

Article

# Genetic Diversity and Pathogenicity of *Phytophthora infestans* Isolates on Four *Solanum tuberosum* (Potato) Cultivars in Nariño, Colombia

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**Supplementary Table S1.** Primer sequences for *P. infestans* genotyping.

SSR locus	Primer Sequence	Reference
Pi4B	Fwd- AAAATAAAGCCTTTGGTTCA Rev- GCAAGCGAGGTTTGTAGATT	Knapova y Gisi (2002)
PiG11	Fwd- TGCTATTTATCAAGCGTGGG Rev- GTTTC AATCTGCAGCCGTAAGA	Knapova y Gisi (2002)
Pi04	Fwd- AGCGGCTTACCGATGG Rev GTTTCAGCGGCTGTTTCGAC	Lees et al. (2006)
Pi63	Fwd- ATGACGAAGATGAAAGTGAGG Rev- CGTATTTTCCTGTTTATCTAACACC	Lees et al. (2006)
Pi70	Fwd- ATGAAAATACGTCAATGCTCG Rev- CGTTGGATATTTCTATTTCTTCG	Lees et al. (2006)
D13	Fwd- TGCCCCCTGCTCACTC Rev- GCTCGAATTCATTTTACAGACTTG	Lees et al. (2006)
PinfSSR2	Fwd- CGACTTCTACATCAACCGGC Rev- GTTTGCTTGGACTGCGTCTTTAGC	Li et al. (2013)
PinfSSR3	Fwd- ACTTGCAGAACTACCGCCC Rev- GTTTGACCACTTTCCTCGGTTC	Li et al. (2013)
PinfSSR4	Fwd- TCTTGTTTCGAGTATGCGACG Rev- GTTTCACCTTCGGGAGAAAGGCTTC	Li et al. (2013)
PinfSSR6	Fwd- GTTTTGGTGGGGCTGAAGTTTT Rev- TCGCCACAAGATTTATTCCG	Li et al. (2013)
PinfSSR8	Fwd- AATCTGATCGCAACTGAGGG Rev- GTTACAAGATACACACGTCGCTCC	Li et al. (2013)
PinfSSR11	Fwd- TTAAGCCACGACATGAGCTG Rev- GTTTAGACAATTGTTTTGTGGTCCG	Li et al. (2013)

**Supplementary Table S2.** Analysis of variance (ANOVA) for the effects of strain and potato genotypes on damage level late blight (%).

Effect	DFn	DFd	F	p	p<0.05	ges
CEPA	6.000	42.000	12.261	0.0000001	*	0.311

**Supplementary Table S3.** Bruvo's distance for microsatellites: analyzing genetic diversity in *P. infestans* isolates from corregimientos of the Pasto (Nariño), Colombia.

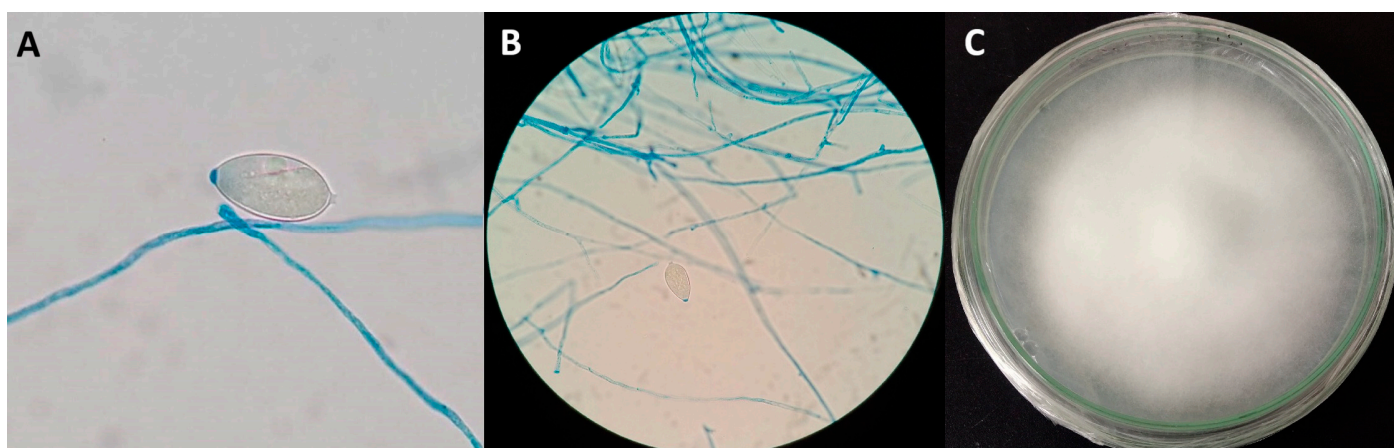
Isolated	P02521	P00119	P00221	P00519	P00321	P02421
P00119	0.61					
P00221	0.56	0.55				
P00519	0.39	0.58	0.57			
P00321	0.57	0.64	0.67	0.59		
P02421	0.72	0.48	0.41	0.55	0.53	
P00921	0.52	0.48	0.64	0.44	0.52	0.34

**Supplementary Table S4.** Geographic distance matrix of potato *P. infestans* isolates from corregimientos of the Pasto (Nariño), Colombia.

Isolate	P02521	P00119	P00221	P00519	P00321	P02421	P00921
P00119	94.98632						
P00221	433.89213	352.81043					
P00519	646.36911	575.97286	236.7209				
P00321	1823.58748	1753.6519	1405.5935	1178.026			
P02421	1483.56192	1420.83418	1083.665	848.3059	377.4766		
P00921	645.90207	738.49351	1011.7181	1156.1661	2254.2038	1882.7962	

