

Supplementary information

Silencing of a mannitol transport gene in *Phelipanche aegyptiaca* by the tobacco rattle virus system reduces the parasite germination on the host root

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Table S1.

Sanger DNA sequencing of each silenced construct. The red color highlighted was used in the cloning of the fragments in the pTRV2 vector.

<u>1</u>	TRV2-PaMNT1
	NNNNNNNNNGNNNNNNNNNAGCNCGNNGAGCTTTATTATTACGGNNGANNGGNCTTAGANTCTGTGAGTAAGGTTACCGAATTCTCTA GAAGTATGCTTTTCGCTTGTTCTTTCTTGGCCTCCATGACCTCCATCTTACTTGGATATGATATCGGAGTGATGAGTGGAGCCATAATAT ACATCGAGAAATCGATCAAGATGACTTACGTTCAAAAGGAGGTCATAATGGGAATCTTAAATCTCTACTCGCTCATCGGGTCGGCTG CCGCCGGCCGGACCTCCGATTGGATCGGACGCCGGTACACCATAATCTTCGCCGGANCCATTTTCTTTGTCCGTGCTTTGCTGATGGG TTTCGCGACTAANGATCCGGTACCGAGCTCACGCGTCTCGAGGCCCGGGCATGTCCCGANNACATTAAACTACN
<u>2</u>	TRV2-PaMET1
	NNNNNNNNNTGNNNNNNNNNAGCNCGNNGAGCTTTATTATTACGGACNANNGNNTTAGANTCTGTGAGTAAGGTTACCGAATTCTCT AGA TGTCACATACTTGCTGCTTTCT AAAACCCGCTAAGGGTGTTGAGAAAACCTTTTCTCTTCTTTCACTTCTTGACAAAATCCTCCAA TCTACAAGGAAGTTATTGCTGAGCTGAAGGCAGCAGGTGCTTCATGGATCCAGTTTGATGAGCCCACCCTAGTTCTGGATCTCGAGT CTCACCAGCTGGAAGCATTACCAAGGCTTATGCTGAA CTCGAGTCATCTTTGTCTGG GGATCCGGTACCGAGCTCACGCGTCTCGA GGCCCCGGGCATGTCCCGAANACATTAAACTACGGTCTTTAAGTAGATCCGTGTCTGAAGTTTTAG
<u>3</u>	TRV2-PaSUT1
	NNNNNNNNNNNGNNNNNNNNNNNNNNNCGNNGNGCTTTATNATTACGGACGAGTGGNCTTAGANTCTGNGAGTAAGGTTACCGAATTCTC TAGA ACTCCGTACGTGCAGTTG CTGGGCATACCGCACAAATGGGCCGCTTTTATCTGGCTGTGCGGCCCGATTTCGGGATTGCTGGTC CAGCCCATAGTCGGGTTCTACAGCGATAATTGCACCTCANGGTTTCGGACGGCGGGCGCCCTTCATCGCCGCCGGCGCGGGGCTCGTG GCGGTGGCGGTTTTCTGATCGGGTTCGCCGCCGATTGTTGGGGCATGCCGGCGGCGATTGCTCGAGAAGGCTGCGA AGCCTAGGGCT ATTGCTGTGT GGATCCGGTACCGANCTCACGCGTCTNGANNCCCGGGCATGTCCCGAANACATTAAACTACNGNTCNTTTNAGNTAN AT
<u>4</u>	TRV2-PaUBQ3

	NNNNNNNNNNNNNNNNNNNNNNNNNNCGNNGAGCTTTATTATTACGGACGAGTGGNCTTAGATTCTGTGAGTAAGGTTACCGAATTCTCC TTGCAGCGTGGATGTGGTTCTGCCATCATTAGTGATCTTCCACCTCTGATCTGCAAAGATGGAATTTCTGTTGCGAATTGGGCCCGCA AGANTGTTGCTTTTTATAGTCTGTTGTGCGGTGCAGACCTATCAGGAAATAGGCTCTCGTCAGGTGTTACTTGCAGTATTGCAGCTGG ATTATATCATACTCGGGAAGAGCTTACAGTTTTGGGCTCGAGGCCCCGGGCATGTCCCGAANACATTAAACTACGGTTCTTTAAGTAG ATCCGTGTCTGAGTTTTAGA
<u>5</u>	TRV2-PaOPT1 AGNNNNNNNGTNNCNNNNNNNNNNCGNNGNCTTTATTATTACGGNCGAGTGGNCTTAGNNTCTGTGAGTAAGGTTACCGAATTCTC TAGAGCTAAGTTTTCTTATTGCACTAGTCTGCAGTTTTTCCTGGTACCTACTTCCAGGTACCTCTTCCCAACTCTCACTAGCATTTC ATGGATTTGTTGGACATTCTCAAAGTCTGTCACGGCACAAACANNTGGATCGGGCCTAANANGCCTGGGCCTTGGAGCGTTAACATT AGATTGGACTGCTGTGGCATCGTTCTTGTTACGCCACTCATATGTCCCTTCTTTGCCATAATGCTCGAGGCCCCGGGCATGTCCCGAN NNCATTAAACTACGGTTCTTTAAGTAGATCCGTGTCTGAAGTTTTAG
<u>6</u>	TRV2-PaPHT1 NNNNNNNNNGNNNNNNNNNANCNCNCGNNGAGCTTTATTATTACGGACGAGTGGACTTAGATTCTGTGAGTAAGGTTACCGAATTCTCT AGAGCCCCGTTTGGCATTCTTGGCAACCAACGCCGTGTACCGTGCCGTTTCGGGCATTTTCATACGCCAGTAGTAAGTCAGGGTCGCA GGGAGGGCACCAAACATCAGGATAAGACGCCAAGCGTAATCGGCCTGAGGGATAGTCGAAAGAAGGGCATCTTCTGCATAAGAAG GGGCGGGATATGCGGCCTTAAACGCGGCCGAGACTATAATCGCCACCATCCACCGGCCAAAATCCCGAAACCCTGCATCGCGAAA ACAGCNNNGNNNCGCGAAAACNNNNGNATC
<u>7</u>	TRV2-PaPDR1

