

1 **The influence of sublethal neonicotinoid doses on individual *Apis mellifera scutellata***
2 **thermotolerance**

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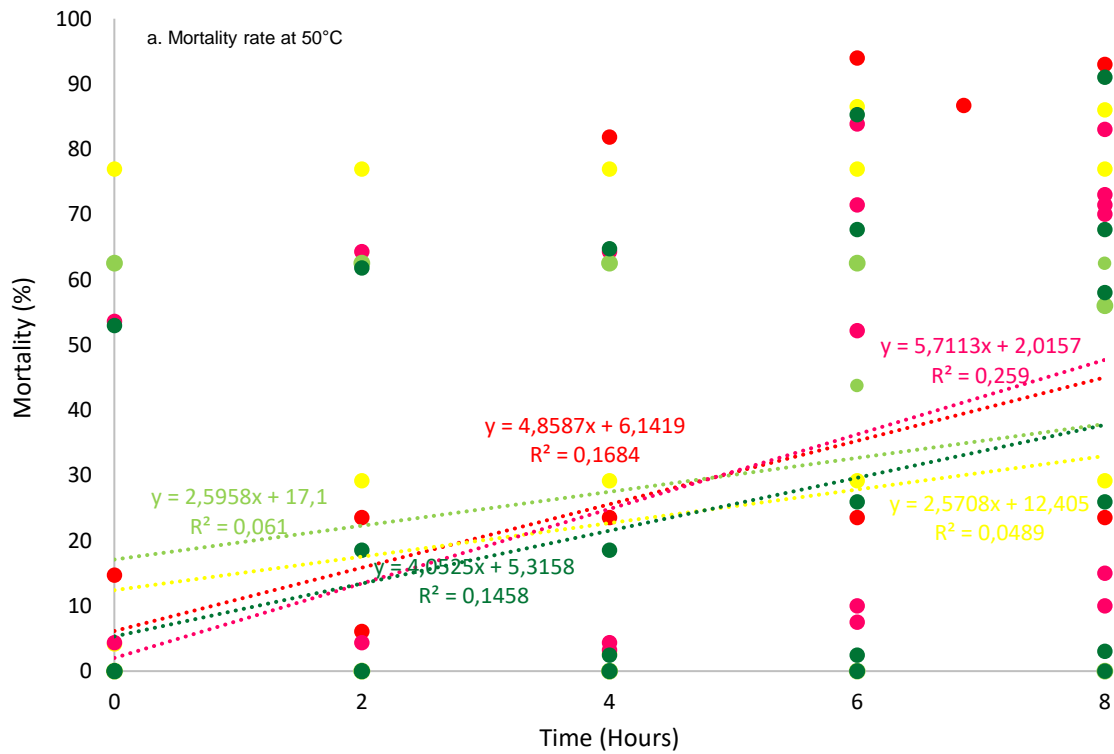
