

# Register list for 7 new names including *Mesorhizobium captivum* sp. nov.

Submitted by Van Lill, Melandre

## Species *Mesorhizobium captivum*

### Etymology

[cap.ti'vum] L. neut. adj. *captivum*, captured or captive, referring to the capturing of this organism with a compatible rhizobial host.

### Nomenclatural type

[NCBI Assembly: GCA\\_033977165.1](#)<sup>Ts</sup>

### Reference Strain

VK22E

### Description

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, cream, translucent with entire margins and convex elevations with viscid consistency. The strain was able to grow in the pH range of 6 to 9 and tolerate a NaCl concentration of 0.3 % to 1.5 %. The strain can grow at 15 °C to 35 °C. The strain tested positive for urease and esculin hydrolysis. The strain could assimilate 4-nitrophenyl-β-D-galactopyranoside, D-glucose, L-arabinose, D-mannose, D-mannitol, D-maltose, potassium gluconate, adipic acid and trisodium citrate. The strain could utilize dextrin, D-maltose, D-trehalose, D-cellubiose, gentiobiose, sucrose, D-turanose, 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, α-D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L- fucose, L-rhamnose, D-sorbitol, D-mannitol, D-arabitol, myo-inositol, glycerol, D-glucose6-PO<sub>4</sub>, D-fructose6-PO<sub>4</sub>, gelatin, glycyl-L-proline, L-alanine, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, pectin, D-galacturonic acid, L-galactonic acid lactone, D-gluconic acid, D-glucuronic acid, glucuronamide, mucic acid, D-lactic acid methyl ester, citric acid, L-lactic acid, D- malic acid, L-malic acid, bromo-succinic acid, Tween 40, γ -Amino-butyric acid, β-hydroxy-D-L-butyric acid, acetoacetic acid, propionic acid and acetic acid as sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium captivum*

### References

Effective publication: van Lill et al., 2024 [1]

### Registry URL

<https://seqco.de/i:32831>

## Species *Mesorhizobium dulcispinae*

### Etymology

[dul.ci.spi.na.e] L. fem. adj. *dulcis*, sweet; L. fem. n. *spina*, thorn; N.L. gen. n. *dulcispinae*, of a sweet thorn, referring to the common name of *Vacellia karroo*, the host plant from which this organism was recovered.

### Nomenclatural type

[NCBI Assembly: GCA\\_033977345.1](#)<sup>Ts</sup>

**Reference Strain**

VK23D

**Description**

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, cream, translucent with entire margins and convex elevations with viscid consistency. The strain was able to grow in the pH range of 6 to 9 and tolerate a NaCl concentration of 0.3 % to 2.5 %. The strain can grow at 10 °C to 35 °C. The strain could reduce nitrates to nitrogen and strain tested positive for the activity of urease and esculin hydrolysis. The strain could assimilate 4-nitrophenyl- $\beta$ ,D-galactopyranoside, D-glucose, L-arabinose, D-mannose, D-mannitol, D-maltose and potassium gluconate. The strain could utilize dextrin, D-maltose, D-trehalose, D-cellobiose, gentiobiose, sucrose, D-turanose, stachyose, D-raffinose,  $\alpha$ -D-lactose, D-melibiose,  $\beta$ -methyl-D glucoside, D-salicin, N-acetyl-D-glucosamine, N-acetyl- $\beta$ -D-mannosamine, N-acetyl-D-galactosamine,  $\alpha$ -D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L- fucose, L-rhamnose, D-serine, D-sorbitol, D-mannitol, D-arabitol, myo-inositol, glycerol, D- glucose6-PO<sub>4</sub>, D-fructose6-PO<sub>4</sub>, D-aspartic acid, gelatin, Glycyl-L-proline, L-alanine, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, L-pyroglutamic acid, pectin, D-galacturonic acid, L-galactonic acid lactone, D-gluconic acid, D-glucuronic acid, glucuronamide, mucic acid, quinic acid, D-saccharic acid, P-hydroxy-phenylacetic acid, L-lactic acid, D-lactic acid methyl ester, citric acid,  $\alpha$ -keto-glutaric acid, L-lactic acid, D- malic acid, L-malic acid, bromo-succinic acid, nalidixic acid, Tween 40,  $\gamma$ -Amino-butyric acid,  $\beta$ -hydroxy-D-L-butyric acid, acetoacetic acid, propionic acid and acetic acid as sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

