

Supporting Information

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Table S1. CHCs of *R. flavipes* workers, queens, and kings

Peak no.*	Hydrocarbon [†]	Kovats index	Workers (n = 57)				Neotenic queens (n = 7)				Neotenic kings (n = 7)			
			Total, % [‡]	SEM, %	ng	SEM, ng	Total, %	SEM, %	ng	SEM, ng	Total, %	SEM, %	ng	SEM, ng
1	Heneicosane	2100	0.0	0.0	0.0	0.0	2.7	0.7	32.0	8.1	1.2	0.2	14.2	2.8
2	Tricosane	2301	7.7	0.2	23.2	0.6	9.3	0.7	111.6	8.1	12.2	2.0	144.0	24.0
3	11-Methyltricosane	2336	0.7	0.0	2.2	0.1	1.5	0.2	18.3	3.0	1.8	0.1	21.1	1.7
4	Tetracosane	2400	5.5	0.1	16.7	0.3	3.4	0.5	41.2	5.8	3.1	0.3	36.2	4.0
5	12- and 11-Methyltetracosane	2435	0.9	0.0	2.8	0.1	1.3	0.2	15.8	1.9	1.5	0.1	18.0	1.2
6	2-Methyltetracosane	2464	9.5	0.2	28.7	0.5	7.1	0.8	85.1	9.5	7.7	0.8	91.5	9.1
7	3-Methyltetracosane and pentacosene	2476	3.0	0.2	9.1	0.5	1.7	0.4	20.6	4.5	1.7	0.4	20.6	5.2
8	Pentacosane	2501	30.2	0.9	91.1	2.7	14.1	2.5	169.7	30.3	14.0	1.1	166.0	12.7
9	13- and 11-Methylpentacosane	2535	12.9	0.3	39.0	1.0	15.5	1.3	186.2	15.5	18.9	1.0	224.0	11.8
10	Pentacosadiene	2549	3.6	0.2	11.0	0.5	4.9	1.0	58.9	12.2	4.8	0.7	57.1	7.7
11	2-Methylpentacosane and pentacosadiene	2563	5.9	0.1	17.8	0.3	2.9	0.4	34.9	4.7	3.6	0.5	42.4	5.4
12	3-Methylpentacosane	2574	5.3	0.2	16.0	0.5	3.2	0.5	37.9	6.2	3.5	0.6	40.9	6.6
13	Pentacosatriene	2610	4.4	0.2	13.4	0.6	2.1	0.4	25.5	4.9	2.4	0.3	28.2	3.6
14	Heptacosane	2700	0.4	0.0	1.1	0.0	0.2	0.0	2.3	0.2	0.2	0.0	2.2	0.2
15	Octacosane [§]	2800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16	Hentriacontane	3100	0.6	0.1	1.7	0.4	3.5	1.8	42.4	21.9	2.9	1.4	34.0	17.1
17	13- and 11-Methylpentatriacontane	3525	2.3	0.1	7.0	0.3	5.7	2.2	69.1	25.9	4.5	1.5	52.9	17.3
18	13-, 12-, and 11-Methylhexatriacontane	3622	1.2	0.3	3.7	0.8	1.5	0.2	17.9	2.4	1.3	0.2	15.0	2.7
19	13- and 11-Methylheptatriacontane	3723	2.5	0.1	7.4	0.3	10.0	1.4	120.2	16.8	7.3	0.8	86.4	9.1
20	11,15-Dimethylheptatriacontane	3745	1.3	0.1	4.1	0.3	3.1	0.6	37.8	7.3	2.4	0.2	28.9	1.8
21	15-, 13-, and 11-Methylnonatriacontane	3922	1.3	0.1	3.9	0.2	4.2	0.5	50.4	6.4	3.4	0.5	40.2	5.4
22	11,15-Dimethylnonatriacontane	3944	0.7	0.1	2.2	0.2	2.0	0.3	24.2	3.2	1.6	0.1	18.4	1.0
	Average total mass of 21 CHCs [¶] , ng		100		302		100		1,202		100		1,182	

Values in the ng column represent the average mass of each hydrocarbon per termite. Bold type indicates reproductive-specific compounds found in our extracts. NA, not applicable as this was our internal standard.

*Peak numbers correspond to peaks labeled in Fig. 1. The 21 peaks were selected by setting a 1% threshold for representation in the total area integrated in the chromatograms.

[†]The double-bond positions in mono-, di-, and trialkenes were not determined.

[‡]Values in the Total column represent the average percentage of the total chromatogram area for the 21 compounds from the cuticular extracts of *R. flavipes* workers, queens, and kings.

[§]Octacosane (n-C28) was used as internal standard and did not naturally occur in any sample.

[¶]Average total mass calculated from the integrated area of 21 extracted peaks in relation to the internal standard using 48 workers, 4 queens, and 4 kings. Some samples were omitted because they were not spiked with the internal standard.

Primary Queen Recognition

Movie S1. Worker responses to an *R. flavipes* primary queen. The queen elicits rapid lateral and longitudinal shaking behavior and increased antennation from workers.

[Movie S1](#)

Neotenic Queen Recognition

Movie S2. Worker responses to an *R. flavipes* neotenic queen. The neotenic queen elicits rapid lateral and longitudinal shaking behavior and increased antennation from workers.

[Movie S2](#)

Neotenic Queen Recognition: Slow motion

Movie S3. Worker responses to an *R. flavipes* neotenic queen—slow motion. Slowed video of the lateral and longitudinal shaking behavior and increased antennation elicited from workers by a neotenic queen.

[Movie S3](#)

Reaction to dummy treated with worker extract

Movie S4. Worker responses to a control glass dummy treated with worker extract. The glass dummy was treated with the extract of six workers in 20 μ L of hexane. Hexane was allowed to evaporate before the assay was initiated. No lateral and longitudinal shaking behavior is elicited from workers by the glass dummy.

[Movie S4](#)

Reaction to dummy treated with worker extract & n-C21

Movie S5. Worker responses to a glass dummy treated with worker extract and heneicosane. The glass dummy was treated with the extract of six workers and 0.1 μg of *n*-C21 in 20 μL of hexane. Hexane was allowed to evaporate before the assay was initiated. The dummy elicited lateral and longitudinal shaking behavior and increased antennation from workers.

[Movie S5](#)