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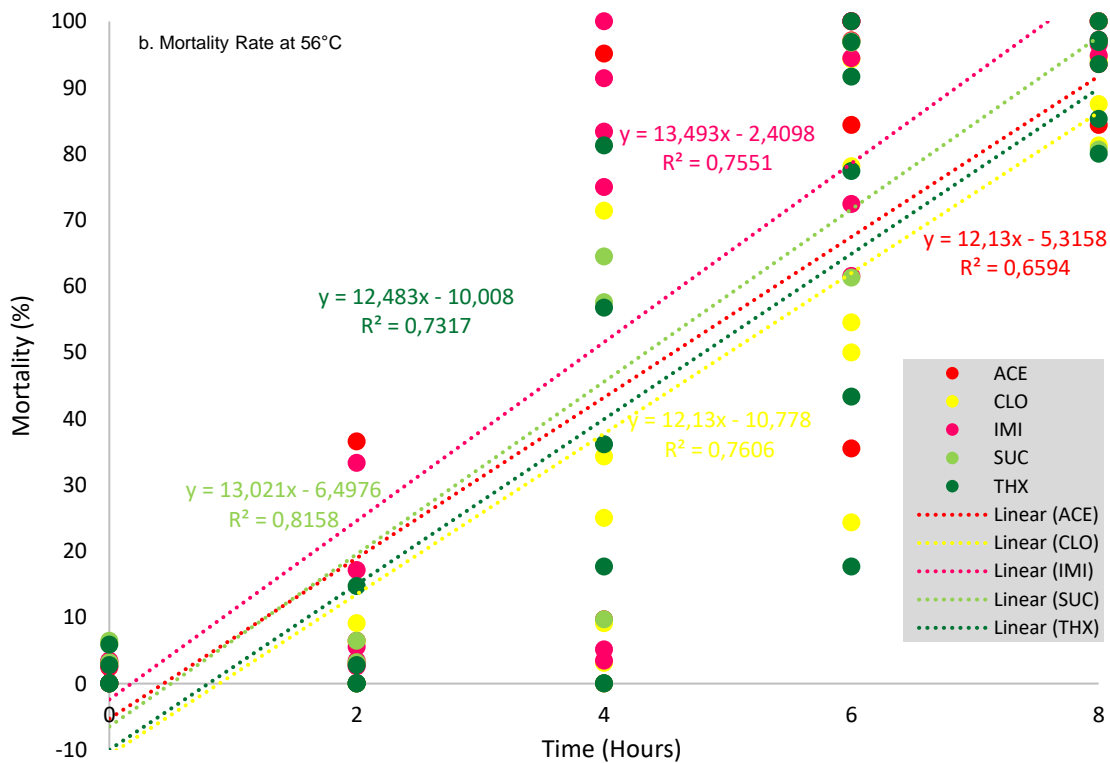
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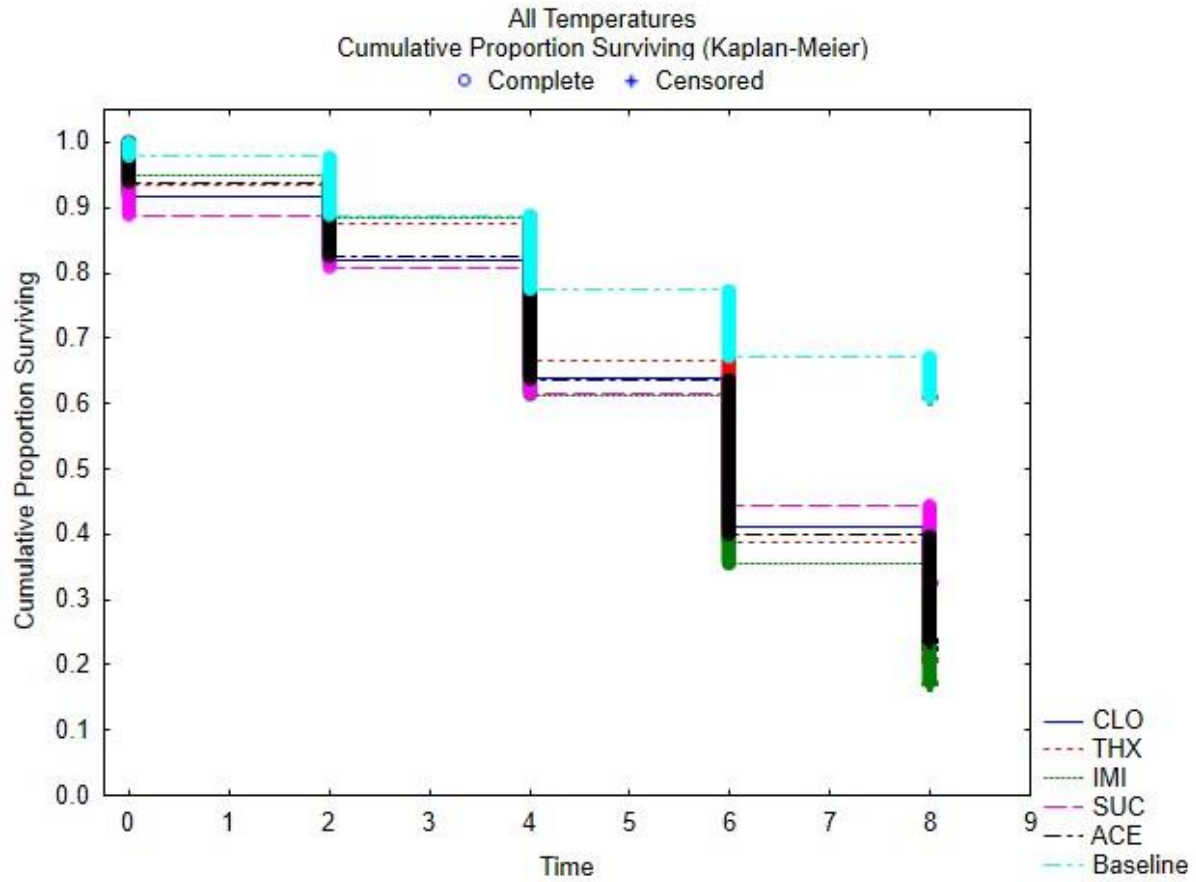
11 **Supplementary Material**