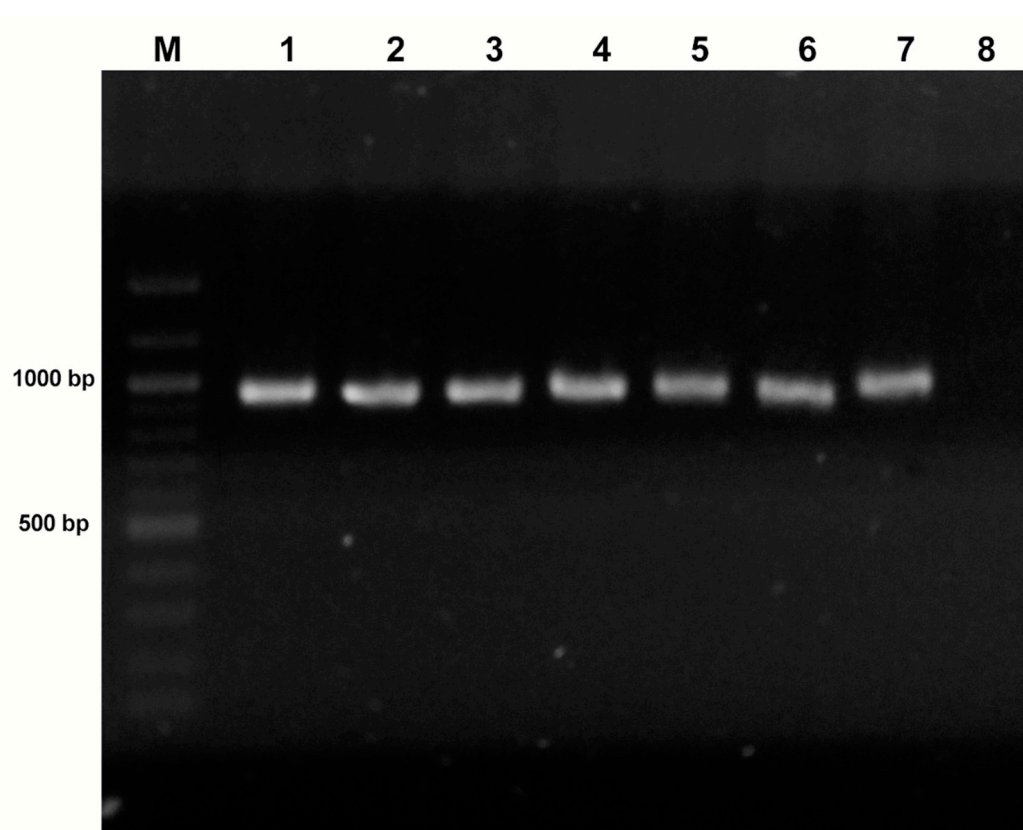


**Supplementary Figure S1.** Necrotic spot on leaves of *S. tuberosum* with presence of sporulation on the underside of the leaf.

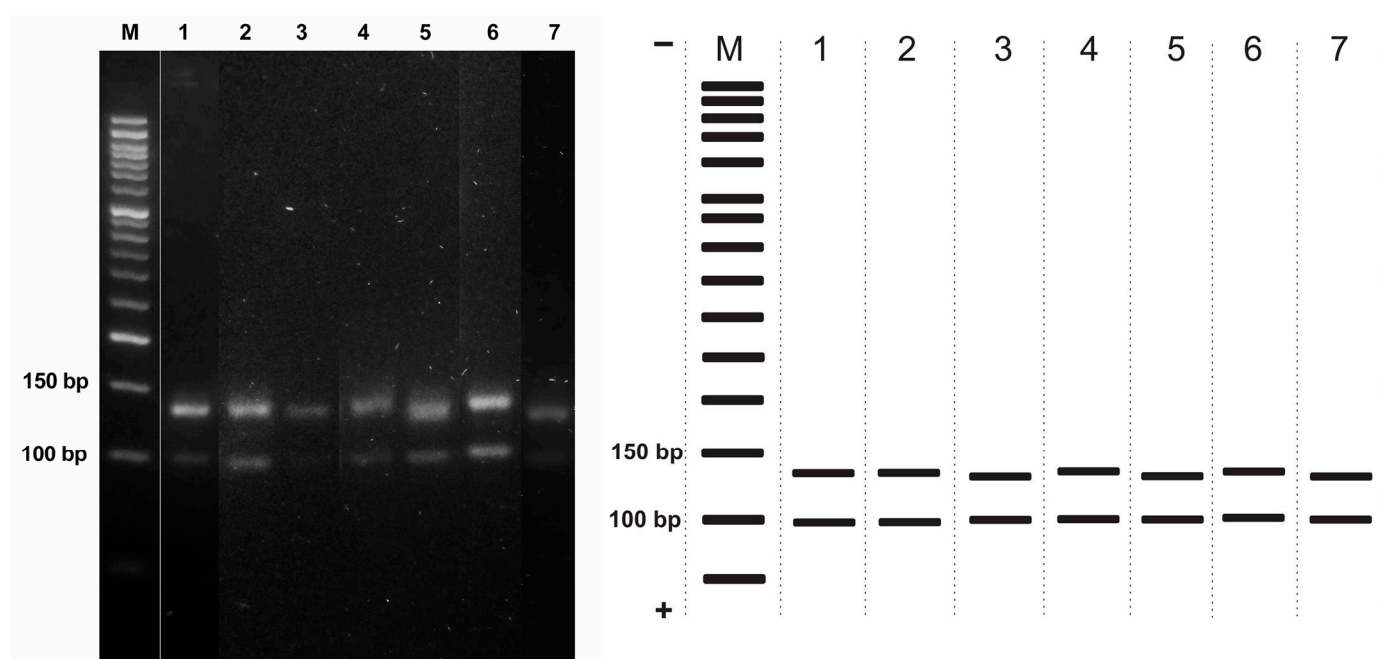


**Supplementary Figure S2.** Microscopic observation of mycelium and sporangia (400×) (A,B) and macroscopic observation (C).



