

***Rhodococcus defluvii* sp. nov., isolated from wastewater of a bioreactor and formal proposal to reclassify [*Corynebacterium hoagii*] and *Rhodococcus equi* as *Rhodococcus hoagii* comb. nov.**

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Abstract

A Gram-stain-positive, non-endospore-forming rod-shaped bacterium, strain Ca11(T), was isolated from a bioreactor with extensive phosphorus removal and was studied in detail for its taxonomic allocation. 16S rRNA gene sequence analysis revealed closest sequence similarity of the strain to type strains of [*Corynebacterium hoagii*] and *Rhodococcus equi* (98.9%), *Rhodococcus koreensis* and *Rhodococcus wratislaviensis* (both 98.4%), *Rhodococcus opacus* and *Rhodococcus canchipurensis* (both 98.0%) followed by *Rhodococcus kunmingensis* and *Rhodococcus imtechensis* (97.7%). Phylogenetic trees showed a distinct clustering of strain Ca11(T) with the type strains of [*C. hoagii*], *R. equi*, and *R. kunmingensis* separate to all other species of the genus *Rhodococcus*. The quinone system of strain Ca11(T) was composed of

dihydrogenated menaquinones with 8 (major amount) as well as 7 and 6 isoprenoid units [MK-8(H₂), MK-7(H₂), MK-6(H₂)]. The polar lipid profile consisted of diphosphatidylglycerol, phosphatidylethanolamine, phosphatidylinositol, phosphatidylinositol mannoside, one unknown phospholipid and an unidentified glycolipid. The fatty acid profile was similar to that reported for *R. equi* and contained major amounts of C16:0, C18:1 ω 9c and 10-methyl C18:0, supporting the allocation of the strain to the genus *Rhodococcus*. Physiological and biochemical characterization and DNA-DNA hybridization with type strains of the most closely related species allowed clear phenotypic and genotypic differentiation of the isolate. On the basis of these results, strain Ca11(T) (= DSM 45893(T) = LMG 27563(T)) represents a novel species of the genus *Rhodococcus*, with the proposed name *Rhodococcus defluvii* sp. nov. In addition, a polyphasic taxonomic analysis of [*Corynebacterium hoagii*] DSM 20295(T) and *Rhodococcus equi* DSM 20307(T) indicated that the two strains belong to the same species, for which the name *Rhodococcus hoagii* comb. nov. takes priority, according to the Rules of the Bacteriological Code.

Beteiligte Forschungseinheiten

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