13 **Figure S7** Individual mortalities are indicated for the three treatments; Clothianidin (CLO),
 14 Thiamethoxam (THX), Imidacloprid (IMI), and the two controls; Acetone (ACE) and Sucrose
 15 (SUC). Mortalities were measured at 2-hour intervals during the 8-hour period. Mortality rates
 16 (indicated as the colour corresponding broken lines) for the lowest temperature ramp ending at
 17 50°C.

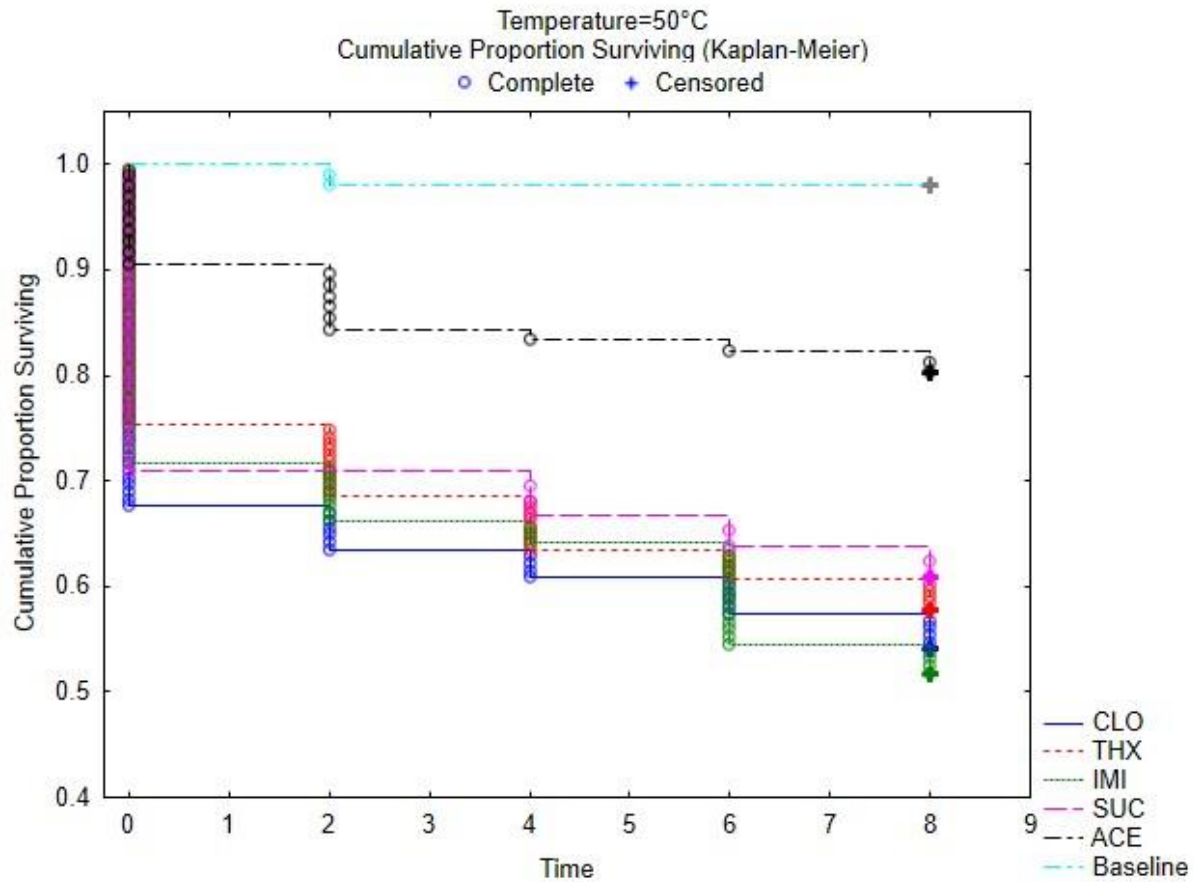


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 19 **Figure S8** Individual mortalities are indicated for the three treatments; Clothianidin (CLO),
 20 Thiamethoxam (THX), Imidacloprid (IMI), and the two controls; Acetone (ACE) and Sucrose
 21 (SUC). Mortalities were measured at 2-hour intervals during the 8-hour period. Mortality rates
 22 (indicated as the colour corresponding broken lines) for the highest temperature ramp ending at
 23 56°C.