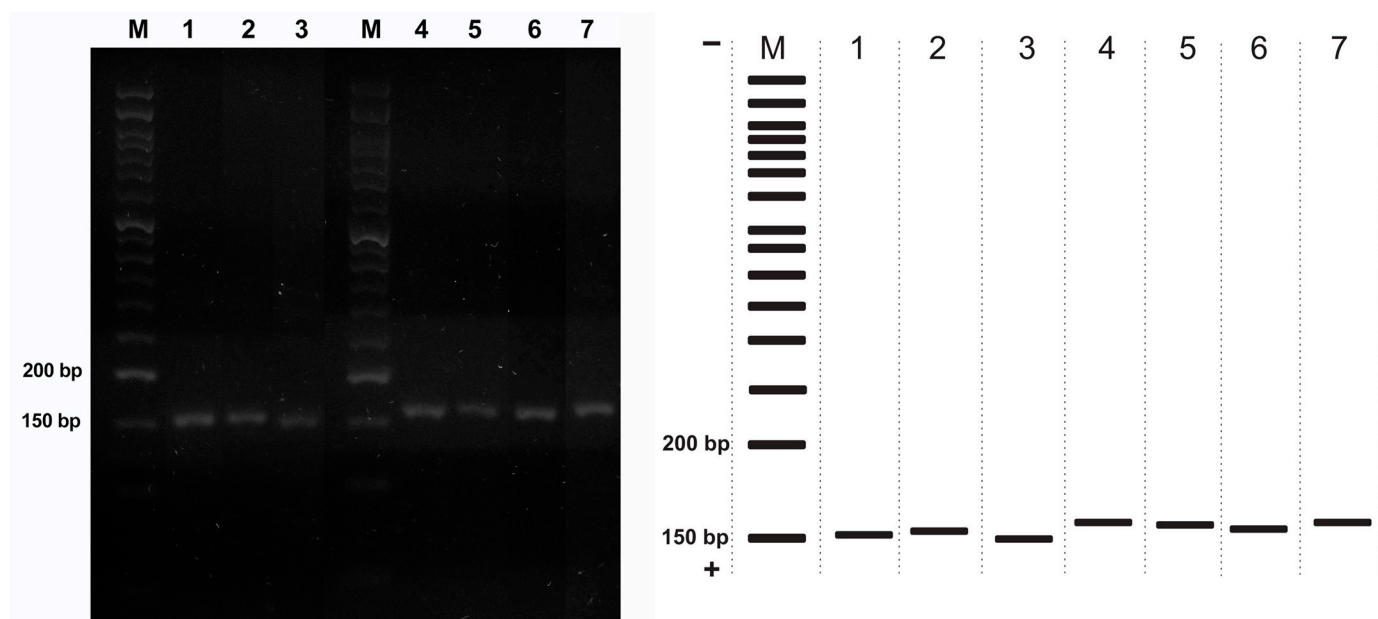


**Supplementary Figure S3.** Amplification with primers ITS4 and 5. Lines: (M) 100 bp DNA Ladder (New England Biolabs). (1) P00921, (2) P02421, (3) P00321, (4) P00221, (5) P02521, (6) P00119, (7) P00519, (8) Negative control.

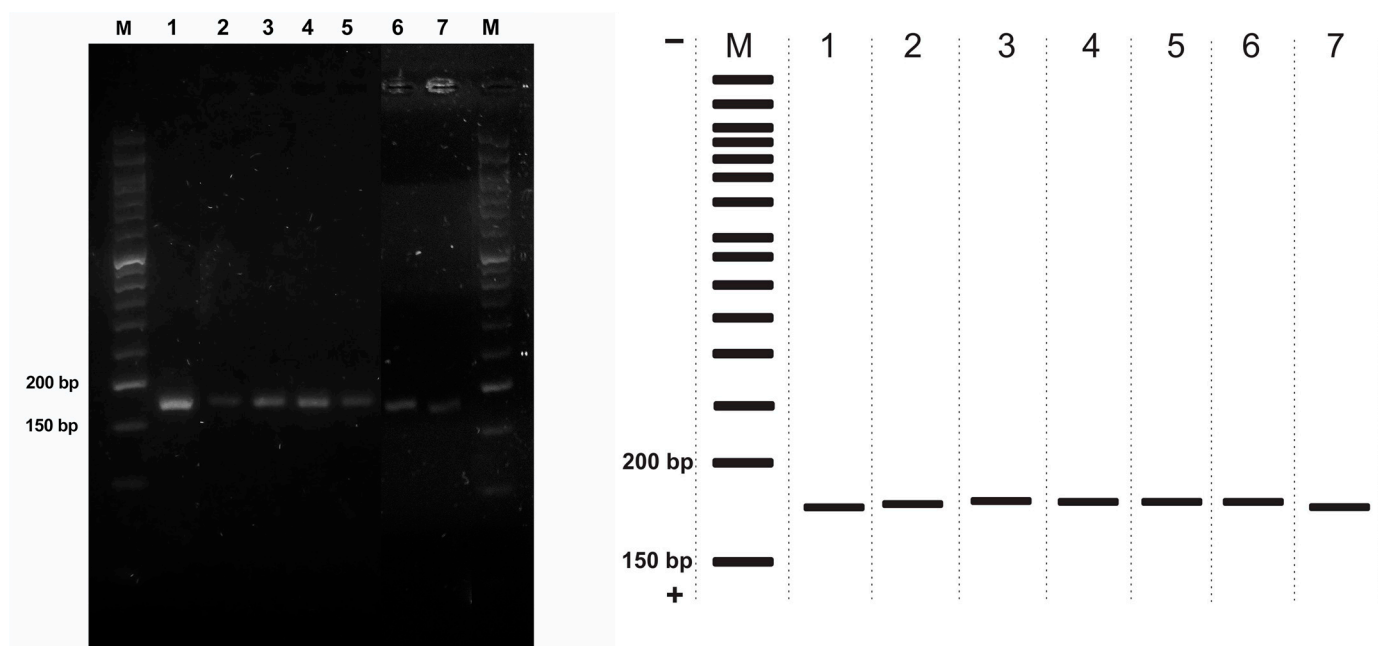


**Supplementary Figure S4.** D13 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00921, (2) P02521, (3) P00221, (4) P00321, (5) P02421, (6) P00119, (7) P00519.

