

Supplementary information for

“*Leeuwenhoekiella obamensis* sp. nov., a novel marine bacterium isolated from surface water of a Japanese fishing port”

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Table S1 Comparison of the API 20NE profile of FRT2^T with that of type strains of *Leeuwenhoekiella* species.

Taxa: 1, *Leeuwenhoekiella obamensis* sp. nov. FRT2^T; 2, *Leeuwenhoekiella aestuarii* R-48165^T; 3, *Leeuwenhoekiella marinoflava* LMG 1345^T; 4, *Leeuwenhoekiella aequorea* LMG 22550^T; 5, *Leeuwenhoekiella palythae* KMM6264^T; 6, *Leeuwenhoekiella blandensis* MED 217^T; 7, *Leeuwenhoekiella polynya* SOJ2014-1^T; 8, *Leeuwenhoekiella nanhaiensis* G18^T. All strains are positive for assimilation of D-glucose, D-mannose, N-acetyl-D-glucosamine, D-maltose, potassium gluconate, adipic acid and malic acid, but negative for the assimilation of capric acid. All strains are positive for hydrolysis of esculin and β-galactosidase, but negative for the reduction of nitrates to nitrites and nitrates to nitrogen, indole production and hydrolysis of gelatin. +, positive; -, negative.

Test	1	2	3	4	5	6	7	8
Fermentation (D-Glucose)	-	-	+	-	-	-	-	-
Arginine dehydrolase	-	+	+	+	+	+	+	+
Urease	-	+	+	+	+	+	+	+
L-Arabinose	-	+	+	+	+	+	+	+
D-Mannitol	-	+	+	+	+	+	+	+
Trisodium citrate	-	+	+	+	+	+	+	+
Phenylacetic acid	-	+	+	-	+	+	+	+

Table S2 Comparison of the API 50CH profile of FRT2^T with that of type strains of *Leeuwenhoekiella* species.

Taxa: 1, *Leeuwenhoekiella obamensis* sp. nov. FRT2^T; 2, *Leeuwenhoekiella aestuarii* R-48165^T; 3, *Leeuwenhoekiella marinoflava* LMG 1345^T; 4, *Leeuwenhoekiella aequorea* LMG 22550^T; 5, *Leeuwenhoekiella palythoae* KMM6264^T; 6, *Leeuwenhoekiella blandensis* MED 217^T; 7, *Leeuwenhoekiella polynya* SOJ2014-1^T; 8, *Leeuwenhoekiella nanhaiensis* G18^T. All strains are positive for acid formation from D-galactose, D-glucose, D-fructose, D-mannose, amygdaline, arbutin, esculin, salicin, D-maltose, D-saccharose, D-trehalose, D-raffinose and D-turanose, but negative for acid formation from erythritol, D-ribose, L-xylose, D-adonitol, methyl-β-D-xylopyranoside, L-sorbose, dulcitol, inositol, xylitol, D-sorbitol, D-lyxose, D-tagatose, D-fucose, D-arabitol, L-arabitol, potassium gluconate, potassium 2-ketogluconate and potassium 5-ketogluconate. +, positive; -, negative.

Test	1	2	3	4	5	6	7	8
Glycerol	-	-	+	+	-	+	+	-
D-Arabinose	-	-	-	-	-	-	+	+
L-Arabinose	-	+	+	-	+	+	+	+
D-Xylose	-	+	+	-	+	-	+	+
L-Rhamnose	+	-	+	-	+	-	+	+
D-Mannitol	-	-	-	+	-	-	+	+
Methyl-α-D-Mannopyranoside	+	+	+	+	-	-	+	-
Methyl-α-D-Glucopyranoside	+	+	+	+	+	+	+	-
N-Acetylglucosamine	-	-	-	+	-	-	+	-
D-Cellobiose	+	+	+	-	+	+	+	+
D-Lactose	+	+	+	-	+	+	+	+
D-Melibiose	+	+	+	+	-	+	+	+
Inuline	+	-	-	-	-	+	-	-
D-Melezitose	+	+	+	-	+	+	+	+
Amidon	-	-	-	+	+	+	+	+
Glycogen	-	-	-	-	+	+	-	+
Gentiobiose	+	-	-	-	-	+	-	-
L-Fucose	-	-	-	-	-	-	-	+

Table S3 Comparison of the API ZYM profile of FRT2^T with that of type strains of *Leeuwenhoekiella* species.

