

Supporting Information

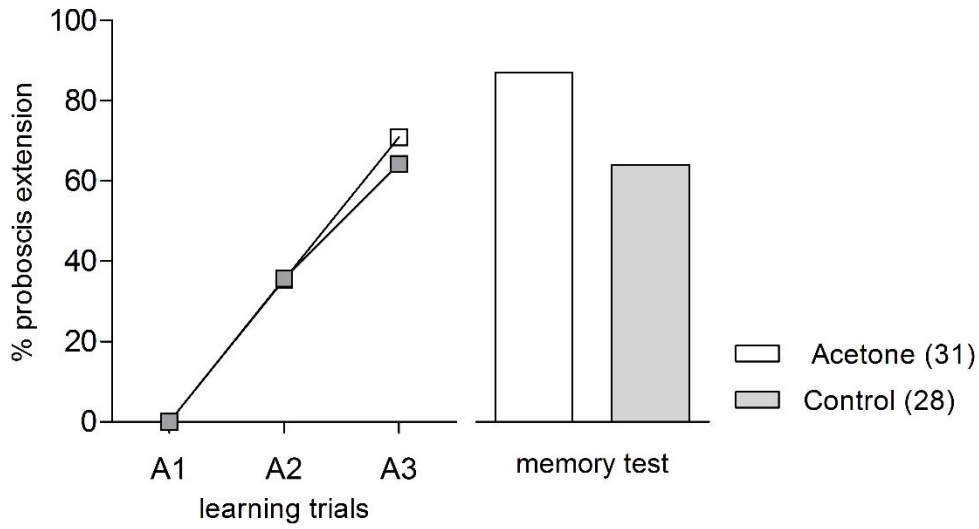


Figure S1. Memory retrieval after treatment with 0.5 % acetone. Retention score was determined 24 h after acquisition and 19 hours after treatment with 0.5 % acetone in sucrose solution. No difference was found between the two groups (Fischer exact test, $P = 0.064$). The number of individuals in each group is given in brackets in the legend.

Table S1. Mortality and response to the US test of bees intoxicated with thiacloprid or Calypso

treatment	% of bees dead after intoxic	significance (Chi square)	% of bees not responsive to US test (alive bees only)	significance (Chi square)
control	0.45	$\chi^2 = 1.009, df = 1,$ P = 0.32	4.52	$\chi^2 = 1.53, df = 1,$ P = 0.22
thiacloprid 69 ng	1.35		7.31	
control	3.10	$\chi^2 = 2.338, df = 3,$ P = 0.51	0.80	$\chi^2 = 1.517, df = 3,$ P = 0.68
Calypso® 120 ng	0.00		0.00	
Calypso® 12 ng	1.56		0.00	
Calypso® 1.2 ng	3.17		0.00	
control	4.26	$\chi^2 = 4.196, df = 3,$ P = 0.24	16.11	$\chi^2 = 12.93, df = 3,$ P < 0.01
thiacloprid 200 ng	2.23		8.00	
thiacloprid 20 ng	3.70		6.04	
thiacloprid 2 ng	1.08		7.65	
control	3.16	$\chi^2 = 7.63, df = 3,$ P = 0.054	5.88	$\chi^2 = 35.21, df = 3,$ P < 0.0001
Calypso® 200 ng	1.70		24.86	
Calypso® 20 ng	4.05		10.84	
Calypso® 2 ng	0.00		7.34	

Significant p-values (< 0.05) are showed in bold letters.

Table S2. Pesticide residues analysis of honey bees exposed to thiacloprid, as active substance and formulation

sample	sample weight (mg) * n= 30	thiacloprid residues (ng/g) corrected by thiacloprid-d4 recoveries					thiacloprid-d4 recoveries (%)			
		head	thorax	abdomen	whole body	whole body	head	thorax	abdomen	
200 ng/bee										
thiacloprid	I	3181.4	241.9	12.9	164.5	419.4	12.5	89	74	75
	II	3131.5	493.9	110.5	174.1	778.5	18.8	78	69	66
	III	3352.3	2957.5	302.8	477.8	3738.1	72.5	73	85	69
Calypso®	I	3407.1	309.8	92.5	270.4	672.6	23.9	77	69	64
	II	3284.2	520.0	105.0	510.0	1135.0	39.4	83	68	52
	III	3148.0	2667.6	362.5	751.5	3781.6	84.0	83	67	72
20 ng/bee										
thiacloprid	I	3086.3	16.7	5.0	9.1	30.8	0.9	70	57	58
	II	3222.1	19.1	3.1	5.0	27.2	0.6	62	51	64
	III	3256.0	159.6	25.8	49.8	235.1	5.5	70	55	54
Calypso®	I	3208.0	16.9	9.3	14.1	40.3	1.3	74	76	64
	II	2999.0	12.8	6.2	17.8	36.8	1.3	73	57	77
	III	3259.0	388.7	55.1	67.2	511.1	10.2	78	67	63
2 ng/bee										
thiacloprid	I	3231.6	11.1	3.7	4.1	18.9	0.5	76	63	63
	II	3199.1	9.5	2.8	6.3	18.7	0.6	64	63	62
	III	2908.6	46.1	9.5	12.3	67.9	1.3	68	63	53
Calypso®	I	3110.1	16.4	20.5	3.9	40.8	1.2	92	72	72
	II	3223.0	7.5	2.7	1.6	11.8	0.3	82	37	81
	III	3149.3	15.9	3.9	4.2	23.9	0.5	76	75	66
control	I	2961.6	13.7	3.2	2.4	19.4	0.4	77	69	69
	II	3071.4	6.3	3.1	8.1	17.5	0.6	71	70	55
	III	3159.5	7.3	3.1	0.5	10.9	0.2	68	59	86
LOD §			0.2	0.05	0.04					
LOQ §			0.4	0.1	0.07					

* The sample weight is the sum of the weights of the separated analyzed honeybee body parts.

§ LOD, limit of detection (3 times background noise); LOQ, limit of quantification (10 times background noise). The calculation is based on an average weight of 30 bee body parts each.