	0	0	0	0	0	0
Marked worker 8	0	0	0	0	0	0	0
Marked worker 9	0	0	0	0	0	0	0
Marked worker 10	0	0	0	0	0	0	0
Umarked worker 1	0	0	0	0	0	0	0
Umarked worker 2	0	0	0	0	0	0	0
Umarked worker 3	0	0	0	0	0	0	0
Umarked worker 4	0	0	0	0	0	0	0
Umarked worker 5	0	0	0	0	0	0	0
Umarked worker 6	0	0	0	0	0	0	0
Umarked worker 7	0	0	0	0	0	0	0
Umarked worker 8	0	0	0	0	0	0	0
Synthetic QMP strips extracted after experiments							
	HOB	9- ODA	HVA	9- HDA	10- HDAA	10- HDA	Totals
Strip 1	4.33	27.82	0	18.56	0.23	0.17	51.12
Strip 2	0.91	24.66	0	15.47	0.17	0.05	41.27
Strip 3	6.24	38.07	0	26.21	0.32	0.17	71.02
Strip 4	4.69	29.68	0	19.87	0.24	0.08	54.56
Strip 5	5.28	33.44	0	23.00	0.28	0.17	62.16

Supplementary figures



Fig. S1 Pheromone carriers (PCs) (red ellipse) surrounded by other bees and white arrows showing marked bees not carrying pheromones that attract no special attention from other bees in the hoarding cages.

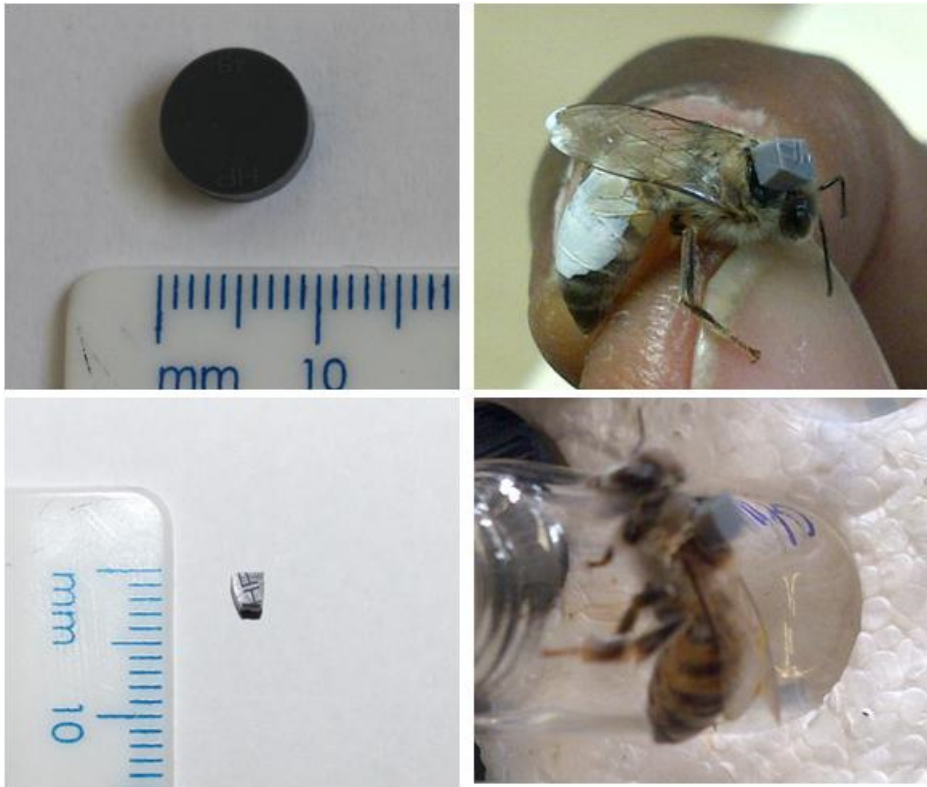


Fig. S2. Top and bottom left Gas chromatograph septa and cubes made from them. Top and bottom right, a worker bee with a septum cube on its thorax.