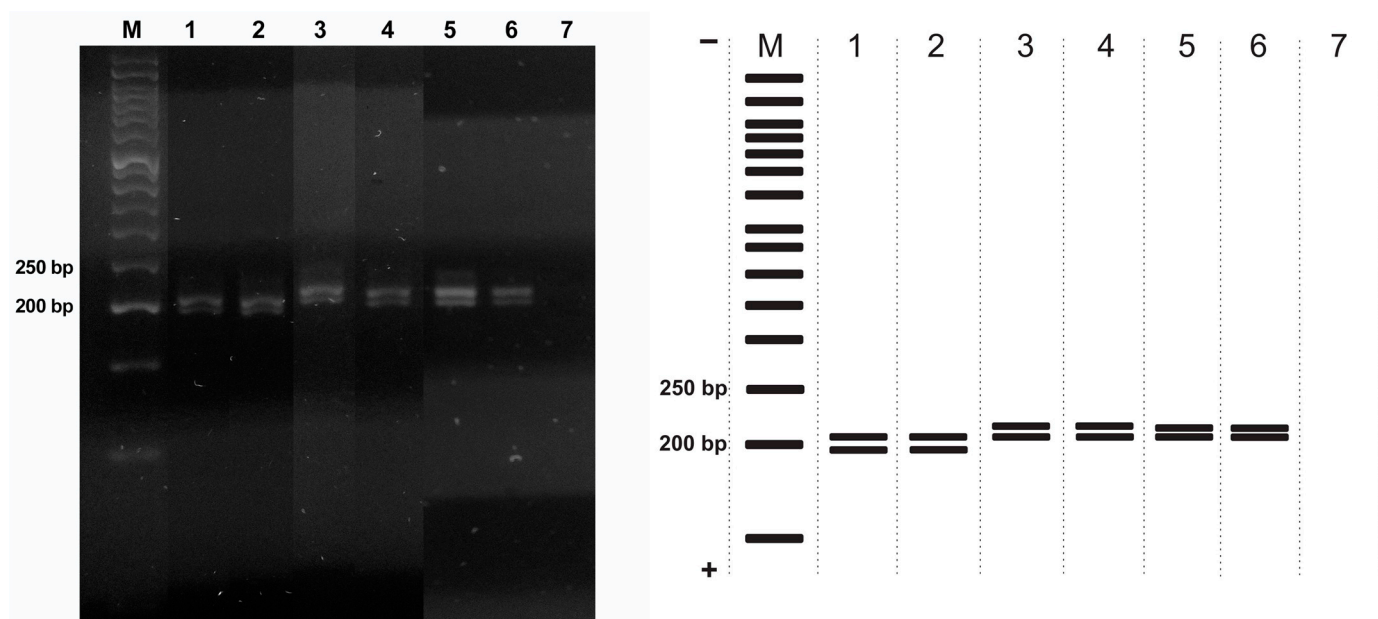




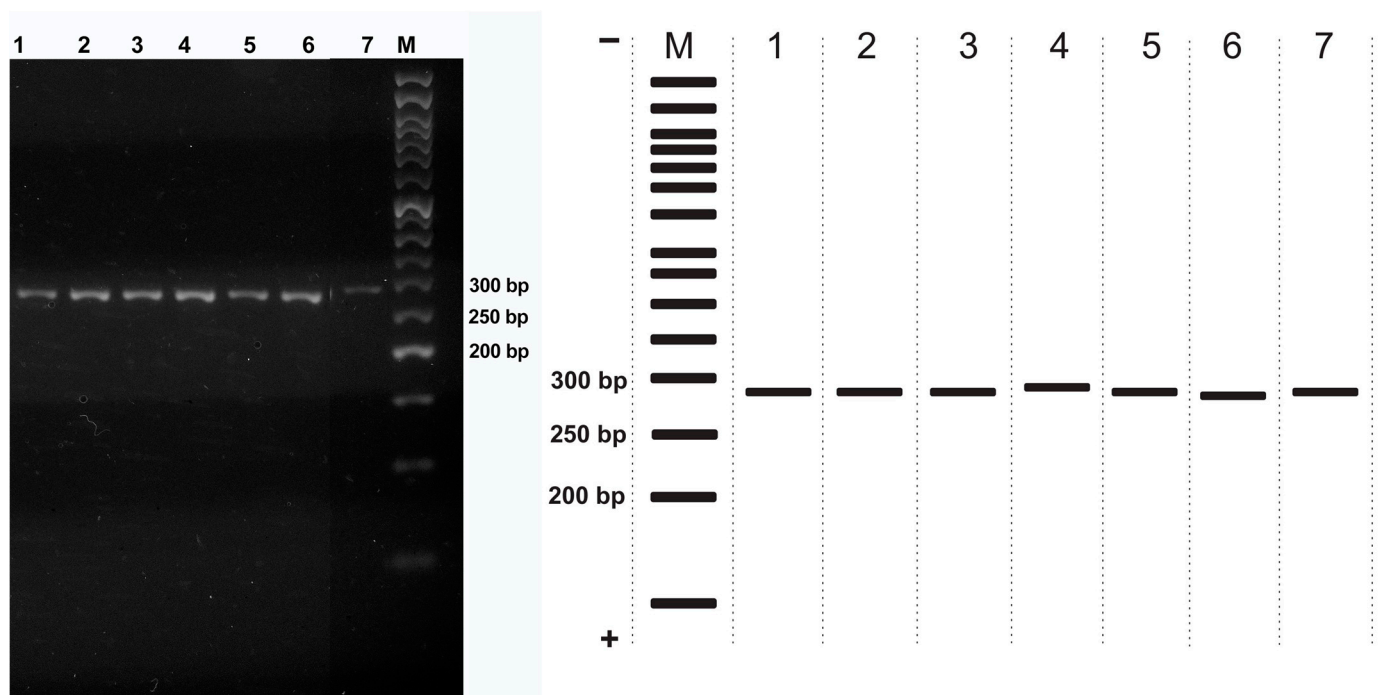
**Supplementary Figure S5.** G11 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P00119, (3) P00221, (4) P02421, (5) P00321, (6) P02521, (7) P00921.



