

Table S1. Comparison of age variation in the tasks between the treatments. * Significant p-values.

Cell inspector	Tukey test	p	Builder	Tukey test	p	Forager	Tukey test	p
NTW x STW	1.468	0.1999	NTW x STW	0.605	0.5448	NTW x STW	3.553	<0.01*
NTW x MTW	3.803	<0.01*	NTW x MTW	2.073	0.0764	NTW x MTW	3.047	<0.01*
NTW x PTW	-0.008	0.9935	NTW x PTW	-3.273	<0.01*	NTW x PTW	-2.574	0.02008*
STW x MTW	-2.474	0.0267*	STW x MTW	-1.295	0.2601	STW x MTW	0.395	0.6926
STW x PTW	1.383	0.1999	STW x PTW	-2.423	0.0461*	STW x PTW	1.069	0.4278
MTW x PTW	3.669	<0.01*	MTW x PTW	-1.235	0.2601	MTW x PTW	0.622	0.6410

Table S2. Chemical compounds profile from *P. occidentalis* workers of all treatments with peak number, retention time (min) and compounds name.

Peaks	Retention time (min)	Compounds	Peaks	Retention time (min)	Compounds
1	10.530	z-C ₂₁	37	23.660	15-;14-;13-;12-;11-;10MeC ₃₀
2	10.711	n-C ₂₁	38	24.255	4MeC ₃₀
3	11.940	n-C ₂₂	39	24.517	3MeC ₃₀
4	13.002	z-C ₂₃	40	24.606	z-C ₃₁
5	13.025	n-C ₂₃	41	24.754	4,16-;4,14-;4,12 diMeC ₃₀
6	14.277	n-C ₂₄	42	24.809	n-C ₃₁
7	15.391	n-C ₂₅	43	24.822	3,15-; 3,13-;3,11diMetilC ₃₀
8	15.769	13-;11-;9MeC ₂₅	44	25.390	15-;13-;11-;9-;7MeC ₃₁
9	16.210	5MeC ₂₅	45	25.645	7MeC ₃₁
10	16.211	3MeC ₂₅	46	25.770	5MeC ₃₁
11	16.529	n-C ₂₆	47	25.871	11,15-;11,13diMeC ₃₁
12	17.273	4MeC ₂₆	48	25.946	9,15-;9,13diMeC ₃₁
13	17.435	z-C ₂₇	49	26.050	7,15-;7,13diMeC ₃₁
14	17.781	n-C ₂₇	50	26.141	3MeC ₃₁
15	18.230	13-;11-;9MeC ₂₇	51	26.222	5,15-;5,13-;5,11 diMeC ₃₁
16	18.480	7MeC ₂₇	52	26.613	3,15-;3,13-;3,11 diMeC ₃₁
17	18.503	5MeC ₂₇	53	26.969	14,18-;14,16diMeC ₃₂
18	18.900	3MeC ₂₇	54	27.812	13,15diMeC ₃₂
19	19.022	5,11diMeC ₂₇	55	27.230	z-C ₃₃
20	19.320	n-C ₂₈	56	27.712	4,16-;4,14-;4,12diMeC ₃₂
21	19.546	3,13; 3,11 diMeC ₂₇	57	27.859	n-C ₃₃
22	19.615	3,7diMeC ₂₇	58	28.410	15-;13-;11MeC ₃₃
23	19.879	14-;13-;12-;11-;10-;9-;8MeC ₂₈	59	28.644	11,15diMeC ₃₃
24	20.542	4MeC ₂₈	60	28.838	7,13diMeC ₃₃
25	20.860	3MeC ₂₈	61	28.984	5,15-;5,13diMeC ₃₃
26	20.938	z-C ₂₉	62	29.421	3,15-;3,13diMeC ₃₃
27	21.304	n-C ₂₉	63	31.036	15-;13-;11MeC ₃₅
28	21.995	15-;13-;11-;9MeC ₂₉	64	31.709	5,15-;5,13diMeC ₃₅
29	22.086	7MeC ₂₉	65	31.928	3,13diMeC ₃₅