	ANNNNNNNNGNNNNNNNNNAGCNCGNNGAGCTTTATTATTACGGACGANNGGNCTTAGANTCTGTGAGTAAGGTTACCGAATTCTCA CGGGGAATATCAGGCGGACAGAAAAAGCGCCTCACGACTGGTGAAATGCTGGTTGGACCTGCAAAAGTTTTCTACATGGACGAAAT CTCAACGGGTCTTGACAGTTCAACTACATTTCAAATTATTAAGTACATGAGGCAGATGGTTCATATCATGGATGTGACAATGATAAT ATCCCTTCTCCAACCGGCACCAGAAACCTCGAGGCCCGGGCATGTCCCGAANACATTAAACTACGGTCTTTAAGTAGATCCGTGTC TGAAGTTTTAGA
8	TRV2-PaCLP1 NNNNNNNNNGNNNNNNNNNNAGCNCGANGAGCTTTATTATTACGGACGNNNNGGACTTAGANTCTGTGAGTAAGGTTACCGAATT CTCGTCCTGGCGGGTCAGCAATGTATGCATTAGCTATTTATAATATGATGCAATTTATAAACCCAGATGTGAATACAATAGGACTAG GAATAGCCGCATCAATGGGATCTATGATCCTGGCTGGGGGAGCAATTCGTATAGCATTACCTCACTTAAGAGTAATGATCCGTCAAC CTGTATGGGGTTATTCTGGGTGGATTAGTGCAAGCGATTGTGTACGGAGAGCTCGAGGCCCGGGCATGTCCCGAANACATTAAACTA CGGTCTTTAAGTAGATCCGTGTCTGAAGTTNNN
9	TRV2-PaGLR1 GGCGACGGACGACCAAATCTCCACCGAGCTTTACAAGCTGATGACTATGCAAACACGAGTTTTCGTGGTCCACATGTTGG GTCCACTTGCTTCCCGCCTTTTTACCAAAGCGAAACAGTTAGGAATGATGAGTCGGGAGTATGCATGGATAATAACGGAC GGCATCACGAACGAACATAACTCGATGGACCGTTCGGTTATC
10	TRV2-PaMAX2 ACCGTTACTCACTACCCTCCGGGGCAACCTCCGCGACATCTTCATGGTCCCCACCTGCTTCCAGTCCATATCCCACCTC GACCTCTCTGTCCTCTCCCCGTGGGGCCACCCTCTCACCTCCGCCGACGATCCCGACTCCGAACTCGTCGGCCACGTCCTC GGCCAAGCCTTCCCGTCCGTCACCTCCCTCTCGCTCTATGCCCGTAACCCCTC

Table S2. List of Oligos used in the study

Oligos name	Sequence 5'-3' (target sequences are shown in red and RE sites are underlined)	Use in the study
TRV1-DG-F	CGTGCTAATTGGATTTTGG	Validation of transformation
TRV1-DG-R	TGCAGAGCAGGAACTCTATC	
TRV2-SEQ-F	GCGGTTCTTGTGTGTCAAC	Validation of transformation
TRV2-SEQ-R	CTAAAACTTCAGACACGGATCTAC	
PaMNT1-Xba2F	GAGTAAGGTTACCGAATTCTCTAGAAGTATGCTTTC <u>GCTTGTTCTTTC</u>	Cloning <i>P. aegyptiaca</i> mannitol transporter fragment in TRV2 vector-Blast hit only Orobanche, target region +275bp
PaMNT1-BamH2R	GACGCGTGAGCTCGGTACCGGATCCTTAGTCGCGA <u>AACCCATC</u>	
PaMET1-Xba1F	ACCGAATTCTCTAGATGTCACATACTTGCTGCTTTC	Cloning <i>P. aegyptiaca</i> Methionine synthase fragment in TRV2 vector-Blast hit only Orobanche target region +231bp,
PaMET1-Kpn1R	TCGGTACCGGATCCCCAGACAAAGATGACTCGAG	

