Supplementary Table 1. PCR primers and conditions used in this study.

Target		Primer set	PCR conditions	Product size
Glu1-Bx	*Bx17* *non-BX17*	F: CGCAACAGCCAGGACAATT R: AGAGTTCTATCACTGCCTGGT	95℃ 5 m - [95℃ 30 s - 58℃ 30 s - 72℃ 1 m] 38 cycle - 72℃ 5 m	699 bp 630 bp or 766 bp
Glu1-Dx		F: GGGACAATACGAGCAGCAAA R: CTTGTTCCGGTTGTTGCCA	95℃ 5 m - [95℃ 30 s - 60℃ 30 s - 72℃ 1 m] 38 cycle - 72℃ 5 m	*Dx2*: 299 bp *Dx5*: 281 bp
Glu1-D1y		F: CGCAAGACAATATGAGCAAACT R: TTGCCTTTGTCCTGTGTGC		*Dy10*: 397 bp *Dy12*: 415 bp
Glu-B3b		F: ATCAGGTGTAAAAGTGATAG R: TGCTACATCGACATATCCA	94℃ 5 m - [94℃ 35 s - 56℃ 35 s - 72℃ 90 s] 38 cycle - 72℃ 8 m	1570 bp
Glu-B3g		F: CCAAGAAATACTAGTTAACACTAGTC R: GTTGGGGTTGGGAAACA	94℃ 5 m - [94℃ 35 s - 60℃ 35 s - 72℃ 90 s] 38 cycle - 72℃ 8 m	853 bp
Pinb-D1b		Pinb-F1: TCCTCCTAGCTCTCCTTGCTC Pinb-R1: AGCCACTAGGGAACTTGCAG Pinb-D1b-F1a: ATCACAAAATGGTGGAAGA	94℃ 5 m - [95℃ 30 s - 60℃ 30 s 72℃ 30 s] 15 cycle - [95℃ 10 s 45℃ 30 s - 72℃ 5 s] 5 cycle - [95℃ 10 s - 53℃ 30 s - 72℃ 5 s] 15 cycle - 72℃ 8 m	*Pinb*: 423 bp *pinb-D1b*: 232 bp
Pinb-D1c		Pinb-F1: TCCTCCTAGCTCTCCTTGCTC Pinb-R1: AGCCACTAGGGAACTTGCAG Pinb-D1c-R1b: TAGGTGCTATCTGGCTCA	94℃ 5 m - [95℃ 30 s - 61℃ 30 s 72℃ 30 s] 15 cycle - [95℃ 10 s 48℃ 30 s - 72℃ 5 s] 5 cycle - [95℃ 10 s - 53℃ 30 s - 72℃ 5 s] 15 cycle - 72℃ 8 m	*Pinb*: 423 bp *pinb-D1c*: 269 bp
Pinb-D1d		Pinb-F1: TCCTCCTAGCTCTCCTTGCTC Pinb-R1: AGCCACTAGGGAACTTGCAG Pinb-D1d-F1a: TAGGCCCACAAAATGGT	94℃ 5 m - [95℃ 30 s - 60℃ 30 s 72℃ 30 s] 15 cycle - [95℃ 10 s 45℃ 30 s - 72℃ 5 s] 5 cycle - [95℃ 10 s - 53℃ 30 s - 72℃ 5 s] 15 cycle - 72℃ 8 m	*Pinb*: 423 bp *pinb-D1d*: 236 bp
Pina-D1		Pina-F1a: ACTGGACGAAAAAGCAGTGG Pina-R1a: GATTGACCCCTGGATGATGT Pina-R2a: TCACCCAATGCTGAAGACAC	94℃ 5 m - [95℃ 30 s - 60℃ 30 s - 72℃ 60 s] 35 cycle - 72℃ 8 m	*Pina-D1a*: 704 bp *Pina-D1b*: 922 bp
		Pina-F1a: ACTGGACGAAAAAGCAGTGG Pina-R1a: GATTGACCCCTGGATGATGT Pina-R2b: GTTTGTCGGCGAGGTAGAAG		*Pina-D1a*: 704 bp *Pina-D1b*: 1033 bp
PPO-D1a		F: TGCTGACCGACCTTGACTCC R: CTCGTCACCGTCACCCGTAT	95℃ 5 m - [95℃ 30 s - 59℃ 30 s - 72℃ 1 m] 40 cycle - 72℃ 5 m	713 bp
PPO-D1b		F: TGAAGCTGCCGGTCATCTAC R: AAGTTGCCCATGTCCTCGCC		490 bp
PPO-A1ab	*A1a* *A1b*	F: AACTGCTGGCTCTTCTTCCCA R: AAGAACTTGCCCATGTCCGC	95℃ 5 m - [95℃ 30 s - 60℃ 30 s - 72℃ 1 m] 40 cycle - 72℃ 5 m	a: 685 bp b: 876 bp
Wx-A1		F: TCGTGTTCGTCGGCGCCGAGATGG R: CCGCGCTTGTAGCAGTGGAAGTACC	95℃ 5 m - [95℃ 30 s - 65℃ 30 s - 72℃ 2 m] 32 cycle - 72℃ 7 m	a: 389 bp b: 370 bp
Wx-B1		F: CTGGCCTGCTACCTCAAGAGCAACT R: CTGACGTCCATGCCGTTGACGA		425 bp
Wx-D1		F: CTGGCCTGCTACCTCAAGAGCAACT R: CTGTTTCACCATGATCGCTCCCCTT		a: 2307 bp b: 1731 bp
Vrn	*Vrn-A1* *Vrn-B1* *Vrn-D1*	VrnA1F: GAAAGGAAAAATTCTGCTCG VrnB1F: CAGTACCCCTGCTACCAGTG VrnD1F: CGACCCGGGCGGCACGAGTG Vrn1R: TGCACCTTCCC(CG)CGCCCCAT	94℃ 5 m - [94℃ 45 s - 55℃ 1 m - 72℃ 1 m] 40 cycles - 72℃ 5 m 94℃ 5 m - [94℃ 45 s - 58℃ 1 m - 72℃ 1 m] 40 cycles - 72℃ 5 m 94℃ 5 m - [94℃ 45 s - 60℃ 1 m - 72℃ 1 m] 40 cycles - 72℃ 5 m	500 bp 1000 bp 750 bp
Sr22		F: TTCCATAAGTTCCTACAGTAC R: TAGACAAACAAGATTTAGCAC	94℃ 5 m - [94℃ 45 s - 58℃ 1 m - 72℃ 1 m] 40 cycles - 72℃ 5 m	200 bp
Lr	*Lr34*	F: GTTGGTTAAGACTGGTGATGG R: TGCTTGCTATTGCTGAATAGT	94℃ 5 m - [94℃ 45 s - 60℃ 30 s - 72℃ 1 m] 40 cycles - 72℃ 5 m	R: 150 bp S: 229 bp
	Lr46	F: GGTCTTCTGGGCTTTGATCCTG R: GTTGCTAGGGACCCGTAGTGG		242 bp