30	22.238	5MeC ₂₉	66	33.854	15-;13-,11MeC ₃₇
31	22.567	9,13diMeC ₂₉	67	34.323	11,XdiMeC ₃₇
32	22.620	7,13-;7,11 diMeC ₂₉	68	37.773	15-;13-;11MeC ₃₉
33	22.772	5,15-;5,13-;5,11diMeC ₂₉	60	38.361	11,15-;11,13diMeC ₃₉
34	22.823	3MeC ₂₉	70	38.659	7,15-;7,13diMeC ₃₉
35	23.260	n-C ₃₀	71	39.595	3,15-;3,13diMeC ₃₉
36	23.351	3,13-;3,11diMeC ₂₉	72	39.905	14MeC ₄₀

Table S3. Compounds from SIMPER analysis that are important in the separation of the tasks within each treatment with significant p-values.

No treatment	p	Acetone	p
Cell inspector x Builder		Cell inspector x Builder	
15-;13-;11-;9-;7MeC ₃₁	0.043	13-;11-;9MeC ₂₇	0.0026
n.C ₃₁	0.001	15-;14-;13-;12-;11-;10MeC ₃₀	0.0009
5MeC ₂₇	0.001	15-;13-;11MeC ₃₉	0.0001
-		5MeC ₂₇	0.0001
-		5MeC ₂₉	0.001
Cell inspector x Forager		Cell inspector x Forager	
3MeC ₂₉	0.001	15-;13-;11-;9-;7MeC ₃₁	0.0357
z.C ₂₉	0.002	3,13-;3,11diMeC ₂₉	0.0258
7,13-;7,11diMeC ₂₉	0.001	13-;11-;9MeC ₂₇	0.0366
-		15-;13-;11MeC ₃₉	0.0001
-		5MeC ₂₇	0.0001
Builder x Forager		Builder x Forager	
3MeC ₂₉	0.001	n.C ₂₉	0.01
n.C ₂₇	0.014	5MeC ₂₉	0.0033
3MeC ₂₇	0.004	5,15-;5,13-;5,11diMeC ₃₁	0.0497
5MeC ₂₇	0.001	-	
n.C ₃₁	0.001	-	
z.C ₂₉	0.045	-	
7,13-;7,11diMeC ₂₉	0.001	-	
15-;14-;13-;12-;11-;10MeC ₃₀	0.016	-	
14-;13-;12-;11-;10-;9-;8MeC ₂₈	0.012	-	
Methoprene	p	Precocene	p
Cell inspector x Builder		Cell inspector x Builder	

n.C ₂₉	0.0013	11,XdiMeC ₃₇	0.0001
15-;13-;11-;9-;7MeC ₃₁	0.0001	5,15-;5,13-;5,11diMeC ₂₉	0.0001
3MeC ₂₉	0.0001	15-;13-;11MeC ₃₉	0.0001
n.C ₂₃	0.0001	-	
n.C ₃₁	0.0001	-	
13-;11-;9MeC ₂₇	0.0001	-	
3,13-;3,11diMeC ₂₉	0.0048	-	
3,15-;3,13-;3,11diMeC ₃₁	0.0001	-	
15-;14-;13-;12-;11-;10MeC ₃₀	0.0001	-	
7MeC ₂₉	0.0001	-	
5,15-;5,13-;5,11diMeC ₂₉	0.0001	-	
15-;13-;11MeC ₃₉	0.0001	-	
5MeC ₂₇	0.0001	-	
5MeC ₂₉	0.0001	-	
5,15-;5,13-;5,11diMeC ₃₁	0.0021	-	
Cell inspector x Forager		Cell inspector x Forager	
n.C ₂₉	0.0054	5,15-;5,13-;5,11diMeC ₂₉	0.0001
3MeC ₂₉	0.0007	11,XdiMeC ₃₇	0.0001
3MeC ₂₇	0.0001	5MeC ₂₉	0.0424
n.C ₂₃	0.0001	-	
n.C ₂₇	0.0153	-	
n.C ₃₁	0.0001	-	
3,13-;3,11diMeC ₂₉	0.0002	-	
13-;11-;9MeC ₂₇	0.0002	-	
3,15-;3,13-;3,11diMeC ₃₁	0.0002	-	
5,15-;5,13-;5,11diMeC ₂₉	0.0001	-	
15-;13-;11MeC ₃₃	0.0001	-	
5MeC ₂₇	0.0001	-	
7MeC ₂₉	0.0001	-	
15-;13-;11MeC ₃₉	0.0001	-	
5MeC ₂₉	0.0145	-	
n.C ₂₈	0.0009	-	
Builder x Forager		Builder x Forager	
n.C ₂₇	0.0222	15-;13-;11MeC ₃₉	0.0001
-		14-;13-;12-;11-;10-;9-;8MeC ₂₈	0.0354

