

1 Appendix A Supercooling points and freezing points measured for *Spodoptera frugiperda* at different developmental stages

Stage	Supercooling point (°C)			Freezing point (°C)		
	Lowest	Mean±SE	Highest	Lowest	Mean±SE	Highest
2nd instars	-12.4	-11.2±0.3 D	-10.6	-11.1	-8.83±0.9 F	-4.5
3rd instars	-11.6	-9.7±0.1 BC	-5.5	-8.4	-2.0±0.2 ABC	1.1
4th instars	-10.9	-9.3±0.1 B	-4	-9.9	-1.2±0.3 AB	0.7
5th instars	-10.3	-7.7±0.2 A	-3.2	-7.6	-0.5±0.2 A	0.9
6th instars	-9.4	-7.9±0.2 A	-4.9	-6.2	-0.5±0.2 A	1.2
Prepupae	-12.9	-10.5±0.3 CD	-7.2	-9.2	-1.7±0.5 AB	0.9
1-day pupae	-17.6	-13.3±0.3 E	-4.5	-11.8	-3.3±0.4 CD	0.6
3-day pupae	-16.6	-13.5±0.3 E	-10.6	-13.8	-2.6±0.5 BC	-0.4
5-day pupae	-16	-13.1±0.3 E	-8.4	-10.0	-3.0±0.4 BC	-0.2
7-day pupae	-15.8	-13.1±0.2 E	-4.2	-14.8	-1.9±0.2 ABC	0.3
Females	-19.2	-14.6±0.5 F	-7.9	-15.0	-6.5±0.7 E	-1.1
Males	-17.9	-15.5±0.4 F	-10.1	-10.6	-4.4±0.5 D	0.0

2 Different capital letter(s) indicate significant differences among means of supercooling points or freezing points for different development stages
3 ($P<0.05$).