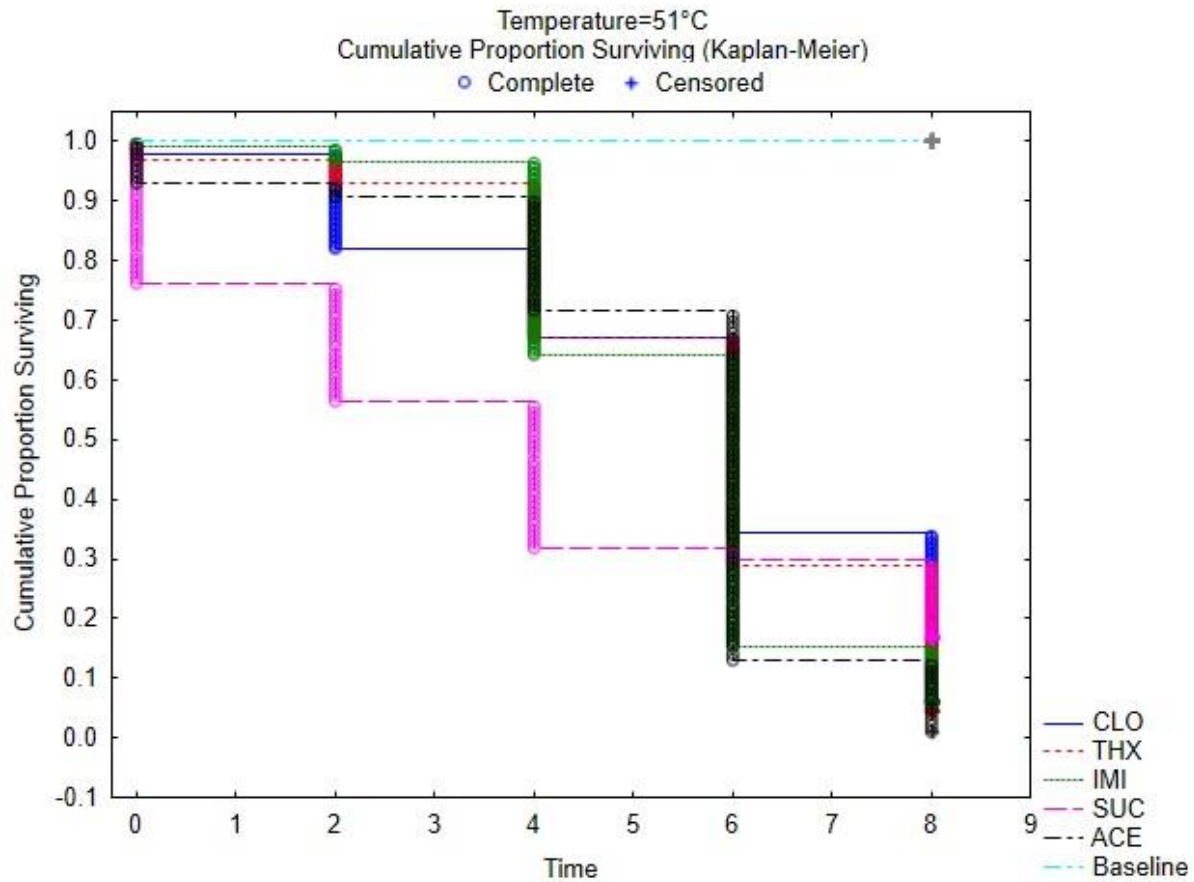
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25 **Figure S9** Survival analysis graph showing the cumulative proportion of surviving honey bees
 26 across the 8 hours after temperature ramp treatment, combined data for all temperatures per
 27 treatment. Survival rates for honey bees treated with clothianidin (CLO), imidacloprid (IMI) and
 28 thiamethoxam (THX), the sucrose (SUC) and acetone (ACE) controls as well as the Baseline
 29 experiment are shown. Survival was recorded at 2-hour intervals.



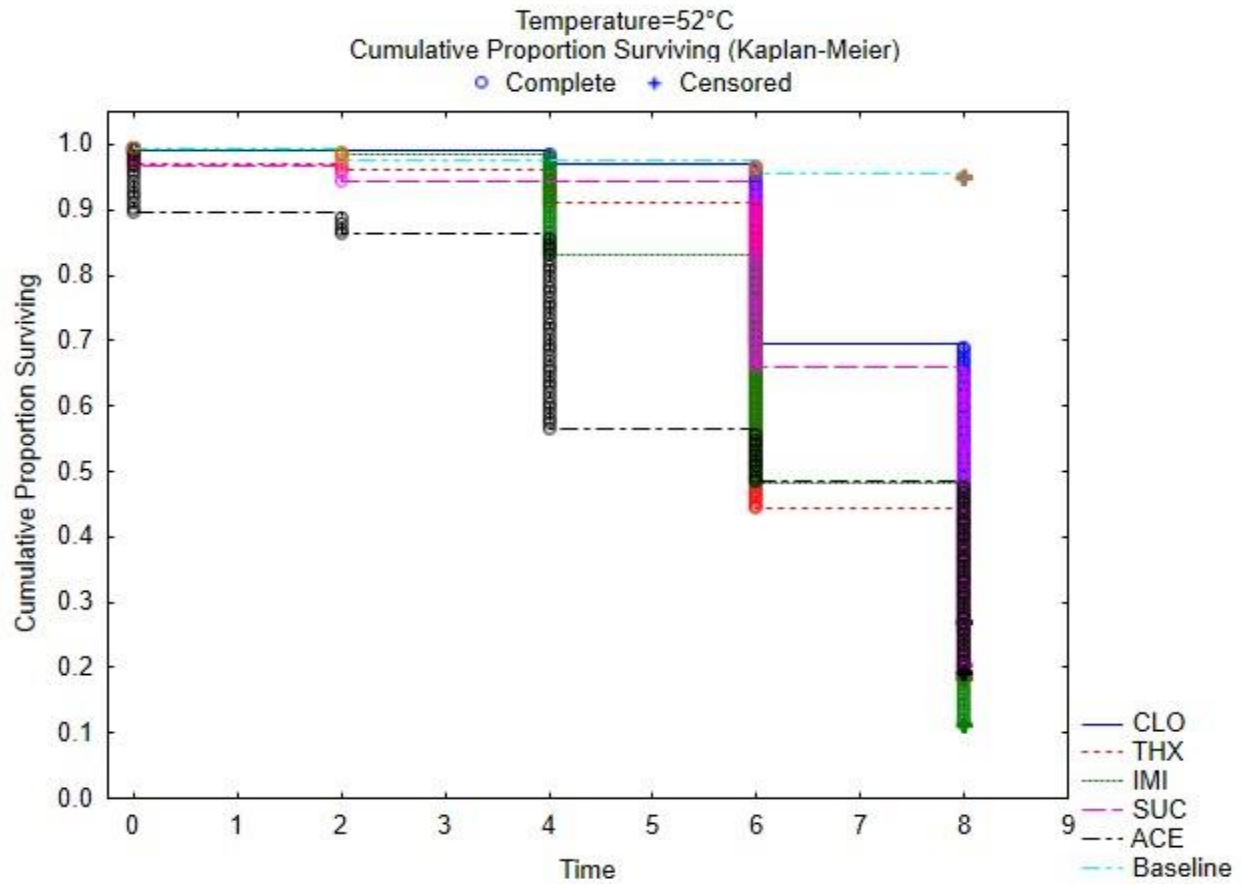
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31 **Figure S10** Survival analysis graph showing the cumulative proportion of surviving honey bees
 32 across the 8 hours after temperature ramp treatment terminating at 50°C. Survival rates for honey
 33 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 34 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 35 recorded at 2-hour intervals.