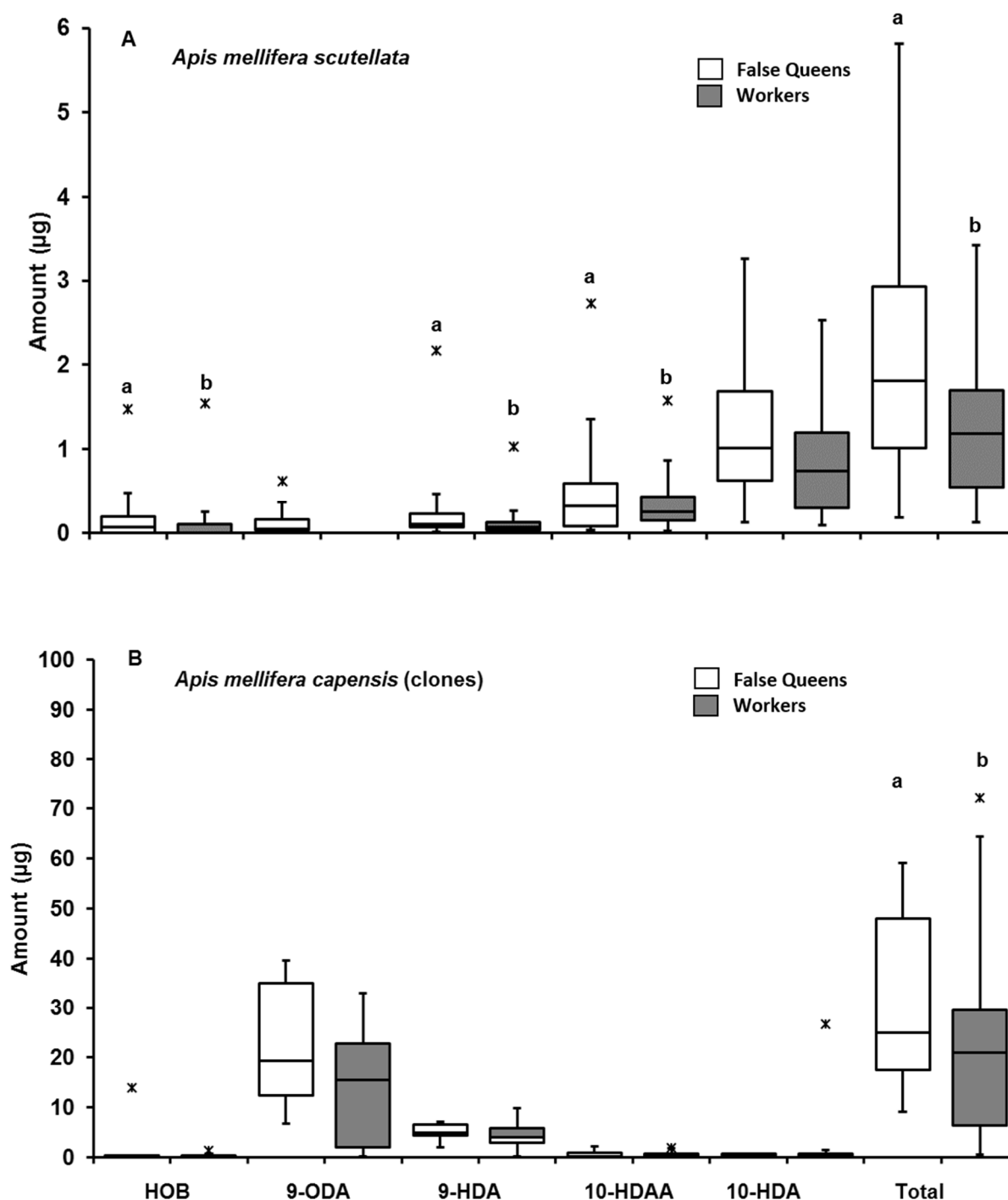


Fig. S3. Amounts of mandibular gland pheromones from cephalic extracts of *Apis mellifera scutellata* (A) *Apis mellifera capensis* clones (B), carrying Pseudo Queen® strips (open bars) and workers not carrying any strips (grey bars). Mandibular gland components are; HOB = *p*-hydroxybenzoate, 9-ODA = 9-oxo-2(*E*)-decenoic acid, 9-HDA = 9-hydroxy- 2(*E*)-decenoic acid, 10-HDAA = 10-hydroxy-decanoic acid and 10-HDA = 10-hydroxy-2(*E*)-decenoic acid. Middle lines shows the median, boxes represent 1st and 3rd quartiles, whiskers are lower and upper bounds, outliers are represented by asterisks. Different letters on top of bars indicates significant differences between groups (MWU, $p < 0.05$).