**Classification**

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium dulcispinae*

**References**

Effective publication: van Lill et al., 2024 [1]

**Registry URL**

<https://seqco.de/i:32830>

## Species *Mesorhizobium album*

**Etymology**

[al'bum] L. neut. adj. *album*, referring to the white colonies of the type strain on YM agar.

**Nomenclatural type**

[NCBI Assembly: GCA\\_033977205.1](#)<sup>TS</sup>

**Reference Strain**

VK24D

**Description**

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, white, opaque with entire margins and convex elevations with viscid consistency. The strain was able to grow in the pH range of 6 to 9 and tolerate a NaCl concentration of 0.3 % to 2.5 %. The strain can grow at 15 °C to 40 °C. The strain tested positive for the ability to reduce nitrates to nitrites and nitrogen, arginine, urea, esculin and gelatin hydrolysis. The strain could assimilate 4-nitrophenyl- $\beta$ ,D-galactopyranoside, D-glucose, L-arabinose, potassium gluconate, malic acid and phenylacetic acid. The strain could utilize dextrin, D-maltose, D-trehalose, D-cellobiose, gentiobiose, sucrose, D-turanose, stachyose, D-raffinose,  $\alpha$ -D-lactose,  $\beta$ -methyl-D glucoside,  $\alpha$ -D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L- fucose, L-rhamnose, inosine, D-serine, gelatin, Glycyl-L-proline, L-alanine, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, L-pyroglutamic acid, L-serine, guanidine HCl, Niaproof 4, D-galacturonic acid, L-galactonic acid lactone, D-gluconic acid, glucuronamide, mucic acid, quinic acid, D-saccharic acid, the reduction of tetrazolium blue, methyl pyruvate, D-lactic acid methyl ester, L-lactic acid, D- malic acid, L-malic acid, bromo-succinic acid, nalidixic acid, potassium tellurite, Tween 40, acetoacetic acid and acetic acid sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

**Classification**

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium album*

**References**

Effective publication: van Lill et al., 2024 [1]

**Registry URL**

<https://seqco.de/i:32771>

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**Species *Mesorhizobium humile***

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**Etymology**

[hu.mi'le] L. neut. adj. *humile*, humble, referring to the type strain's small colony size on YM agar and limited carbon source utilisation.

**Nomenclatural type**

[NCBI Assembly: GCA\\_033977215.1](#) <sup>Ts</sup>

**Reference Strain**

VK2B

**Description**

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are small, circular, white, opaque with entire margins and flat elevations with dry consistency. The strain was able to grow in the pH range of 6 to 9 and tolerate NaCl concentration of 0.3 % to 1.5 %. The strain was able to grow at 4 °C to 35 °C. The strain tested positive for urease and esculin hydrolysis. The strain could assimilate 4-nitrophenyl-β,D-galactopyranoside, D-glucose, L-arabinose, D-mannose, D-mannitol, N-acetyl-glucosamine, D-maltose, potassium gluconate, adipic acid and malic acid. The strain could only utilize glucuronamide, α-keto-glutaric acid and D-malic acid as the sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

**Classification**

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium humile*

**References**

Effective publication: van Lill et al., 2024 [1]

**Registry URL**

<https://seqco.de/i:32827>

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**Species *Mesorhizobium montanum***

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**Etymology**

[mon.ta'num] L. neut. adj. *montanum*, pertaining to mountains, in particular the Kamiesburg mountains, surrounding Kamieskroon, the region where soil was sampled from.