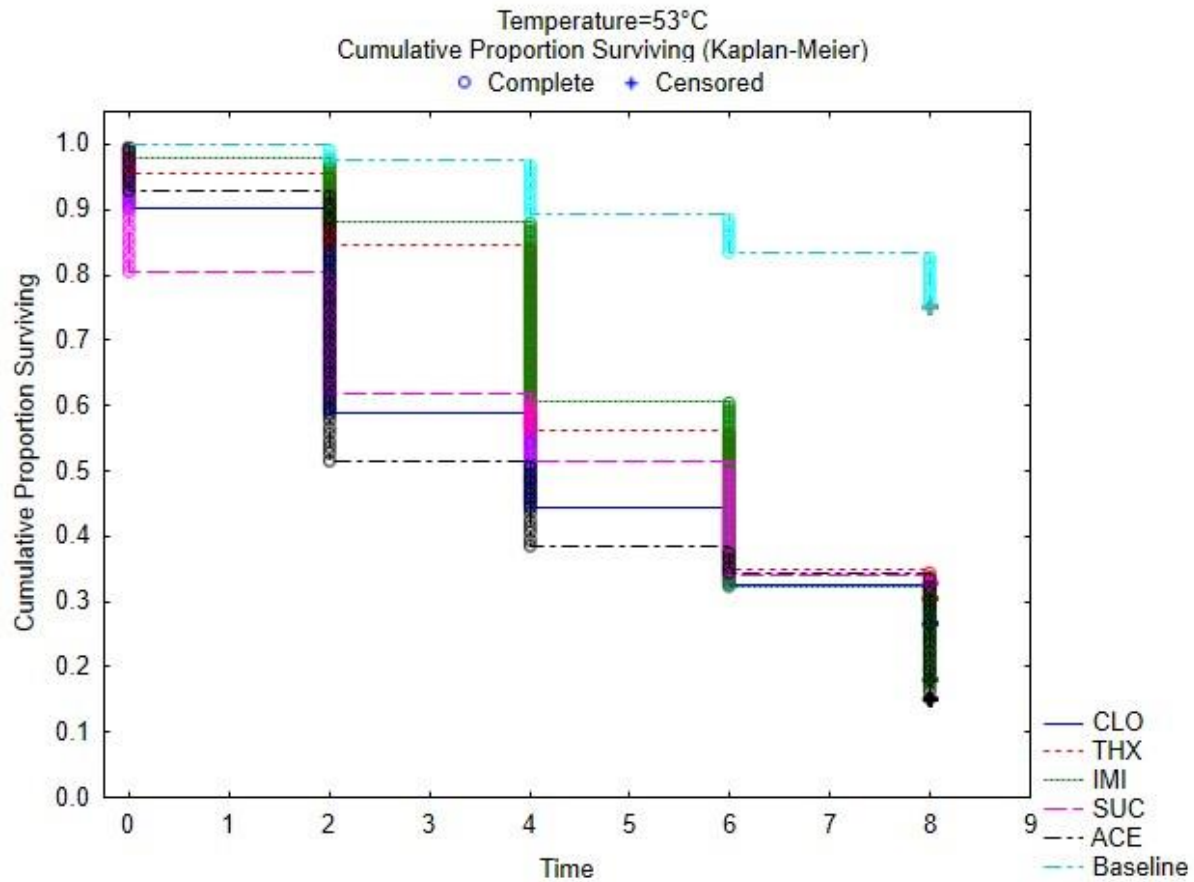
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37 **Figure S11** Survival analysis graph showing the cumulative proportion of surviving honey bees
 38 across the 8 hours after temperature ramp treatment terminating at 51°C. Survival rates for honey
 39 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 40 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 41 recorded at 2-hour intervals.



