Bradyrhizobium mpumalangense sp. nov. and Bradyrhizobium spitzkopense sp. nov.

Submitted by Maake, Mabodiba Masutane

Table 1: Complete list of names proposed in the current register list.

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
Species *Bradyrhizobium mpumalangense*	[mpu.ma.lan.gen'se] **N.L. neut. adj.** *mpumalangense*, pertaining to Mpumalanga, the region where the reference strain was isolated	Cells are gram-negative motile rods ranging from 0.577 to 0.603 µm (in length) to 0.166 to 0.177 µm (in width). Colonies were medium in size, ranging between 1mm and 2mm at 7 days, are circular, opaque, pulvinate, smooth, opaque, and slimy. Colonies also produced an alkaline reaction in YMA with bromothymol blue as an indicator. The reference strain grows at a pH range of 5 to 10, temperature range of 25 to 30 °C, with optimum growth at 25 and 28 °C and tolerates up to 0.5% (w/v) NaCl. It assimilates Urease, esculin ferric citrate, β-galactosidase, L-arabinose, D-mannose, D-mannitol, D-maltose, adipic acid, Malic acid, Trisodium citrate, and N-acetyl-glucosamine, but does not assimilate indole, D-glucose, L-arginine, gelatin, potassium gluconate, Capric acid, and Phenylacetic acid. This strain can reduce nitrates to nitrite and nitrogen. In terms of the biology tests, Arg237L was reported negative for Dextrin, D-Maltose, D-Trehalose, D-Cellobiose, Gentiobiose, Sucrose, D-Turanose, Stachyose, D-Raffinose, α-D-Lactose, D-Melibiose, β-Methyl-D-Glucoside, D-Salicin, N-Acetyl-D-Glucosamine, N-Acetyl-β-D-Mannosamine, N-Acetyl-D-Galactosamine, N-Acetyl Neuraminic Acid, D-Fructose, 3-Methyl Glucose, Inosine, D-Sorbitol, myo-Inositol, Glycerol, D-Glucose6-PO4, D-Fructose6-PO4, L-Histidine, D-Aspartic Acid, D-Serine, Gelatin, Glycyl-L-Proline, L-Alanine, L-Arginine, L-Aspartic Acid, L-Glutamic Acid, L-Serine, Pectin, D-Gluconic Acid, Quinic Acid, Lithium Chloride, Guanidine HCl, D-Lactic Acid Methyl Ester, Citric Acid, D-Galacturonic Acid, Tween 40, γ-Amino-Butryric Acid, α-Hydroxy-Butyric Acid, α-Keto-Butyric Acid, Propionic Acid, and Sodium Bromate, weakly positive for D-Galactose, α-D-Glucose, D-Mannose, L-	*Bradyrhizobium*	NCBI Assembly: GCA_029990105.1 Ts	seqco.de/i:46769