**Nomenclatural type**

[NCBI Assembly: GCA\\_033977145.1](#) <sup>Ts</sup>

**Reference Strain**

MSK 1335

### Description

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, cream in colour, translucent with entire margins and convex elevations with mucoid consistency due to the excessive production of exopolysaccharides. The strain was not able to tolerate a pH of 4, but could grow at a pH of 10 and a NaCl concentration of 0.5 % to 1 %. The strain was able to grow at 15 °C to 37 °C. The strain tested positive for the activity of nitrate reduction to nitrite, arginine dehydrogenase, urease,  $\beta$ -galactosidase,  $\beta$ -glucosidase, oxidase and catalase but not tryptophan deaminase. The strain could utilize potassium gluconate, trisodium citrate, dextrin, D-maltose, D-trehalose, D-cellubiose, D-gentiobiose, sucrose, D-turanose, stachyose, D-raffinose,  $\alpha$ -D-lactose, D-melibiose,  $\beta$ -methyl-D glucoside, D-salicin, N-acetyl-D glucosamine, N-acetyl- $\beta$ -D-mannosamine, N-acetyl-D galactosamine, N-acetyl neuraminic acid,  $\alpha$ -D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L-fucose, L-rhamnose, Inosine, D-sorbitol, D-mannitol, D-arabitol, inositol, glycerol, D-glucose6-PO<sub>4</sub>, D-fructose6-PO<sub>4</sub>, D-aspartic acid, gelatin, Glycyl-L-proline, L-alanine, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, L-pyroglutamic acid, pectin, D-galacturonic acid, L-galactonic acid lactone, D-gluconic acid, D-glucuronic acid, glucuronamide, mucic acid, quinic acid, D-saccharic acid, P-hydroxyphenyl acetic acid, methyl pyruvate, D-lactic acid methyl ester, L-lactic acid, citric acid,  $\alpha$ -keto-glutaric acid, D-malic acid, L-malic acid, bromo-succinic acid, tween 40,  $\gamma$ -Amino-butyric acid,  $\alpha$ -hydroxy-butyric acid,  $\beta$ -Hydroxy-D-L-Butyric acid, acetoacetic acid, propionic acid, acetic acid, formic acid as sole source of carbon. The strain was able to form effective symbiosis with *V. karroo*.

### Classification

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium montanum*

### References

Effective publication: van Lill et al., 2024 [1]

### Registry URL

<https://seqco.de/i:32826>

## Species *Mesorhizobium vachelliae*

### Etymology

[va.chel.li'ae] N.L. gen. n. *vachelliae*, of *Vachellia*, referring to the host plant from which this organism was recovered.

### Nomenclatural type

[NCBI Assembly: GCA\\_033977325.1](#) <sup>TS</sup>

### Reference Strain

VK25A

### Description

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, cream, translucent with entire margins and convex elevations with viscid consistency. The strain was able to grow in the pH range of 5 to 10 and tolerate a NaCl concentration of 0.3% to 2.5%. The strain was able to grow at 4 °C to 37 °C. The strain tested positive for the activity of nitrate reduction to nitrite, urease and esculin hydrolysis. The strain could assimilate 4-nitrophenyl- $\beta$ -D-galactopyranoside, D-glucose, L-arabinose, D-mannose, D-mannitol, N-acetyl-glucosamine, D-maltose and malic acid. The strain could utilize dextrin, D-maltose, D-trehalose, D-cellubiose, gentiobiose, sucrose, D-turanose, D-raffinose, D-melibiose,  $\beta$ -methyl-D glucoside, D-salicin, N-acetyl-D glucosamine, N-acetyl- $\beta$ -D-mannosamine, N-acetyl-D galactosamine, N-acetyl neuraminic acid,  $\alpha$ -D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L-fucose, L-rhamnose, 1% sodium lactate, D-serine, D-sorbitol, D-mannitol, D-arabitol, myo-inositol, glycerol, D-fructose6-PO<sub>4</sub>, Glycyl-L-proline, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, pectin, glucuronamide, the reduction of tetrazolium blue, methyl pyruvate, D-lactic acid methyl ester, L-lactic acid, D-malic acid, L-malic acid, bromo-succinic acid, nalidixic acid, potassium tellurite,  $\gamma$ -Amino-butyric acid,  $\alpha$ -hydroxy-butyric acid,  $\beta$ -hydroxy-D-L-butyric acid, acetoacetic acid, propionic acid, acetic acid and formic acid as sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