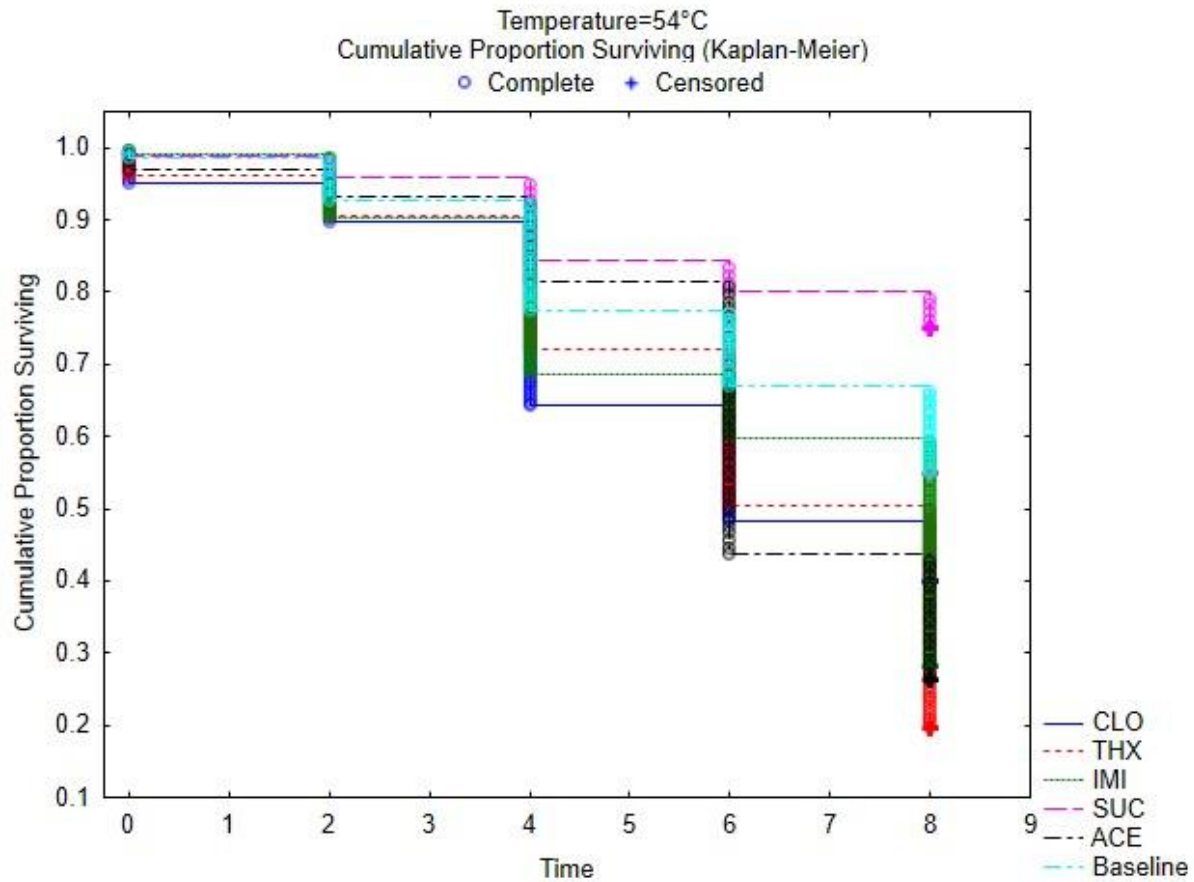
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43 **Figure S12** Survival analysis graph showing the cumulative proportion of surviving honey bees
 44 across the 8 hours after temperature ramp treatment terminating at 52°C. Survival rates for honey
 45 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 46 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 47 recorded at 2-hour intervals.