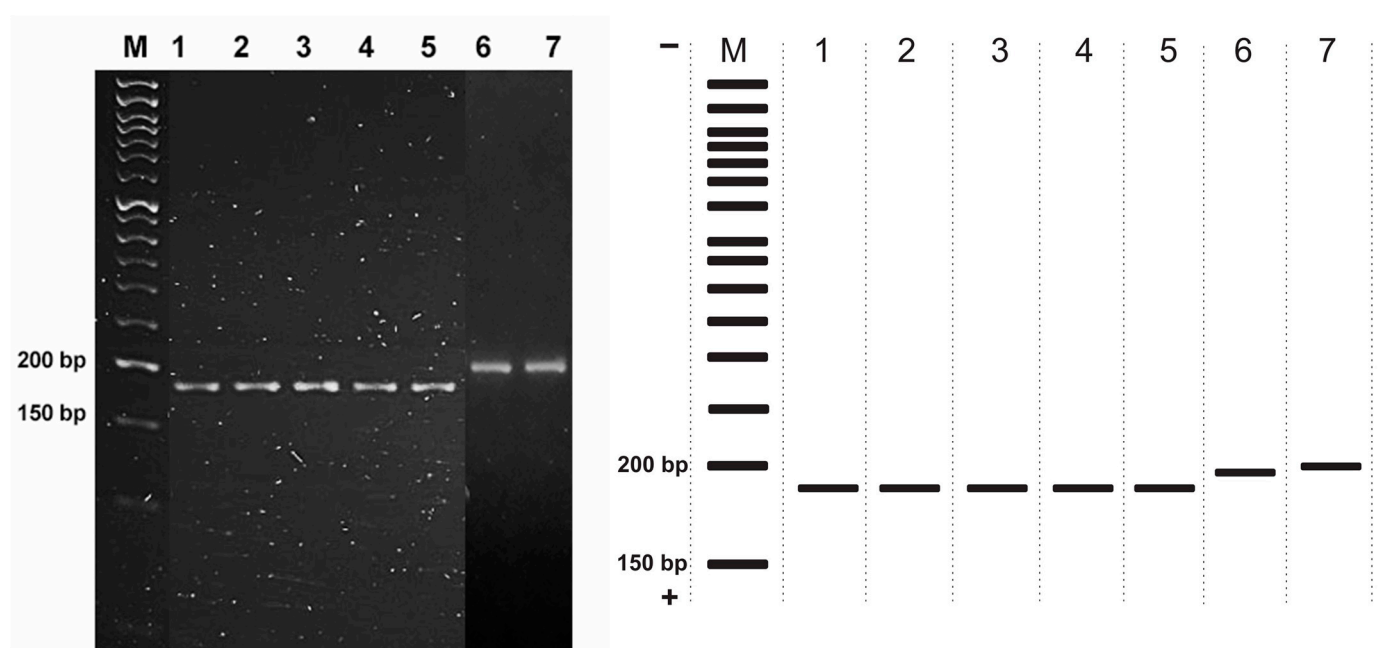
**Supplementary Figure S6.** Pi04 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00119, (2) P00921, (3) P00519, (4) P02521, (5) P00221, (6) P00321, (7) P02421.



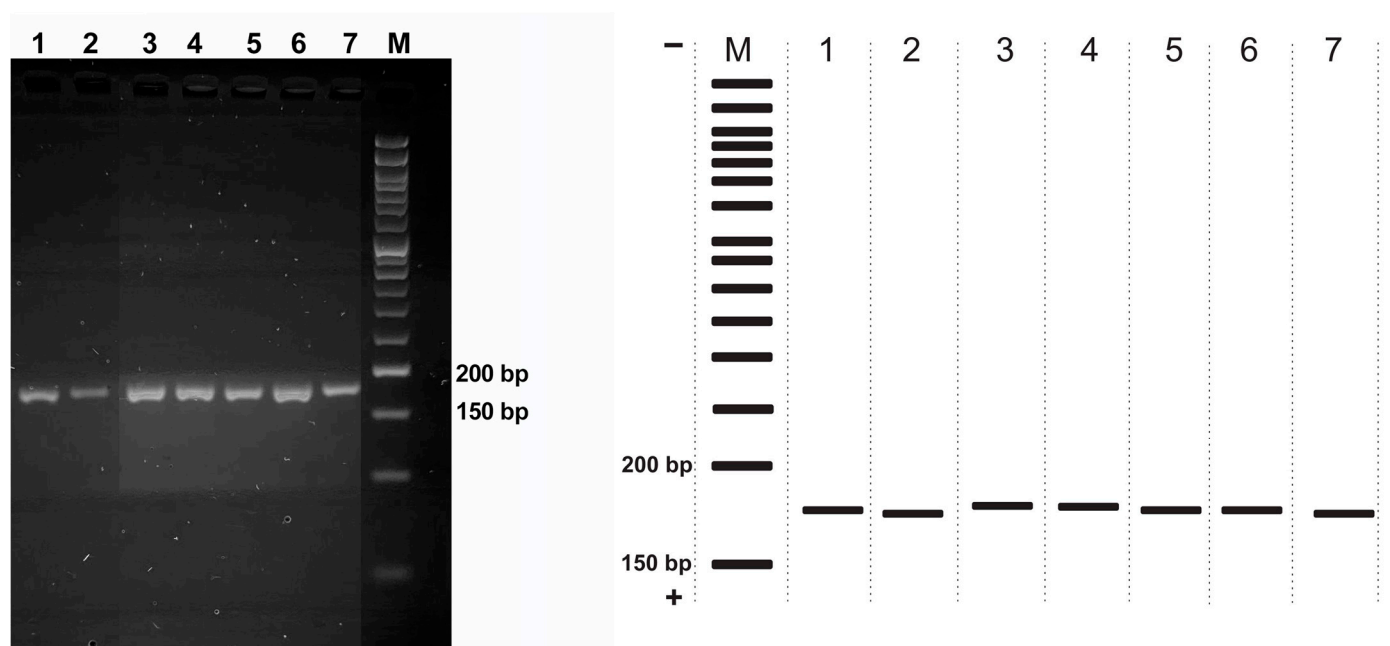
**Supplementary Figure S7.** Pi4B microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P02521, (3) P00119, (4) P00921, (5) P02421, (6) P00221, (7) P00321.



**Supplementary Figure S8.** Pi63 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P02521, (3) P00221, (4) P00321, (5) P02421, (6) P00119, (7) P00921.