**Classification**

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium vachelliae*

**References**

Effective publication: van Lill et al., 2024 [1]

**Registry URL**

<https://seqco.de/i:32828>

## Species *Mesorhizobium australafricanum*

**Etymology**

[aus.tral.a.fri.ca'num] L. neut. adj. *australis*, southern; L. neut. adj. *africanum*, African; N.L. neut. adj. *australafricanum*, pertaining to Southern Africa

**Nomenclatural type**

[NCBI Assembly: GCA\\_033977265.1](#) <sup>TS</sup>

**Reference Strain**

VK9D

**Description**

Cells are Gram-negative, motile rods. On YM agar, following 5 days of incubation at 28 °C, the colonies are circular, cream, translucent with entire margins and convex elevations with mucoid consistency. The strain was able to grow in the pH range of 5 to 10 and tolerate a NaCl concentration of 0.3 % to 2.5 %. The strain can grow at 10 °C to 35 °C. The strain tested positive for the activity of D-glucose fermentation, urease and esculin hydrolysis. The strain could assimilate 4-nitrophenyl-β-D-galactopyranoside, D-glucose, L-arabinose, D-mannose, D-mannitol, N-acetyl-glucosamine, D-maltose, adipic acid and malic acid. The strain could utilize 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, α-D-glucose, D-mannose, D-fructose, D-galactose, 3-methyl glucose, D-fucose, L- fucose, L-rhamnose, inosine, D-serine, D-sorbitol, D-mannitol, D-arabitol, myo-inositol, glycerol, D-glucose6-PO<sub>4</sub>, D-fructose6-PO<sub>4</sub>, D-aspartic acid, gelatin, Glycyl-L-proline, L-alanine, L-arginine, L-aspartic acid, L-glutamic acid, L-histidine, L-pyroglutamic acid, pectin, D-galacturonic acid, L-galactonic acid lactone, D-gluconic acid, D-glucuronic acid, glucuronamide, mucic acid, quinic acid, D-saccharic acid, the reduction of tetrazolium blue, P-Hydroxyphenyl acetic acid, methyl pyruvate, D-lactic acid methyl ester, citric acid, α-keto-glutaric acid, L-lactic acid, D- malic acid, L-malic acid, bromo-succinic acid, nalidixic acid, Tween 40, γ -Amino-butyric acid, β-hydroxy-D-L-butyric acid, acetoacetic acid, propionic acid, acetic acid and formic acid as sole sources of carbon. The strain was able to form effective symbiosis with *V. karroo*.

**Classification**

*Bacteria* » *Pseudomonadota* » *Alphaproteobacteria* » *Hyphomicrobiales* » *Phyllobacteriaceae* » *Mesorhizobium* » *Mesorhizobium australafricanum*

**References**

Effective publication: van Lill et al., 2024 [1]

**Registry URL**

<https://seqco.de/i:32829>

## References

1. van Lill et al. (2024). SeqCode facilitates naming of South African rhizobia left in limbo. *Systematic and Applied Microbiology*. DOI:10.1016/j.syapm.2024.126504

## 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:3oauw4q0](https://seqco.de/r:3oauw4q0) submitted by **Van Lill, Melandre** and including 7 new names has been successfully validated.

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