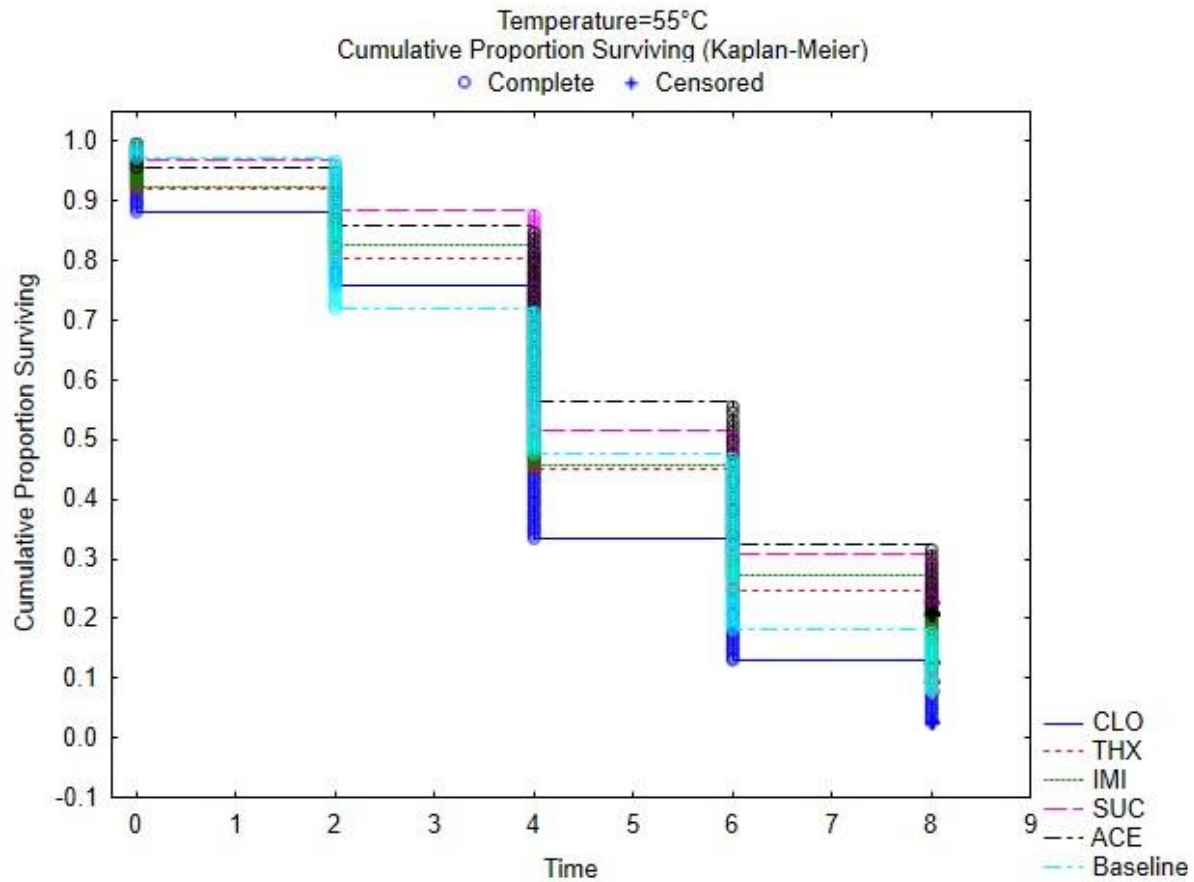
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49 **Figure S13** Survival analysis graph showing the cumulative proportion of surviving honey bees
 50 across the 8 hours after temperature ramp treatment terminating at 53°C. Survival rates for honey
 51 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 52 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 53 recorded at 2-hour intervals.



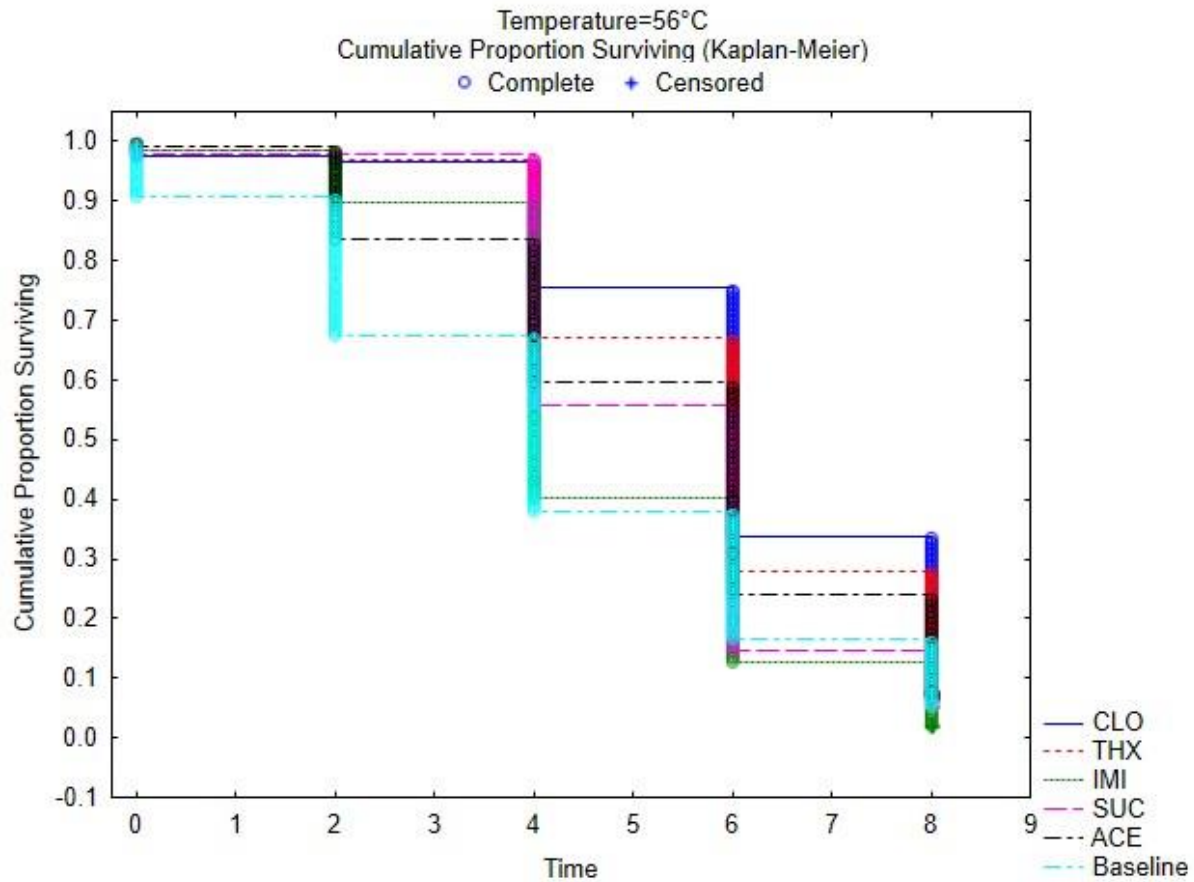
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55 **Figure S14** Survival analysis graph showing the cumulative proportion of surviving honey bees
 56 across the 8 hours after temperature ramp treatment terminating at 54°C. Survival rates for honey
 57 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 58 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 59 recorded at 2-hour intervals.



