

Supplementary

The presence of genes for the biosynthesis of 2,4-diacetylphloroglucinol (DAPG), phenazine-1-carboxylic acid (PCA), pyrrolnitrin (Prn), pyoluteorin (Plt) and hydrogen cyanide (HCN) was determined by polymerase chain reaction (PCR) using the primer sets described in Table 1. The PCR reactions were performed according to [1]. Our *P. fluorescens* strain was negative for the genes encoding the production of DAPG, PCA, Prn, Plt and HCN (Fig. 1).

Table 1

Target antibiotic genes and primers used in PCR analysis

Target gene	Sequence-F	Sequence-R	Length/bp	Reference
PCA	TTGCCAAGCCTCGCTCCAAC	CCGCGTTGTTCTCGTTCAT	1150	[2]
DAPG	GAGGACGTCGAAGACCACCA	ACCGCAGCATCGTGTATGAG	745	[2]
Plt	AACAGATCGCCCCGGTACAGAACG	AGGCCCGGACACTCAAGAACTCG	438	[3]
Prn	GGGGCGGGCCGTGGTGATGGA	YCCCGCSGCCTGYCTGGTCTG	786	[3]
HCN	ACTGCCAGGGGCGGATGTGC	ACGATGTGCTCGGCGTAC	587	[4]

Marker PCA DAPG Plt Prn HCN

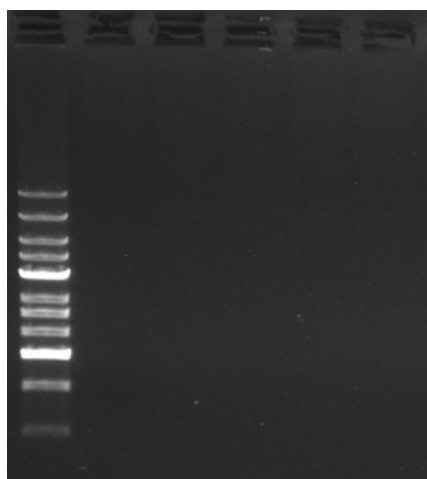


Fig. 1 Agarose gel showing the PCR amplification

References

- [1] WALLACE, R.L., HIRKALA, D.L. and NELSON, L.M. 2017. Postharvest biological control of blue mold of apple by *Pseudomonas fluorescens* during commercial storage and potential modes of action. *Postharvest Biology and Technology* **133**, 1-11.
- [2] RAAIJMAKERS, J.M., BONSALE, R.F. and WELLER, D.M. 1999. Effect of population density of *Pseudomonas fluorescens* on production of 2,4-diacetylphloroglucinol in the rhizosphere of wheat. *Phytopathology* **89**, 470-475.
- [3] SOUZA, J.T. and RAAIJMAKERS, J.M. 2003. Polymorphisms within the *prnD* and *pltC* genes from pyrrolnitrin and pyoluteorin-producing *Pseudomonas* and *Burkholderia* spp. *Fems Microbiology Ecology* **43**, 21-34.
- [4] RAMETTE, A., FRAPOLLI, M., DEFAGO, G., et al. 2003. Phylogeny of HCN synthase-encoding *hcnBC* genes in biocontrol fluorescent pseudomonads and its relationship with host plant species and HCN synthesis ability. *Mol Plant Microbe Interact*, **16**, 525-535.

Graphical Abstract