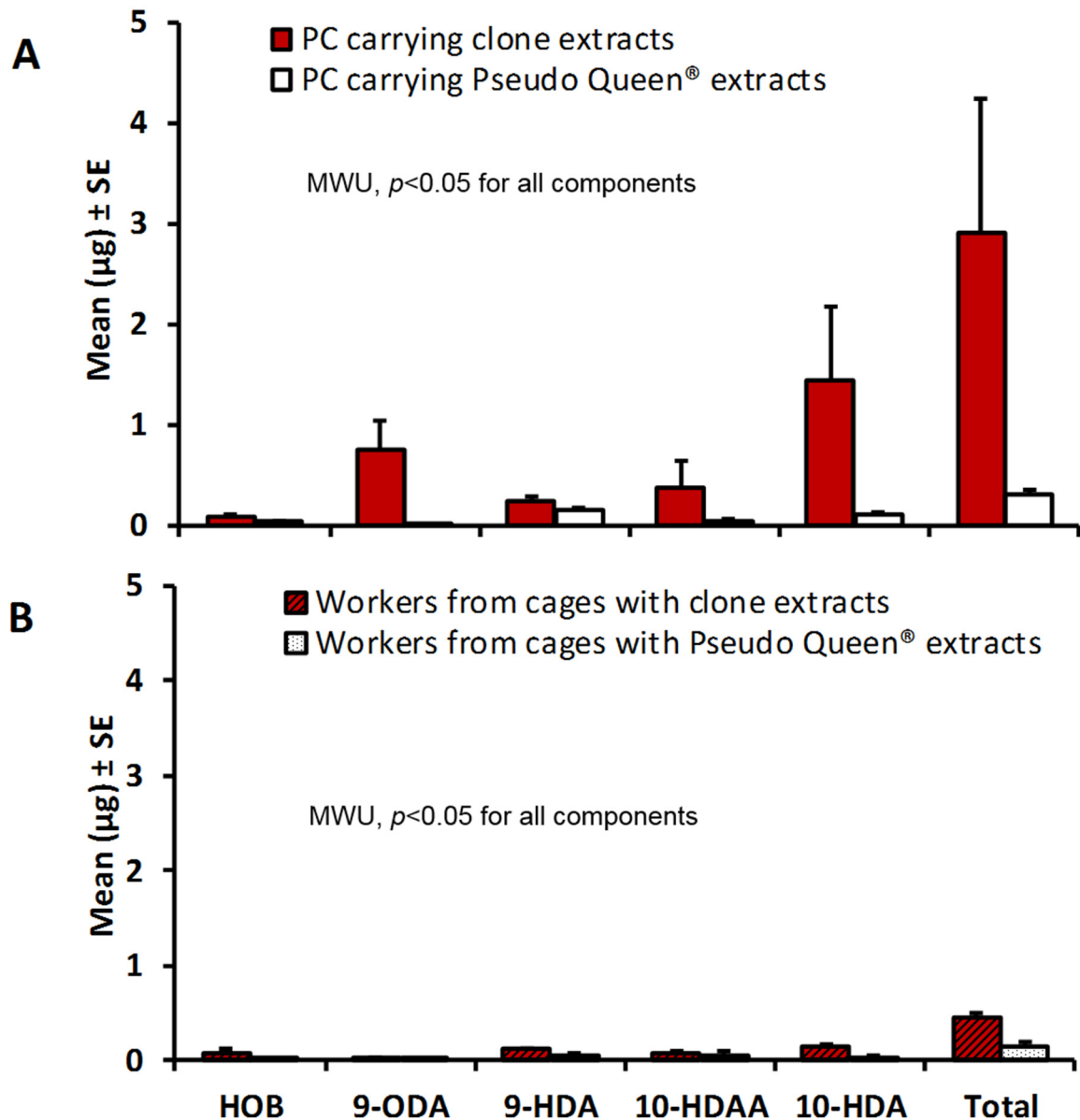


Fig. S4. Amounts of mandibular gland pheromone components from cephalic extracts *Apis mellifera scutellata* Pheromone carriers (PCs) carrying clone and those carrying Pseudo Queen® extracts (A). Proportions of mandibular gland pheromones from controls (non-pheromone carriers) reared in the same cages with clone extract PCs and with PCs carrying Pseudo Queen® extracts are shown in B. Different letters on top of bars indicates significant differences in the components between groups (MWU, $p < 0.05$).