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61 **Figure S15** Survival analysis graph showing the cumulative proportion of surviving honey bees
 62 across the 8 hours after temperature ramp treatment terminating at 55°C. Survival rates for honey
 63 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 64 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 65 recorded at 2-hour intervals.



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67 **Figure S16** Survival analysis graph showing the cumulative proportion of surviving honey bees
 68 across the 8 hours after temperature ramp treatment terminating at 56°C. Survival rates for honey
 69 bees treated with clothianidin (CLO), imidacloprid (IMI) and thiamethoxam (THX), the sucrose
 70 (SUC) and acetone (ACE) controls as well as the Baseline experiment are shown. Survival was
 71 recorded at 2-hour intervals.

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77 **Table SI** Survival analysis statistics to compare Baseline, the three treatments clothianidin (CLO),
78 imidacloprid (IMI), thiamethoxam (THX), and two controls acetone (ACE), and sucrose (SUC),
79 at each of the seven target temperatures (Temp). Pairwise comparisons were done using the
80 Gehan’s Wilcoxon Test, comparing whether treatment or temperature influences survival. Test
81 statistic values are indicated in the top right section, and the corresponding *p*-value indicated in
82 the bottom left section.

Survival Analysis Statistics							
	Temp	Baseline	CLO	IMI	THX	ACE	SUC
Baseline	50		7,719312	7,932453	7,316304	6,493596	6,493596
	51		15,84279	16,14244	16,09351	13,21705	13,21705
	52		11,96384	14,34456	13,42483	11,43902	11,43902
	53		9,144892	9,404021	8,071751	7,268095	7,268095
	54		3,158653	3,821306	4,888532	-2,88561	-2,88561
	55		1,769400	-1,19085	-0,698314	-2,44702	-2,44702
	56		-7,06426	-2,30667	-6,11184	-3,68849	-3,68849
CLO	50	0,00000		-0,058890	-0,994403	-4,33314	-0,860575
	51	0,00000		1,558709	0,1251735	1,578066	4,037261
	52	0,00000		5,520609	4,685847	5,076887	1,138344
	53	0,00000		-3,15863	-3,25059	1,055079	-0,206061
	54	0,00159		0,1173092	1,040331	-0,088139	-5,32647
	55	0,07683		-3,09031	-2,59164	-4,20105	-4,07356
	56	0,00000		7,259766	1,666344	2,947474	3,732491
IMI	50	0,00000	0,95304		-0,927808	-4,42674	-4,42674
	51	0,00000	0,11907		-1,63405	-0,305657	-0,305657
	52	0,00000	0,00000		-0,816047	1,813127	1,813127
	53	0,00000	0,00159		-0,142018	3,872698	3,872698
	54	0,00013	0,90662		1,476613	0,4610994	0,4610994
	55	0,23371	0,00200		0,5259096	-1,66538	-1,66538
	56	0,02107	0,00000		-5,73154	-2,45575	-2,45575
THX	50	,00000	0,32003	0,35351		-3,73374	-3,45596
	51	0,00000	0,90039	0,10225		1,316785	1,43582
	52	0,00000	0,00000	0,41447		2,446461	2,23435
	53	0,00000	0,00115	0,88707		3,985146	3,872698
	54	0,00000	0,29819	0,13978		-0,629328	-0,629328
	55	0,48498	0,00955	0,59895		-2,09562	-2,09562
	56	0,00000	0,09564	0,00000		1,771043	1,771043
ACE	50	0,00000	0,00001	0,00001	0,00019		2,901582
	51	0,00000	0,11455	0,75987	0,18791		3,271165
	52	0,00000	0,00000	0,06981	0,01443		-3,20367

	53	0,00000	0,29139	0,00011	0,00007		-0,976003
	54	0,00391	0,92977	0,64473	0,52913		-5,69420
	55	0,01440	0,00003	0,09584	0,03612		0,1612038
	56	0,00023	0,00320	0,01406	0,07655		0,2381309
SUC	50	0,00000	0,38947	0,00001	0,00001	0,00371	
	51	0,00000	0,00005	0,75987	0,75987	0,00107	
	52	0,00000	0,25498	0,06981	0,07851	0,00136	
	53	0,00000	0,83674	0,00011	0,00011	0,32906	
	54	0,00391	0,00000	0,64473	0,68933	0,00000	
	55	0,01440	0,00005	0,09584	0,08734	0,87193	
	56	0,00023	0,00019	0,01406	0,02066	0,81178	

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