Taxa: 1, *Leeuwenhoekiella obamensis* sp. nov. FRT2^T; 2, *Leeuwenhoekiella aestuarii* R-48165^T; 3, *Leeuwenhoekiella marinoflava* LMG 1345^T; 4, *Leeuwenhoekiella aequorea* LMG 22550^T; 5, *Leeuwenhoekiella palythoae* KMM6264^T; 6, *Leeuwenhoekiella blandensis* MED 217^T; 7, *Leeuwenhoekiella polynya* SOJ2014-1^T; 8, *Leeuwenhoekiella nanhaiensis* G18^T. All strains are positive for the alkaline phosphatase, esterase (C4), esterase lipase (C8), leucine arylamidase, valine arylamidase, acid phosphatase, naphthol-AS-BI-phosphohydrolase, α -glucosidase, β -glucosidase and *N*-acetyl- β -glucosaminidase enzyme activity tests, but negative for lipase (C14), β -glucuronidase and α -fucosidase enzyme activity tests. +, positive; -, negative; w, weakly positive.

Test	1	2	3	4	5	6	7	8
Cystine arylamidase	-	w	-	-	w	w	w	w
Trypsin	-	+	+	+	+	+	+	+
α -chymotrypsin,	+	-	-	-	-	-	-	-
α -galactosidase	+	+	-	-	-	-	+	-
β -galactosidase	+	+	+	-	w	w	+	+
α -mannosidase	+	-	-	-	-	-	w	w

Table S4 Compariosn of the Biolog GEN III profile of FRT2^T with that of type strains of *Leeuwenhoekiella* species.

Taxa: 1, *Leeuwenhoekiella obamensis* sp. nov. FRT2^T; 2, *Leeuwenhoekiella aestuarii* R-48165^T; 3, *Leeuwenhoekiella marinoflava* LMG 1345^T; 4, *Leeuwenhoekiella aequorea* LMG 22550^T; 5, *Leeuwenhoekiella palythoae* KMM6264^T; 6, *Leeuwenhoekiella blandensis* MED 217^T; 7, *Leeuwenhoekiella polynya* SOJ2014-1^T; 8, *Leeuwenhoekiella nanhaiensis* G18^T. All strains are positive for the dextrin, D-maltose, D-trehalose, D-cellobiose, gentiobiose, sucrose, D-turanose, stachyose, pH 6, D-raffinose, β-methyl-D-glucoside, D-salicin, N-acetyl-D-glucosamine, 1% NaCl, 4% NaCl, 8% NaCl, α-D-glucose, D-mannose, D-fructose, glycerol, glycyl-L-proline, L-arginine, pectin, Tween 40, acetic acid and aztreonam assays. All strains are negative for the N-acetyl neuraminic acid, inosine, fusidic acid, myo-inositol, D-serine, L-histidine, niaproof 4, D-saccharic acid, p-hydroxy-phenylacetic acid, D-lactic acid methyl ester, citric acid, α-keto-glutaric acid, γ-amino-butyric acid, α-hydroxy-butyric acid, β-hydroxy-D, L-butyric acid, α-keto-butyric acid, propionic acid and sodium bromate assays. +, positive; -, negative.

