

Supplementary material

Prospecting the functional potential of *Bacillus altitudinis* 1.4 isolated from sediment in association with *Bradyrhizobium japonicum*

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Table S1. Genome characteristics of *B. altitudinis* 1.4

Genome characteristic	Value
Genome size (bp)	3.712.480
Genomic DNA G+C content (%)	41.3
N50	510260
L50	3
Number of contigs	24
Number of coding sequences	3926
Numbers of RNAs	83
Completeness	99.59

Table S2. Genes related to PGP characteristics and soil survival in the genome of *B. altitudinis* 1.4

Gene	Gene function	Presence of genes
Nitrogen fixation		
<i>nif genes</i>	nitrogen fixation	-
ACC deaminase		
<i>acdS</i>	1-aminocyclopropane-1-carboxylate deaminase	+
<i>acdR</i>	ACC deaminase regulatory protein	-
IAA biosynthesis pathway-related genes		
<i>iaaM</i>	Tryptophan 2-monooxygenase	+
<i>iaaH</i>	Indoleacetamide hydrolase	+
<i>ipdC</i>	Indole-3-pyruvate decarboxylase	+
Tryptophan synthesis		
<i>trpA</i>	Tryptophan synthase alpha chain	+
<i>trpB</i>	Tryptophan synthase beta chain	+
<i>trpC</i>	Indole-3-glycerol phosphate synthase	+

<i>trpD</i>	Anthranilate phosphoribosyltransferase	+
<i>trpE</i>	Anthranilate synthase component 1	-
<i>trpF</i>	N-(5'-phosphoribosyl)anthranilate isomerase	-
<i>ysnE</i>	putative N-acetyltransferase YsnE	-
<i>ddc</i>	L-2,4-diaminobutyrate decarboxylase	-
<i>cypB</i>	Probable bifunctional P-450/NADPH-P450 reductase 2	-

Genes putatively involved in gibberellin biosynthesis

<i>yjiB</i>	Putative cytochrome P450 YjiB	-
<i>fni</i>	Isopentenyl-diphosphate delta-isomerase	-
<i>uppS</i>	Farnesyl diphosphate synthase	+
<i>yajO</i>	1-deoxy-D-xylulose-5-phosphate synthase	-
<i>dxs</i>	1-deoxy-D-xylulose-5-phosphate synthase	-
<i>dxr</i>	1-deoxy-D-xylulose 5-phosphate reductoisomerase	+
<i>ispF</i>	2-C-methyl-D-erythritol 2,4-cyclodiphosphate synthase	+
<i>ispD</i>	2-C-methyl-D-erythritol 4-phosphate cytidyltransferase	-
<i>ispE</i>	4-diphosphocytidyl-2-C-methyl-D-erythritol kinase	+

Phosphate solubilization

<i>ppqB-F</i>	pyrroloquinoline quinone biosynthesis -related genes	-
<i>gcd</i>	quinoprotein glucose dehydrogenase	-
<i>gad</i>	2-keto gluconic acid production	-

Volatile organic compounds

	2-pentylfuran	-
<i>ilvB</i>	acetolactate synthase-related	-
<i>ilvH</i>	acetolactate synthase-related	-
<i>alsS</i>	acetolactate synthase-related	-
<i>alsD</i>	alpha-acetolactate decarboxylase	-
<i>acoA</i>	acetoin oxidoreductase	-
<i>acoB</i>	acetoin oxidoreductase	-
<i>acoR</i>	acetoin dehydrogenase operon transcriptional activator	-
<i>acuA</i>	acetoin utilization	-
<i>acuC</i>	acetoin utilization	-

Spermidine, putrescine and polyamines utilization

<i>potA</i>	spermidine/putrescine import	+
<i>potB</i>	spermidine/putrescine transport	-

<i>speG</i>	spermidine/putrescine acyltransferase	-
<i>puuP</i>	putrescine import	-
<i>spuC</i>	putrescine-pyruvate aminotransferase	-
<i>paiA</i>	spermidine/spermine acetyltransferase	-
<i>patA</i>	putrescine aminotransferase	-
<i>potE</i>	putrescine transporter gene	+
<i>bltD</i>	spermine/spermidine acetyltransferase	-
<i>speA</i>	arginine decarboxylase	-
<i>speB</i>	agmatinase	+
<i>speE</i>	polyamine aminopropyltransferase	-
<i>potD</i>	spermidine/putrescine import	+

Biofilm formation

<i>espG</i>	exopolysaccharide synthesis genes	+
<i>epsDEFHIKLMN</i>	exopolysaccharide synthesis genes	-
<i>tapA</i>	TasA anchoring/assembly protein	-
<i>sipW</i>	Signal peptidase I W	-
<i>tasA</i>	biofilm matrix component	-
<i>bslA</i>	biofilm-surface layer protein	-

<i>pgaABCD</i>	biofilm PGA	+
<i>exoZ</i>	<i>Exopolysaccharide</i>	+

Root exudates chemoreceptors

<i>mcpB</i>	Methyl-accepting chemotaxis protein McpB	+
<i>mcpC</i>	Methyl-accepting chemotaxis protein McpC	-
<i>tlpC</i>	Methyl-accepting chemotaxis protein TlpC	-

Secretion systems

type VII secretion system	-
ESX secretion system	-
type II secretion system	-

Polyhydroxybutyrate production

<i>phaB</i>	3-ketoacyl-CoA reductase	-
<i>phaC</i>	Poly(3-hydroxyalkanoate) polymerase subunit PhaC	-
<i>phaR</i>	Polyhydroxyalkanoic acid synthase subunit PhaR	-
<i>phaP</i>	Polyhydroxyalkanoic acid inclusion protein PhaP	-
<i>phaQ</i>	PhaP transcriptional regulator	-

Motility		
<i>flgABCDEFGHIJKL</i>	Motility	+
<i>motA</i>	Motility	+
<i>motB</i>	Motility	+
<i>ycgR</i>	Motility	+