



Figure S1. Two-dimensional thin-layer chromatograms of polar lipids of strains: (a) KMM 9576^T; (b) KMM 9553; (c) *Rhizobium leguminosarum* NBRC 14778^T; (d) *Agrobacterium radiobacter* NBRC 13532^T; (e) *Rhizobium rhizogenes* NBRC 13257^T; (f) *Sinorhizobium garmanticum* LMG 24692^T; (g) *Mesorhizobium mediterraneum* JCM 21565^T; (h) *Ensifer adhaerens* NBRC 100388^T; (i) *Pararhizobium giardinii* NBRC 107135^T. Abbreviations: PC, phosphatidylcholine, PE, phosphatidylethanoamine; PG, phosphatidylglycerol; APL, an unknown aminophospholipid; PL, PL1, PL2, unknown phospholipids; L, L1, L2, unknown lipids.

Table S1. Average nucleotide identity (ANI), average amino acid identity (AAI), and digital DNA-DNA hybridization (dDDH) values for studied strains KMM 9576^T and KMM 9553 and selected taxa from the family *Rhizobiaceae*.

Genome 1	Genome 2	ANI, %	AAI, %	dDDH, %
KMM 9576 ^T	KMM 9553	99.95	99.69	99.6
KMM 9576 ^T /	<i>Rhizobium leguminosarum</i> USDA	79.23/	69.56/	20.7/ 20.7
KMM 9553	2370 ^T	79.18	69.38	
KMM 9576 ^T /	<i>Neorhizobium galegae</i> HAMBI 540 ^T	78.85/	67.78/	20.8/ 20.8
KMM 9553		78.81	67.72	
KMM 9576 ^T /	<i>Endobacterium cereale</i> RZME27 ^T	78.35/	66.79/	20.1/ 20.1
KMM 9553		78.11	66.66	
KMM 9576 ^T /	<i>Pseudorhizobium pelagicum</i> R1-200B4 ^T	79.06/	68.97/	20.3/ 20.3
KMM 9553		79.02	68.74	
KMM 9576 ^T /	<i>Agrobacterium radiobacter</i> CCUG	78.59/	68.07/	20.4/ 20.4
KMM 9553	3354	78.60	67.87	
KMM 9576 ^T /	<i>Peteryoungia ipomoeae</i> shin9-1 ^T	79.14/	68.23/	20.3/ 20.4
KMM 9553		79.10	68.06	
KMM 9576 ^T /	<i>Ciceribacter lividus</i> DSM 25528 ^T	79.26/	69.84/	20.4/ 20.4
KMM 9553		79.23	69.66	
KMM 9576 ^T /	<i>Gellertiella hungarica</i> DSM 29853 ^T	79.43/	67.10/	20.4/ 20.4
KMM 9553		79.32	66.79	
KMM 9576 ^T /	<i>Ensifer adhaerens</i> Casida A ^T	79.87/	69.18/	21.6/ 21.6
KMM 9553		79.90	69.06	
KMM 9576 ^T /	<i>Sinorhizobium fredii</i> USDA 205 ^T	79.59/	68.75/	21.0/ 21.0
KMM 9553		79.49	68.60	
KMM 9576 ^T /	<i>Pararhizobium giardinii</i> H152 ^T	79.36/	69.10/	20.8/ 20.8
KMM 9553		79.28	69.09	
KMM 9576 ^T /	<i>Shinella granuli</i> DSM 18401 ^T	79.66/	69.09/	21.1/ 21.1
KMM 9553		79.70	68.90	

Table S3. Differential physiological characteristics of strains KMM 9576^T and KMM 9553 and the most closely related bacteria. Strains: **1**, KMM 9576^T; **2**, KMM 9553; **3**, *Rhizobium leguminosarum* NBRC 14778^T; **4**, *Ensifer adhaerens* NBRC 100388^T; **5**, *Sinorhizobium garamanticum* LMG 24692^T; **6**, *Pararhizobium giardinii* NBRC 107135^T (data were obtained from the present study). All strains were positive for utilization of esculin ferric citrate and negative for utilization of glycerol, erythritol, dulcitol, inositol, D-mannitol, methyl- α D-mannopyranoside, methyl- α D-glucopyranoside, N-acetylglucosamine, amygdalin, salicin, D-lactose, inulin, amidon, glycogen, xylitol, D-turanose D-lyxose, D-tagatose, potassium gluconate, potassium 2-ketogluconate, potassium 5-ketogluconate.

Utilization of:	1	2	3	4	5	6
D-arabinose	(+)	+	-	+	+	-
L-arabinose	-	+	-	+	+	-
D-ribose	(+)	+	-	-	-	-
D-xylose	-	(+)	-	-	-	-
L-xylose	(+)	-	+	-	-	-
D-adonitol	-	-	-	+	+	-
Methyl- β D-xylopyranoside	-	-	-	+	-	-
D-galactose	-	-	-	+	+	-
D-glucose	-	-	-	+	+	-
D-fructose	-	-	-	+	+	-
D-mannose	-	-	-	+	+	-
L-sorbose	-	-	-	(+)	-	-
L-rhamnose	(+)	+	(+)	+	+	-
D-sorbitol	-	+	-	-	-	-
Arbutin	-	-	-	(+)	+	-
D-cellobiose	-	(+)	-	-	+	-
D-maltose	-	(+)	-	-	+	-
D-melibiose	-	(+)	-	+	+	-
D-saccharose	-	(+)	-	+	+	-
D-tregalose	-	(+)	-	-	-	-
D-melezitose	-	-	-	+	+	-
D-raffinose	-	-	-	(+)	+	-
Gentiobiose	-	(+)	-	+	-	-

D-fucose	+	+	+	+	-	-
L-fucose	+	-	-	+	-	-
D-arabitol	-	(+)	-	+	-	-
L-arabitol	-	-	-	+	-	-