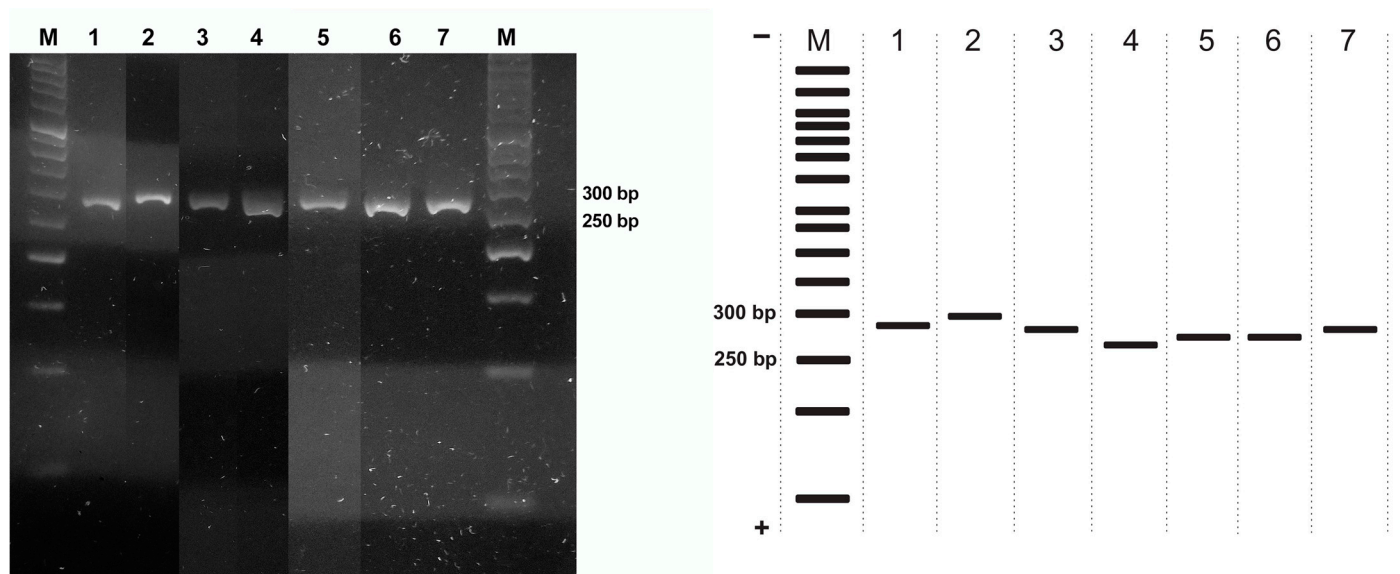


**Supplementary Figure S9.** Pi70 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00119, (2) P00519, (3) P00321, (4) P02421, (5) P00921, (6) P00221, (7) P02521.

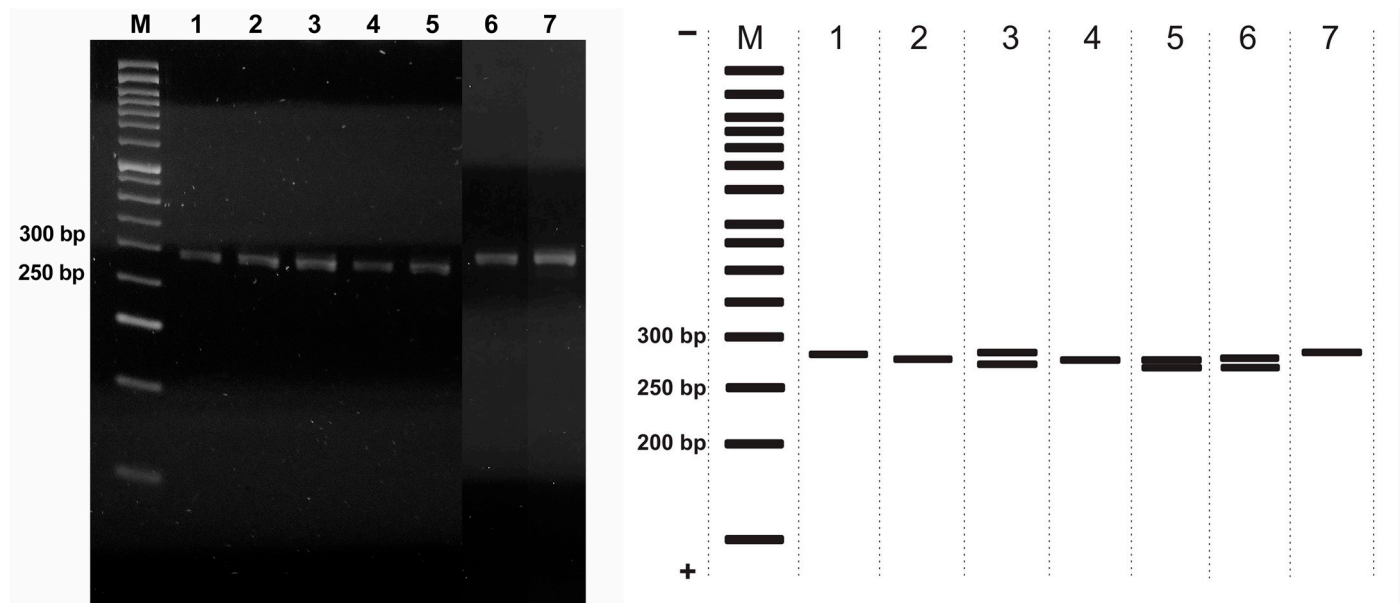


**Supplementary Figure S10.** PinfSSR2 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00321, (2) P00921, (3) P00221, (4) P02421, (5) P00119, (6) P02521, (7) P00519.