PaSUT1-Xba1F	ACCGAATTCTCTAGAA <u>ACTCCGTACGTGCAGTTG</u>	Cloning <i>P. aegyptiaca</i> Sucrose transporter 1 fragment in TRV2 vector-Blast hit only Orobanche target region +268bp
PaSUT1-BamH1R	TCGGTACCGGATCC <u>ACACAGCAATAGCCCTAGGC</u>	
PaMAX2-Xba1F	GAGTAAGGTTACCGAATTCTCTAGAA <u>ACCCGTTACTC</u> <u>ACTCACCC</u>	Cloning <i>P. aegyptiaca</i> MAX2 fragment in TRV2 vector-Blast hit only Orobanche target region +215bp
PaMAX2-BamH1R	GACGCGTGAGCTCGGTACCGGATCC <u>GAAGGGTTACG</u> <u>GGCATAG</u>	
OPT1-XbaI-F	GGACTTAGATTCTGTGAGTAAGGTTACCGAATTCTC TAGAGCTAAGTTTTTCCTTATTGCAC	Cloning <i>P. aegyptiaca</i> oligopeptide transporter OPT4 fragment in TRV2 vector-Blast hit only Orobanche target region +237bp
OPT1-XhoI-R	TTTAATGTCTTCGGGACATGCCCGGGCCTCGAGCAT TATGGCAAAGAAGGGAC	
PaPHT1-Xba1-F	GAGTAAGGTTACCGAATTCTCTAGAG <u>CCCGTTTGG</u> <u>CATTCTTGGC</u>	Cloning <i>P. aegyptiaca</i> Phosphate transporter fragment in TRV2 vector-Blast hit only Orobanche target region +261bp
PaPHT1-BamH1-R	GACGCGTGAGCTCGGTACCGGATCC <u>GCTGTTTTCGC</u> <u>GATGCAGGG</u>	

PaGLR1-EcoRI-F	CGGACGAGTGGACTTAGATTCTGTGAGTAAGGTTA CCGAATTCTCGGCGACGGACGACCAAATC	Cloning <i>P. aegyptiaca</i> Glutamate receptor fragment in TRV2 vector-Blast hit only Orobanche target region +202bp
PaGLR1-XhoI-R	TAGTTTAATGTCTTCGGGACATGCCCGGGCCTCGAG GATAACCGAACGGTCCATCGAG	
PaCLP-EcoRI-F	CGGACGAGTGGACTTAGATTCTGTGAGTAAGGTTA CCGAATTCTCGTCCTGGCGGGTCAGCAATG	Cloning <i>P. aegyptiaca</i> CLP ATPase fragment in TRV2 vector-Blast hit only Orobanche target region +223bp
PaCLP-XhoI-R	TAGTTTAATGTCTTCGGGACATGCCCGGGCCTCGAG CTCTCCGTACACAATCGCTTGAC	
PaPDR1-EcoRI-F	CGGACGAGTGGACTTAGATTCTGTGAGTAAGGTTA CCGAATTCTCACGGGGAATATCAGGCGGAC	Cloning <i>P. aegyptiaca</i> ABC transporter fragment in TRV2 vector-Blast hit only Orobanche target region +201bp
PaPDR1-XhoI-R	TAGTTTAATGTCTTCGGGACATGCCCGGGCCTCGAG GTTTCTGGTGCCGGTTGGAG	
PaUBQ-EcoRI-F	GGACGAGTGGACTTAGATTCTGTGAGTAAGGTTAC CGAATTCTCCTTGCAGCGTGGATGTGGTTC	Cloning <i>P. aegyptiaca</i> E3 Ubiquitin ligase fragment in TRV2 vector-Blast hit only Orobanche target region +213bp
PaUBQ-XhoI-R	TAGTTTAATGTCTTCGGGACATGCCCGGGCCTCGAG CCCAAACTGTAAGCTCTTCCCGAG	
TRV1-RT-F	TTACAGGTTATTTGGGCTAG	qRT-PCR Analysis

TRV1-RT-R	CCGGGTTCAATTCCTTATC	
TRV2-CP-S1	CTGGGTTACTAGCGGCACTGAATA	
TRV2-CP-A1	TCCACCAAACCTTAATCCCGAATAC	
PaMNT1-RT-F	CGACGAAAGCACTCATCAAT	
PaMNT1-RT-R	CCCGGTATCATATCCGAGAAGG	
MNT1-RT-F	GTACAGCCCGGAGATATTCAAG	
MNT1-RT-R	GATCCTGTCTGAGTAAGAACGTG	
PaACT1-RT-F	TGGCATCACACGTTTTAC	
PaACT1-RT-R	AGCCTGGATAGCAACATAC	