Proposal of *Novosphingobium rhizosphaerae* sp. nov., isolated from the rhizosphere.

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Abstract

A yellow pigmented, Gram-negative, rod-shaped, non-spore-forming bacterium (strain JM-1T), was isolated from the rhizosphere of a field-grown Zea mays plant in Auburn, Alabama, U.S.A. The 16S rRNA gene sequence analysis of strain JM-1T showed high sequence similarity to the type strains of Novosphingobium capsulatum (98.9%), Novosphingobium aromaticivorans (97.4%), Novosphingobium subterraneum (97.3%), and Novosphingobium taihuense (97.1%), sequence similarities to all other Novosphingobium species type strains were below 97.0%. DNA-DNA hybridizations of strain JM-1T and N. capsulatum DSM 30196T, N. aromaticivorans SMCC F199T and N. subterraneum SMC B0478T showed low similarity values of 33% (reciprocal: 21%), 14% (reciprocal 16%), and 36% (reciprocal 38%), respectively. As the major respiratory quinones, ubiquinone Q-10 was detected and the pre-dominant fatty acid C18:1 ω7c (71.0%), and the typical 2-hydroxy fatty acids, C14:0 2-OH (11.7%) was detected. The polar lipid profile contained the diagnostic lipids diphosphatidylglycerol, phosphatedylethanolamine, sphingoglycolipid and phosphatidylcholine. Characterization by 16S rRNA gene sequence analysis, physiological parameters, pigment analysis, ubiquinone, polar lipid, and fatty acid composition revealed that

strain JM-1T represents a new species of the genus Novosphingobium. For this reason we propose the name Novosphingobium rhizosphaerae sp. nov. with the type strain JM-1T (= LMG 28479T = CCM 8547T).

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