Test	1	2	3	4	5	6	7	8
pH 5	-	+	+	-	-	-	+	-
α-D-Lactose	-	+	+	+	+	+	+	+
D-Melibiose	-	+	+	+	+	+	+	+
N-Acetyl-β-D-Mannosamine	+	-	-	-	-	+	-	-
N-Acetyl-D-Galactosamine	-	-	+	+	+	-	+	-
3-Methyl Glucose	+	-	-	-	-	-	-	-
D-Fucose	+	-	-	-	-	-	-	-
L-Fucose	+	+	-	-	+	+	+	+
L-Rhamnose	+	+	+	-	+	+	+	+
1% Sodium Lactate	+	+	+	+	+	+	+	-
D-Serine	-	+	-	+	+	-	-	-
D-Sorbitol	+	-	-	-	-	-	-	-
D-Mannitol	+	-	-	+	-	-	-	-
D-Galactose	-	+	+	+	+	+	+	+
D-Arabitol	+	-	-	+	-	-	-	-
D-Glucose-6-PO ₄	-	+	-	-	-	+	-	+
D-Fructose-6-PO ₄	-	+	-	-	-	+	-	+
D-Aspartic Acid	-	-	-	+	-	-	-	-
Troleandomycin	-	+	-	+	-	-	-	-
Rifamycin SV	-	+	+	+	+	+	-	+
Minocycline	+	+	-	+	-	-	-	-
Gelatin	-	+	+	+	+	+	+	+
L-Alanine	-	-	-	+	-	-	-	-
L-Aspartic Acid	-	+	+	+	+	+	+	+
L-Glutamic Acid	-	+	+	+	+	+	+	+
L-Pyroglutamic Acid	-	-	-	-	-	+	-	-
L-Serine	-	+	+	+	+	-	+	-
Lincomycin	-	+	-	+	-	-	-	-
Guanidine HCl	-	-	+	-	+	-	-	-
D-Galacturonic Acid	-	+	+	+	+	+	+	+
L-Galactonic Acid Lactone	-	+	+	-	+	+	+	+
D-Gluconic Acid	-	+	-	+	+	+	+	+
D-Glucuronic Acid	+	+	+	-	-	-	+	-
Glucuronamide	+	-	+	+	-	-	-	+
Mucic Acid	+	-	-	-	-	-	-	-
Quinic Acid	+	-	-	-	-	-	-	-
Vancomycin	+	+	+	+	+	-	-	-
Tetrazolium Violet	+	-	-	-	-	-	-	-

Table S4 Continued

Test	1	2	3	4	5	6	7	8
Tetrazolium Blue	+	-	-	-	-	-	-	-
Methyl Pyruvate	-	+	+	-	-	+	+	-
L-Lactic Acid	-	+	-	-	-	+	-	-
D-Malic Acid	-	+	+	-	-	+	+	-
L-Malic Acid	-	+	-	+	-	+	+	-
Bromo-Succinic Acid	-	+	-	-	-	-	+	-
Nalidixic Acid	+	+	+	+	+	-	-	-
Lithium Chloride	-	+	+	+	+	-	-	-
Potassium Tellurite	+	+	+	+	+	-	-	-
Acetoacetic Acid	-	+	+	+	+	+	-	+
Formic Acid	-	+	-	-	+	-	-	-
Sodium Butyrate	-	+	+	+	+	-	-	-

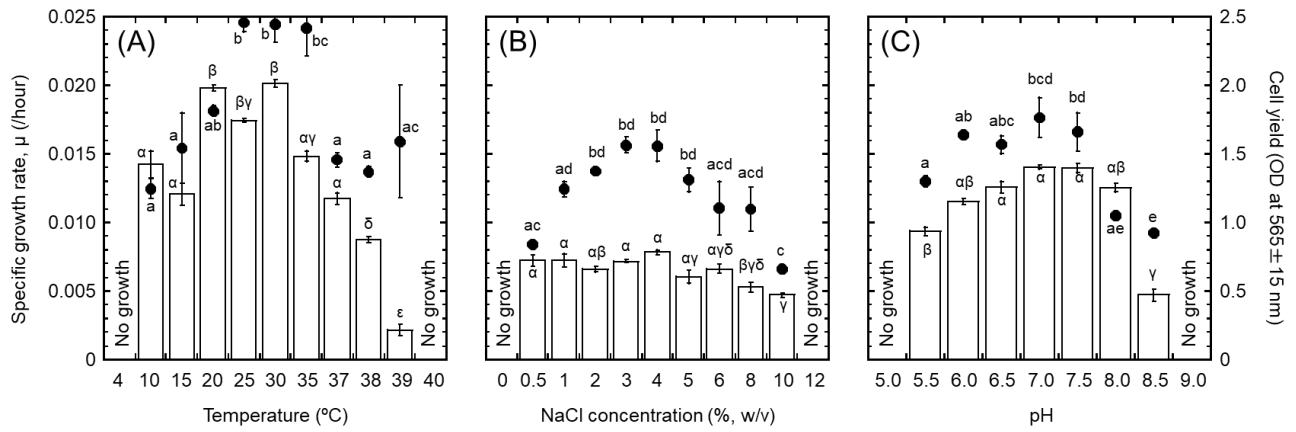


Fig. S1. Specific growth rate (μ ; filled circles) and maximum cell yield (white bars) of *Leeuwenhoekiella obamensis* FRT2^T as a function of temperature (A), salinity (B) and pH (C). Error bars represent the standard error of the mean (n=3). Columns marked with the same letter (English letters for specific growth rate and Greek letters for maximum cell yields) do not differ significantly at $\alpha=0.05$.