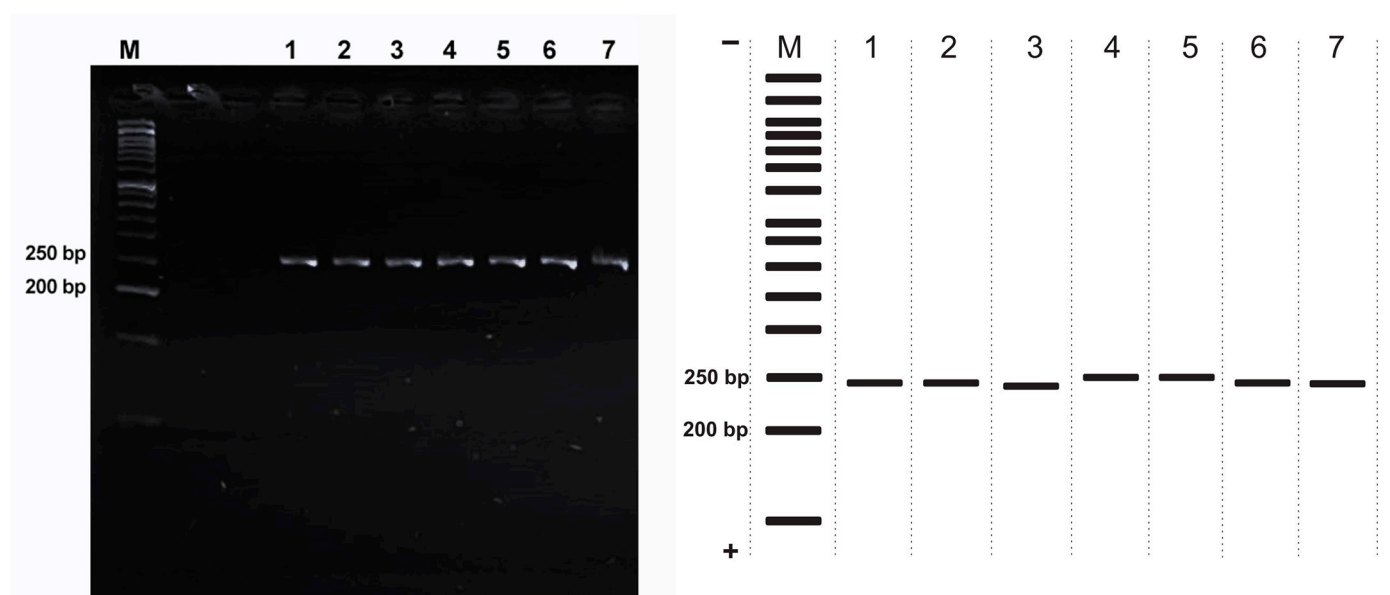




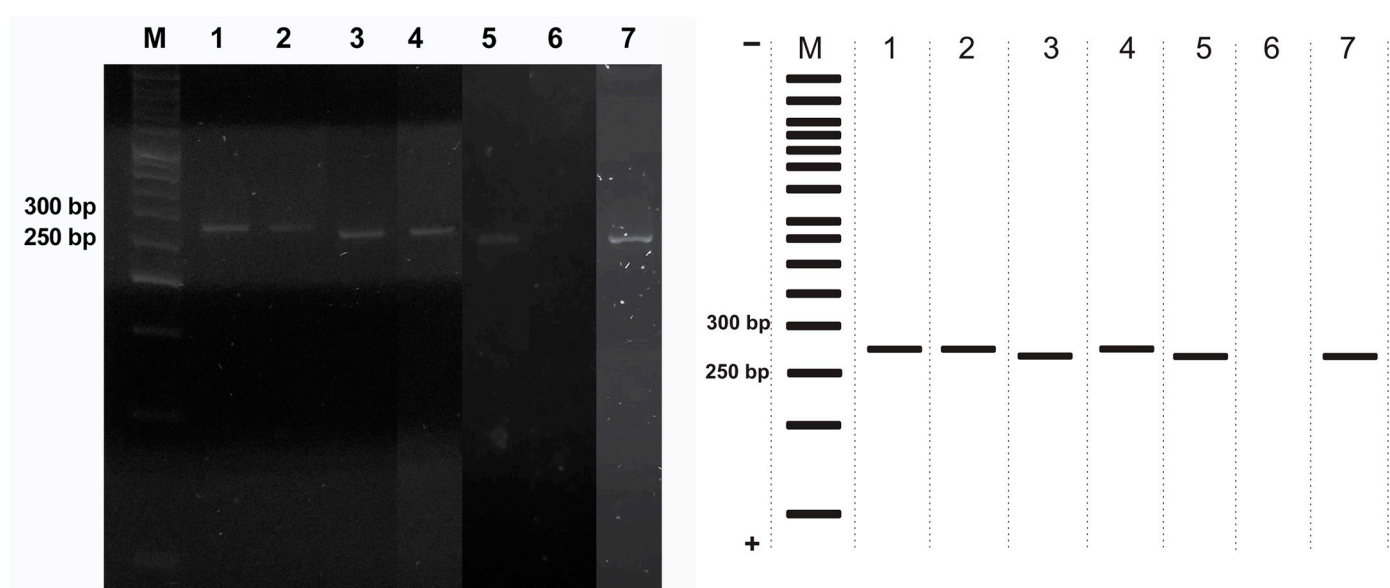
**Supplementary Figure S11.** PinfSSR3 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P02521, (3) P00221, (4) P00119, (5) P00921, (6) P00321, (7) P02421.



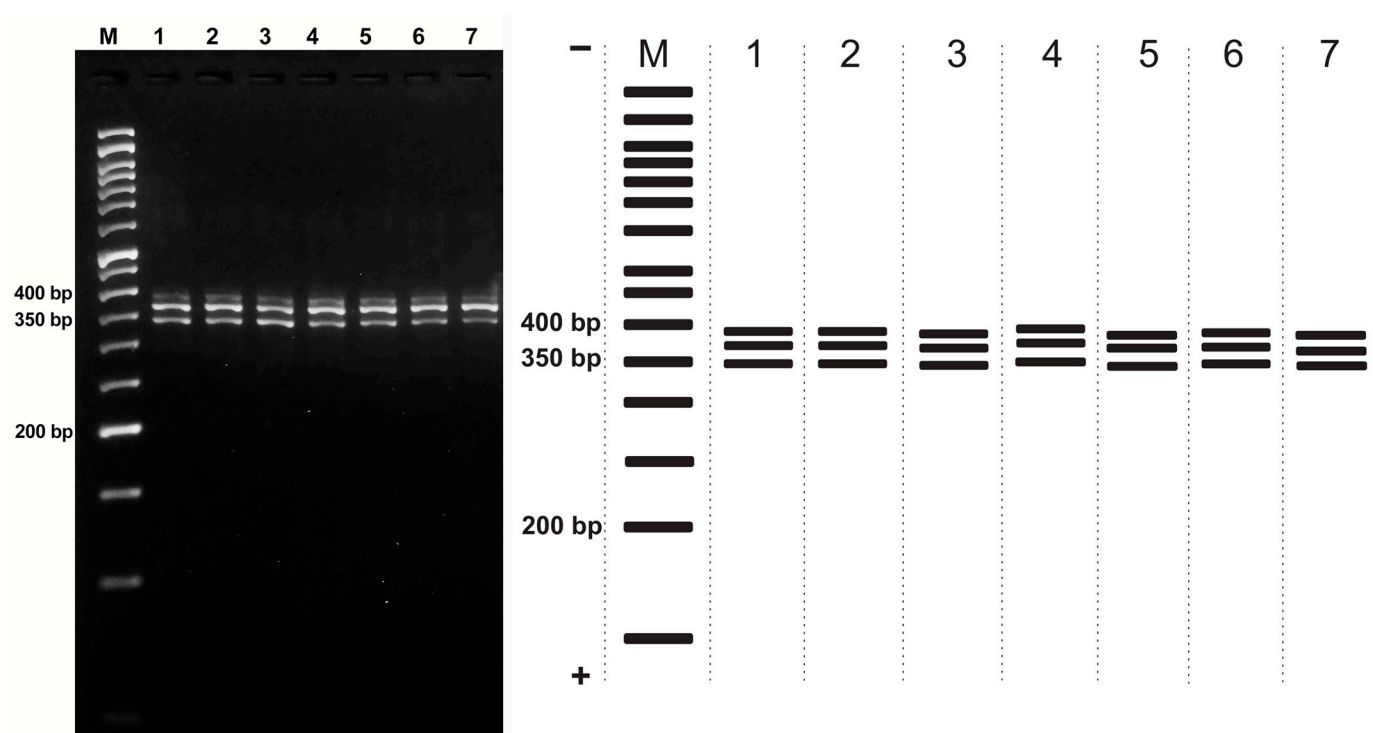
**Supplementary Figure S12.** PinfSSR4 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P00221, (3) P00321, (4) P02421, (5) P00119, (6) P00921, (7) P02521.



