

Supplementary Table S2 Plant growth promoting traits associated genes in the genome of V4 strain

Promotion mechanism	Gene	Accession number	Gene product	Function	
IAA synthesis	ipdC	NLG40_17285	Indole-3-pyruvate decarboxylase	Pyruvate decarboxylase and related thiamine pyrophosphate-requiring enzymes	
	dhaS	NLG40_14960	aldehyde dehydrogenase	NAD-dependent aldehyde dehydrogenases	
ACC deaminase	dcyD	NLG40_01375	D-cysteine desulfhydrase	1-aminocyclopropane-1-carboxylate deaminase	
Nitrogen-fixation	ntrB	NLG40_10400	Sensory histidine kinase/phosphatase NtrB	Signal transduction histidine kinase, nitrogen specific	
	ntrC	NLG40_10405	DNA-binding transcriptional regulator NtrC	Response regulator containing CheY-like receiver, AAA-type ATPase, and DNA-binding domains	
P-solubilization	gcd	NLG40_04220	Quinoprotein glucose dehydrogenase	Glucose dehydrogenase	
	pqqE	NLG40_07720	PqqA peptide cyclase	Predicted Fe-S oxidoreductases	
	pstA	NLG40_10670	Phosphate transport system permease protein PstA	ABC-type phosphate transport system, permease component	
	pstA1	NLG40_16820	Phosphate transport system permease protein PstA 1	ABC-type phosphate transport system, permease component	
	pitA	NLG40_11770	Low-affinity inorganic phosphate transporter 1	Phosphate/sulphate permeases	
	pitA	NLG40_03325	Low-affinity inorganic phosphate transporter 1	Phosphate/sulphate permeases	
	phnC	NLG40_01710	Phosphonates import ATP-binding protein PhnC	ABC-type phosphate/phosphonate transport system, ATPase component	
	phnD2	NLG40_01705	Probable ABC transporter phosphonate/phosphite binding protein PhnD2	ABC-type phosphate/phosphonate transport system, periplasmic component	
	phnL	NLG40_01735	Alpha-D-ribose 1-methylphosphonate 5-triphosphate synthase subunit PhnL	ABC-type phosphonate transport system, ATPase component	
	phnK	NLG40_01740	Putative phosphonates utilization ATP-binding protein PhnK	ABC-type phosphonate transport system, ATPase component	
	appA	NLG40_05460	Periplasmic AppA protein	--	
	agp	NLG40_02340	Glucose-1-phosphatase	--	
	phoP	NLG40_19290	Transcriptional regulatory protein PhoP	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain	
	Siderophores	phoR	NLG40_05485	Phosphate regulon sensor protein PhoR	Signal transduction histidine kinase
		iucC	NLG40_00820	Aerobactin synthase	Siderophore synthetase component
		alcA	NLG40_00815	Alcaligin biosynthesis enzyme	Lysine/ornithine N-monooxygenase
		ddc	NLG40_00810	L-2,4-diaminobutyrate decarboxylase	Glutamate decarboxylase and related PLP-dependent proteins
mdfA		NLG40_00825	Multidrug transporter MdfA	Permeases of the major facilitator superfamily	
znuA		NLG40_00840	High-affinity zinc uptake system protein ZnuA	ABC-type Zn ²⁺ transport system, periplasmic component/surface adhesin	
znuC		NLG40_00845	Zinc import ATP-binding protein ZnuC	ABC-type Mn/Zn transport systems, ATPase component	
hexR		NLG40_00800	HTH-type transcriptional regulator HexR	Transcriptional regulators	
pykA		NLG40_00805	Pyruvate kinase II	Pyruvate kinase	
lpxM		NLG40_00830	Lipid A biosynthesis myristoyltransferase	Lauroyl/myristoyl acyltransferase	
mepM		NLG40_00835	Murein DD-endopeptidase MepM	Membrane proteins related to metalloendopeptidases	
fhuA		NLG40_06350	Ferrichrome outer membrane transporter/phage receptor	Outer membrane receptor proteins, mostly Fe transport	
fhuA		NLG40_06355	Ferrichrome outer membrane transporter/phage receptor	Outer membrane receptor proteins, mostly Fe transport	
fhuE		NLG40_11845	FhuE receptor	Outer membrane receptor for ferric coprogen and ferric-rhodotorulic acid	
fepA		NLG40_21625	Ferrienterobactin receptor	Outer membrane receptor proteins, mostly Fe transport	
tonB		NLG40_00270	Protein TonB	Periplasmic protein TonB, links inner and outer membranes	
fepB		NLG40_18775	Ferrienterobactin-binding periplasmic protein	ABC-type Fe ²⁺ -enterobactin transport system, periplasmic component	
fhuB	NLG40_14535	Iron(3+)-hydroxamate import system permease protein FhuB	ABC-type Fe ³⁺ -siderophore transport system, permease component		
fhuB	NLG40_06335	Iron(3+)-hydroxamate import system permease protein FhuB	ABC-type Fe ³⁺ -siderophore transport system, permease component		
fhuC	NLG40_06345	Iron(3+)-hydroxamate import ATP-binding protein FhuC	ABC-type cobalamin/Fe ³⁺ -siderophores transport systems, ATPase components		