Table S4. Results from comparing the chemical profile of workers within each task between the treatments. * Significant p-values.

Cell inspector	NTW	STW	MTW
NTW		p < 0.01*	p < 0.01*
MTW	p < 0.01*	p < 0.01*	
PTW	p < 0.01*	p < 0.01*	p < 0.01*
Builder	NTW	STW	MTW
NTW		p < 0.01*	p < 0.01*
MTW	p < 0.01*	p = 0.22	
PTW	p = 0.01*	p = 0.20	p = 0.35
Forager	NTW	STW	MTW
NTW		p = 0.01*	p = 0.02*
MTW	p = 0.01*	p = 0.02*	
PTW	p = 0.02*	p = 0.15	p = 0.01*

Table S5. Compounds from SIMPER analysis that are important in the separation of the treatments within each task with significant p-values.

Cell inspector	p	Builder	p	Forager	p
NTW x MTW		NTW x MTW		NTW x MTW	
n.C ₂₉	0.002	15-;13-;11-;9MeC ₂₉	0.001	3,15-;3,13-;3,11diMeC ₃₁	0.004
3MeC ₂₉	0.001	n.C ₃₁	0.001	7,13-;7,11diMeC ₂₉	0.001
n.C ₃₁	0.001	5MeC ₂₇	0.001	z-C ₂₉	0.039
n.C ₂₃	0.001	-	-	-	-
13-;11-;9MeC ₂₇	0.004	-	-	-	-
3MeC ₂₇	0.024	-	-	-	-
15-;14-;13-;12-;11-;10MeC ₃₀	0.002	-	-	-	-
15-;13-;11MeC ₃₃	0.001	-	-	-	-
7MeC ₂₉	0.001	-	-	-	-
5,15-;5,13-;5,11diMeC ₂₉	0.001	-	-	-	-
15-;13-;11MeC ₃₉	0.001	-	-	-	-
5MeC ₂₇	0.001	-	-	-	-
5MeC ₂₉	0.001	-	-	-	-
NTW x PTW		NTW x PTW		NTW x PTW	
15-;13-;11-;9MeC ₂₉	0.004	n.C ₃₁	0.001	15-;13-;11MeC ₃₉	0.001
11,XdiMeC ₃₇	0.001	5MeC ₂₇	0.001	7,13-;7,11diMeC ₂₉	0.001
15-;13-;11MeC ₃₉	0.001	n.C ₂₈	0.018	-	-
5,15-;5,13-;5,11diMeC ₂₉	0.001	-	-	-	-
NTW x STW		NTW x STW		NTW x STW	
15-;13-;11MeC ₃₉	0.001	n.C ₃₁	0.036	15-;13-;11-;9MeC ₂₉	0.042
5MeC ₂₇	0.001	5MeC ₂₇	0.001	z.C ₂₉	0.003

