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

Submitted by Maake, Mabodiba Masutane

Species *Bradyrhizobium mpumalangense*

Etymology

[mpu.ma.lan.gen'se] **N.L. neut. adj.** *mpumalangense*, pertaining to Mpumalanga, the region where the reference strain was isolated

Nomenclatural type

Genome sc|0001927 Ts

Reference Strain

Strain sc|0038743: Arg237L

Description

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-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.

Classification

Bacteria » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Nitrobacteraceae* » *Bradyrhizobium* » *Bradyrhizobium mpumalangense*

References

Effective publication: Maake et al., 2026 [1]

Registry URL

https://seqco.de/i:46769

Species *Bradyrhizobium spitzkopense*

Etymology
[spitz.ko.pen'se] **N.L. neut. adj.** *spitzkopense*, pertaining to Spitzkop, the location where the reference strain was isolated

Nomenclatural type
Genome sc|0003198 [Ts]

Reference Strain
Strain sc|0038862: Arg816

Description
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 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*.

Classification
Bacteria » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Nitrobacteraceae* » *Bradyrhizobium* » *Bradyrhizobium spitzkopense*

References
Effective publication: Maake et al., 2026 [1]

Registry URL
https://seqco.de/i:46768

References

1. Maake et al. (2026). Argyrolobium legumes from an African centre of endemism associate with novel Bradyrhizobium species harbouring unique sets of symbiosis genes. *Molecular Phylogenetics and Evolution*. DOI: 10.1016/j.ympev.2025.108471

Register List Certificate of Validation

On behalf of the *Committee on the Systematics of Prokaryotes Described from Sequence Data* (SeqCode Committee), we hereby certify that the Register List **seqco.de/r:btxzyjob** submitted by **Maake, Mabodiba Masutane** and including 2 new names has been successfully validated.

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