Online Resource 1. Primers and probes used for PpVQ genomic termini, detection, and PDS analyses. Primer and probe sequences, melting temperatures (Tm), expected amplicon sizes, and references are provided. Dashes indicate that an amplicon size is not applicable. RACE, rapid amplification of cDNA ends; RT-qPCR, reverse transcription quantitative PCR; PDS, phytoene desaturase; ndhB, NADH dehydrogenase subunit B. *The indicated size corresponds to the expected amplicon size in the absence of the PDS insert. Because three PDS inserts of different lengths (PDS-97, PDS-62, and PDS-110) were used in this study, the expected size of the amplified fragment depends on the primer pair and the specific PDS insert incorporated into the PpVQ genome.

Target/Use	Primer name	Sequence (5' → 3')	Tm (°C)	Amplicon size (bp)	Reference
5' RACE	5-End-out	CAGTCACCTTGCCGTCATCAG	55	-	This study
	5-End-in	CGTAAGAGCAAGAGGGTTCACA			
3' RACE	3-End-out	CTACGATGTGAGGAATGTCCTTG	55	-	
	3-End-in	CCGATGTGGTTCAGTGCTCAAT			
PpVQ_Detection	698-F	CCTGTCTACTCTTGTTTGGCACG	58	698	Quito et al. 2015
	698-R	GCAAGACCACATTGCCCAATAGC			
ndhB_routine	ndhB-F	GGACTCCTGACGTATACGAAGGATC	58	721	Tzanetakis et al. 2007
	ndhB-R	AGTAGATGCTATCACACATACAAT			
PpVQ_V2_PDS	Insert_Detection-F1	GGCATGTGCTGTCTATGTACT	58	809*	This study
	Insert_Detection-R1	CAAGGACATTCCTCACATCGTAG			
	Insert_Detection_F2	GCTTGGACATACTATTCCCTTC		591*	
	Insert_Detection_R2	CCAACAAATCGTTCATCCAAGC			
ndhB_RT-qPCR	ndhB-F	AAGCAAAAGTTCCTAGATTCATGG	60	132	Quito-Avila and Martin 2012
	ndhB-R	TTGCGTATTCGTCCATAGGTC			
	ndhB_probe	5'-6-FAM/TGCTTGCATATCCACCATTTGAGTCTCC-3'-BHQ-1			
PpVQ_RT-qPCR	PpVQ-q-F	TGTCTACTCTTGTTTGGCACG	60	105	This study
	PpVQ-q-R	AACCTTGTCCACATCTCACG			
	PpVQ_probe	5'-6-FAM/TGAAGCCCTTTGCTACCATCGGAA-3'-BHQ-1			
PDS	PaPDS-F	ATGGTCGGTGGACAGGAGT	55	348	Tuo et al. 2021
	PaPDS-R	AAAGCTCTTCACAGTTCCAT			
	Pap_Ec_PDS-F	GGCACTAAACTTCATTAACCC	58	230	This study
	Pap_Ec_PDS-R	GCTCTTCACAGTTCCATCATTG			
	Nic_Ec_PDS-F	GGCACTTAACTTCATAAACCC	58	227	
	Nic_Ec_PDS-R	CATTTGACACTTCCATCCTCA			