-		15-;14-;13-;12-;11-;10MeC ₃₀	0.002	7,13-;7,11diMeC ₂₉	0.001
-		5MeC ₂₉	0.001	n-C ₃₁	0.039
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MTW x PTW		MTW x PTW		MTW x PTW	
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15-;13-;11-;9-;7MeC ₃₁	0.003	n.C ₂₉	0.026	3,13-;3,11diMeC ₂₉	0.041
3MeC ₂₉	0.014	3,13-;3,11diMeC ₂₉	0.044	3MeC ₂₇	0.026
n.C ₂₃	0.001	-		3,15-;3,13-;3,11diMeC ₃₁	0.009
n.C ₃₁	0.001	-		15-;13-;11MeC ₃₉	0.001
13-;11-;9MeC ₂₇	0.008	-		15-;14-;13-;12-;11-;10MeC ₃₀	0.040
3,15-;3,13-;3,11diMeC ₃₁	0.006	-		-	
3MeC ₂₇	0.001	-		-	
15-;14-;13-;12-;11-;10MeC ₃₀	0.003	-		-	
11,XdiMeC ₃₇	0.001	-		-	
7MeC ₂₉	0.001	-		-	
15-;13-;11MeC ₃₃	0.038	-		-	
5MeC ₂₇	0.001	-		-	
5MeC ₂₉	0.001	-		-	
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MTW x STW		MTW x STW		MTW x STW	
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3MeC ₂₉	0.004	3MeC ₂₉	0.009	3,13-;3,11diMeC ₂₉	0.007
n.C ₂₃	0.001	15-;14-;13-;12-;11-;10MeC ₃₀	0.003	3MeC ₂₇	0.010
n.C ₃₁	0.001	5MeC ₂₉	0.011	n.C ₂₈	0.049
3,13-;3,11diMeC ₂₉	0.005	-		5,15-;5,13-;5,11diMeC ₃₁	0.033
0.0333,15-;3,13-;3,11diMeC ₃₁	0.001	-		-	
13-;11-;9MeC ₂₇	0.006	-		-	
3MeC ₂₇	0.001	-		-	
7MeC ₂₉	0.001	-		-	
5,15-;5,13-;5,11diMeC ₂₉	0.001	-		-	
15-;13-;11MeC ₃₃	0.003	-		-	
5MeC ₂₉	0.007	-		-	
n.C ₂₈	0.005	-		-	
5,15-;5,13-;5,11diMeC ₃₁	0.001	-		-	
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PTW x STW		PTW x STW		PTW x STW	
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11,XdiMeC ₃₇	0.001	13-;11-;9MeC ₂₇	0.023	15-;13-;11MeC ₃₉	0.001
5,15-;5,13-;5,11diMeC ₂₉	0.001	15-;14-;13-;12-;11-;10MeC ₃₀	0.006	-	
5MeC ₂₇	0.001	14-;13-;12-;11-;10-;9-;8MeC ₂₈	0.004	-	
		15-;13-;11MeC ₃₃	0.043	-	
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Table S6. Comparison of ovaries types between the treatments in each task. * Significant p-values.

Cell inspector		
	z	p
NTW x STW	-0.795	0.4282
NTW x MTW	-2.694	0.0424
NTW x PTW	1.986	0.0941
STW x MTW	2.288	0.0664
STW x PTW	1.464	0.2149
MTW x PTW	-0.792	0.4282
Builder		
	z	p
NTW x STW	0.228	0.8196
NTW x MTW	-3.189	<0.01*
NTW x PTW	1.546	0.1752
STW x MTW	2.685	0.0217*
STW x PTW	1.454	0.1752
MTW x PTW	-1.992	0.0927
Forager		
	z	p
NTW x STW	-0.378	0.8465
NTW x MTW	-2.889	<0.01*
NTW x PTW	-0.164	0.8701
STW x MTW	2.831	<0.01
STW x PTW	-0.558	0.8465
MTW x PTW	-3.122	<0.01*