Phaeobacter piscinae sp. nov., a species of the Roseobacter group and potential aquaculture probiont - DTU Orbit (27/10/2019)

Phaeobacter piscinae sp. nov., a species of the Roseobacter group and potential aquaculture probiont

Four heterotrophic, antimicrobial, motile, marine bacterial strains, 27-4T, 8-1, M6-4.2 and S26, were isolated from aquaculture units in Spain, Denmark and Greece. All four strains produced the antibiotic compound tropodithietic acid, which is a key molecule in their antagonism against fish pathogenic bacteria. Cells of the strains were Gram-reaction-negative, rod-shaped and formed star-shaped aggregates in liquid culture and brown-coloured colonies on marine agar. The predominant cellular fatty acids were C18:1ω7c, C16:0, C11 methyl C18:1ω7c and C16:0 2-OH, and the polar lipids comprised phosphatidylglycerol, diphosphatidylglycerol, phosphatidylethanolamine, phosphatidylcholine, an aminolipid, a phospholipid and an unidentified lipid. The strains grew optimally at 31-33°C. Growth was observed at a salt concentration between 0.5 and 5-6% NaCl with an optimum at 2-3%. The pH range for growth of the strains was from pH 6 to 8-8.5 with an optimum at pH 7. Based on 16S rRNA gene sequence analysis, the strains are affiliated with the genus Phaeobacter. The genome sequences of the strains have a DNA G+C content of 60.1% and share an average nucleotide identity (ANI) of more than 95%. The four strains are distinct from the type strains of the closely related species Phaeobactergallaeciensis and Phaeobacterinhibens based on an ANI of 90.5-91.7% and 89.6-90.4%, respectively, and an in silico DNA-DNA hybridization relatedness of 43.9-46.9% and 39.8-41.9%, respectively. On the basis of phylogenetic analyses as well as phenotypic and chemotaxonomic properties, the isolates are considered to represent a novel species, for which the name Phaeobacter piscinae sp. nov. is proposed. The type strain is 27-4T (=DSM 103509T=LMG 29708T).

General information
Publication status: Published
Organisations: Department of Biotechnology and Biomedicine, Bacterial Ecophysiology and Biotechnology, DTU Metabolomics Core, Natural Product Discovery, CHEC Research Centre, The Hempel Foundation Coatings Science and Technology Centre (CoaST), German Collection of Microorganisms and Cell Cultures
Pages: 4559-4564
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: International Journal of Systematic and Evolutionary Microbiology
Volume: 67
Issue number: 10
ISSN (Print): 1466-5026
Ratings:
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.29 SJR 0.943 SNIP 1.203
Web of Science (2017): Impact factor 1.932
Web of Science (2017): Indexed yes
Original language: English
DOIs:
10.1099/ijsem.0.002331
Source: FindIt
Source ID: 2391272145
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review