**Supplementary Figure S13.** PinfSSR6 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P02521, (3) P00221, (4) P00321, (5) P02421, (6) P00119, (7) P020921.

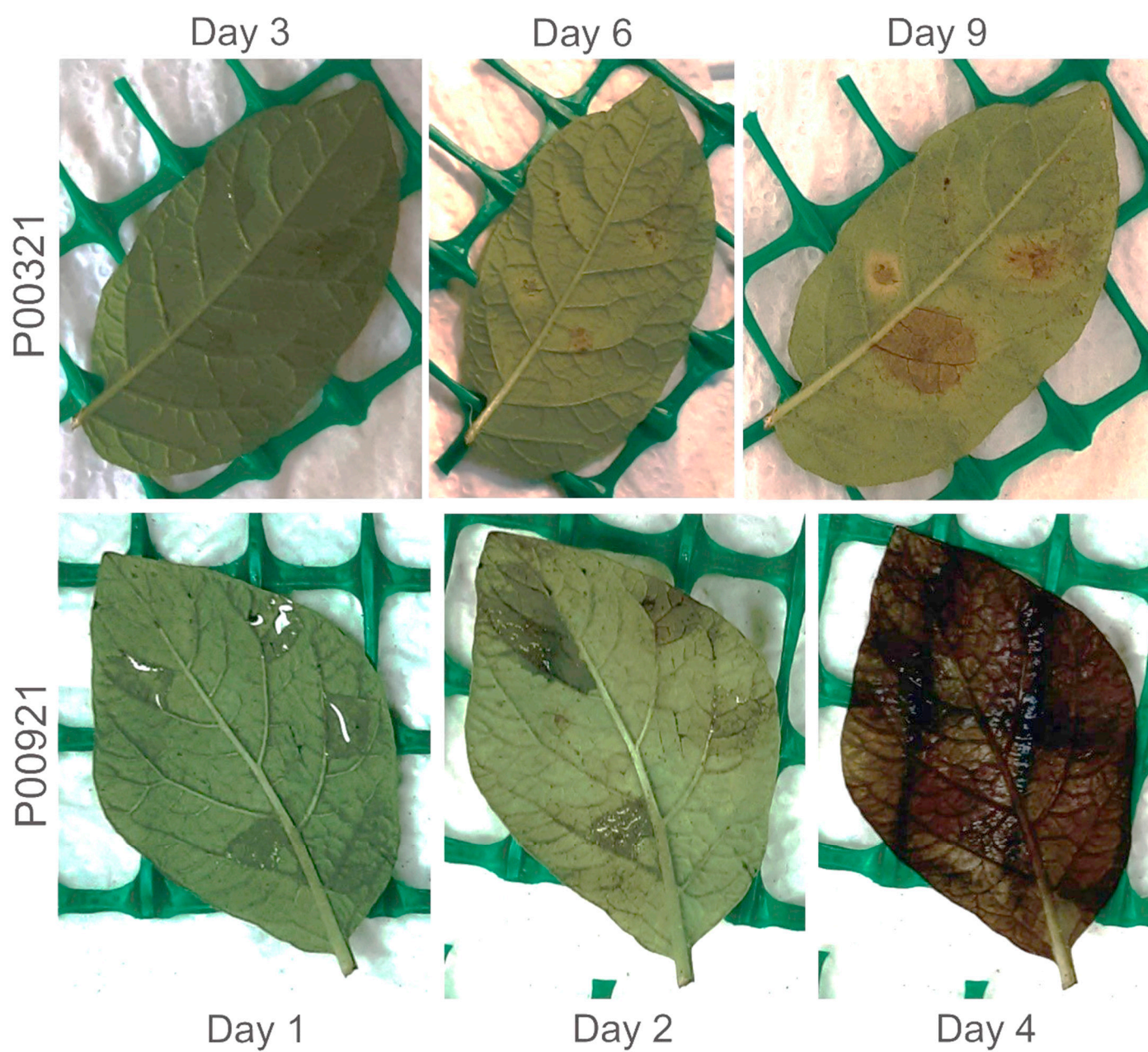


**Supplementary Figure S14.** PinfSSR8 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00119, (2) P02421, (3) P02521, (4) P00221, (5) P00321, (6) P00921, (7) P00519.



**Supplementary Figure S15.** PinfSSR11 microsatellite amplification. (M) ExcelBand™ 50 bp DNA Ladder, (1) P00519, (2) P02521, (3) P00221, (4) P00321, (5) P02421, (6) P00119, (7) P00921.





**Supplementary Figure S16.** Progression of disease caused by *P. infestans* isolates P00921 and P00321 in the detached leaf assay.