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
		Fucose, L-Rhamnose, D-Mannitol, D-Arabitol, Fusidic Acid, Minocycline, Troleandomycin, L-Pyroglutamic Acid, Niaproof 4, Bromo-Succinic Acid, L-Galactonic Acid Lactone, D-Glucuronic Acid, Glucuronamide, Mucic Acid, Tetrazolium Blue, p-Hydroxy-Phenylacetic Acid, Vancomycin, , α-Keto-Glutaric Acid, Acetoacetic Acid, L-Malic Acid, Methyl Pyruvate, D-Malic Acid, Potassium Tellurite, Acetic Acid, and Sodium Butyrate, and Positive for D-Fucose, 1% Sodium Lactate, Rifamycin SV, Tetrazolium Violet, Lincomycin, D-Saccharic Acid, L-Lactic Acid, Nalidixic Acid, β-Hydroxy-D, L-Butyric Acid, Aztreonam, and Formic Acid.			
Species *Bradyrhizobium spitzkopense*	[spitz.ko.pen'se] **N.L. neut. adj.** *spitzkopense*, pertaining to Spitzkop, the location where the reference strain was isolated	Cells are gram-negative motile rods ranging from 0.577 to 0.603 µm (in length) to 0.166 to 0.177 µm (in width). Colonies were medium in size, ranging between 1mm and 2mm at 7 days, are circular, opaque, pulvinate, smooth, opaque, and slimy. Colonies also produced an alkaline reaction in YMA with bromothymol blue as an indicator. The reference strain grows at a pH range of 5 to 10, temperature range of 25 to 30 °C, with optimum growth at 25 and 28 °C and tolerates up to 0.5% (wv) NaCl. It is resistant to ampicillin (10 µg), chloramphenicol (50 µg), penicillin (10 µg), and tetracycline (30 µg), and sensitive to kanamycin (30 µg), streptomycin (10 µg), erythromycin (30 µg), gentamicin (10 µg), and neomycin (10 µg). It assimilates L-arginine, Urease, esculin ferric citrate, β-galactosidase, L-arabinose, D-maltose, potassium gluconate, Capric acid, adipic acid, Malic acid, Trisodium citrate, and Phenylacetic acid, but does not assimilate indole, D-glucose, gelatin, D-mannose, D-mannitol, and N-acetyl-glucosamine. It can reduce nitrates to nitrite and nitrogen. In terms of the biology tests, Arg816 was reported negative for Dextrin, D-Maltose, D-Trehalose, D-Cellobiose, Gentiobiose, Sucrose, D-Turanose, Stachyose, D-Raffinose, α-D-Lactose, D-Melibiose, β-Methyl-D-Glucoside, D-Salicin, N-Acetyl-D-Glucosamine, N-Acetyl-β-D-Mannosamine, N-Acetyl-D-Galactosamine, N-Acetyl Neuraminic Acid, D-Fructose, D-Galactose, 3-Methyl Glucose, L-Rhamnose, Inosine, 1% Sodium Lactate, D-Sorbitol, D-Mannitol, D-Arabitol, myo-Inositol, Glycerol, D-Glucose6-PO4, D-Aspartic Acid, D-Serine, Gelatin, Glycyl-L-Proline, L-Alanine, L-Arginine, L-Aspartic Acid, L-Glutamic Acid, L-Pyroglutamic Acid, L-Serine, Niaproof 4, Pectin, D-Gluconic Acid, Quinic	*Bradyrhizobium*	NCBI Assembly: GCA_029989365.1 Ts	seqco.de/i:46768

Proposed Taxon	Etymology	Description	Parent Taxon	Type	Registry URL
		Acid, Methyl Pyruvate, D-Lactic Acid Methyl Ester, Citric Acid, Bromo-Succinic Acid, Tween 40, γ-Amino-Butryric Acid, α-Hydroxy-Butyric Acid, α-Keto-Butyric Acid, Propionic Acid, and Sodium Bromate, weakly positive for α-D-Glucose, D-Mannose, D-Fucose, L-Fucose, Fusidic Acid, D-Serine, D-Fructose6-PO4, Troleandomycin, L-Histidine, Lincomycin, Guanidine HCl, D-Galacturonic Acid, L-Galactonic Acid Lactone, D-Glucuronic Acid, Glucuronamide, Mucic Acid, D-Saccharic Acid, Vancomycin, L-Lactic Acid, α-Keto-Glutaric Acid, L-Malic Acid, Nalidixic Acid, Lithium Chloride, Potassium Tellurite, β-Hydroxy-D, L-Butyric Acid, Acetic Acid, Aztreonam, and Sodium Butyrate, and Positive for Rifamycin SV, Minocycline, Tetrazolium Violet, Tetrazolium Blue, p-Hydroxy-Phenylacetic Acid, D-Malic Acid, Acetoacetic Acid, and Formic Acid. The GC content for Arg816T was 63.2 mol%. The reference strain possesses nodulation *nodABCD1, D2, D3, D4IUSZ, noei, nopAX, nolAUWY, NfeD*.			