	fhuD	NLG40_06340	Iron(3+)-hydroxamate-binding protein FhuD	ABC-type Fe ³⁺ -hydroxamate transport system, periplasmic component
	fepC	NLG40_18795	Ferric enterobactin transport ATP-binding protein FepC	ABC-type cobalamin/Fe ³⁺ -siderophores transport systems, ATPase components
	fepD	NLG40_18785	Ferric enterobactin transport system permease protein FepD	ABC-type Fe ³⁺ -siderophore transport system, permease component
others				
5-Aminolevulinic acid (5-ALA)	hemA	NLG40_19755	Glutamyl-tRNA reductase	Glutamyl-tRNA reductase
spermidine synthase	speE	NLG40_06455	Polyamine aminopropyltransferase	Spermidine synthase
Extracellular polysaccharide	galE	NLG40_18560	UDP-glucose 4-epimerase	UDP-glucose 4-epimerase
	galE	NLG40_18560	UDP-glucose 4-epimerase	UDP-glucose 4-epimerase
Heavy metal resistance	gstA	NLG40_20385	Glutathione S-transferase GstA	Glutathione S-transferase
	gstA	NLG40_08900	Glutathione S-transferase GstA	Glutathione S-transferase
	gstB	NLG40_10060	Glutathione S-transferase GstB	Glutathione S-transferase
	gst3	NLG40_20395	Glutathione S-transferase 3	Glutathione S-transferase
	cysC	NLG40_15560	Adenylyl-sulfate kinase	Adenylylsulfate kinase and related kinases
	cysD	NLG40_15550	Sulfate adenylyltransferase subunit 2	3'-phosphoadenosine 5'-phosphosulfate sulfotransferase (PAPS reductase)/FAD synthetase and related enzymes
	cysH	NLG40_15530	Phosphoadenosine phosphosulfate reductase	3'-phosphoadenosine 5'-phosphosulfate sulfotransferase (PAPS reductase)/FAD synthetase and related enzymes
	cysK	NLG40_17135	Cysteine synthase A	Cysteine synthase
	zntA	NLG40_11970	Zinc/cadmium/lead-transporting P-type ATPase OS=Shigella sonnei (strain Ss046)	Cation transport ATPase
	copA	NLG40_04980	Copper-exporting P-type ATPase	Cation transport ATPase
	mtnA	NLG40_05905	Methylthioribose-1-phosphate isomerase	Predicted translation initiation factor 2B subunit, eIF-2B alpha/beta/delta family
	mtnB	NLG40_05920	Methylthioribulose-1-phosphate dehydratase	Ribulose-5-phosphate 4-epimerase and related epimerases and aldolases
	mtnC	NLG40_05915	Enolase-phosphatase E1	Predicted enolase-phosphatase
	mtnD	NLG40_05910	Acireductone dioxygenase	Uncharacterized conserved protein, contains double-stranded beta-helix domain
	mtnK	NLG40_05900	Methylthioribose kinase	Predicted kinase
	mtnN	NLG40_06305	5'-methylthioadenosine/S-adenosylhomocysteine nucleosidase	Nucleoside phosphorylase