

***Actinomadura rubteroloni* sp. nov. and *Actinomadura macrotermitis* sp. nov., isolated from the gut of the fungus growing-termite *Macrotermes natalensis*.**

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Abstract

The taxonomic positions of two novel aerobic, Gram-positive actinobacteria, designated strains RB29^T and RB68^T, were determined using a polyphasic approach. Based on 16S rRNA gene sequence analysis, the closest phylogenetic neighbours of RB29^T were identified as *Actinomadura rayongensis* DSM 102126^T (99.2 % similarity) and *Actinomadura atramentaria* DSM 43919^T (98.7 %), and for strain RB68^T was *Actinomadura hibisca* DSM 44148^T (98.3 %). Digital DNA-DNA hybridization (dDDH) between RB29^T and its closest phylogenetic neighbours, *A. rayongensis* DSM 102126^T and *A. atramentaria* DSM 43919^T, resulted in similarity values of 53.2 % (50.6-55.9 %) and 26.4 % (24.1-28.9 %), respectively. Additionally, the average nucleotide identity (ANI) was 93.2 % (94.0 %) for *A. rayongensis* DSM 102126^T and 82.3 % (78.9 %) for *A. atramentaria* DSM

43919^T. dDDH analysis between strain RB68^T and *A. hibisca* DSM 44148^T gave a similarity value of 24.5 % (22.2-27.0 %). Both strains, RB29^T and RB68^T, revealed morphological characteristics and chemotaxonomic features typical for the genus *Actinomadura*, such as the presence of meso-diaminopimelic acid in the cell wall, galactose and glucose as major sugar components within whole-cell hydrolysates and the absence of mycolic acids. The major phospholipids were diphosphatidylglycerol, phosphatidylglycerol, phosphatidylinositol and phosphatidylinositol mannoside. Predominant menaquinones were MK-9(H₆) and MK-9(H₈) for RB29^T and MK-9(H₄) and MK-9(H₆) for RB68^T. The main fatty acids were identified as 10-methyloctadecanoic acid (10-methyl C_{18:0}), 14-methylpentadecanoic acid (iso-C_{16:0}), hexadecanoic acid (C_{16:0}) and cis-9-octadecanoic acid (C_{18:1} ω9c). Here, we propose two novel species of the genus *Actinomadura*: *Actinomadura rubteroloni* sp. nov. with the type strain RB29^T (=CCUG 72668^T=NRRL B-65537^T) and *Actinomadura macrotermitis* sp. nov. with the type strain RB68^T (=CCUG 72669^T=NRRL B-65538^T).

Beteiligte Forschungseinheiten

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