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

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Investigation of secondary metabolites from insect-associated microbes and their contribution to insect homeostasis and defense
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Abstract

The taxonomic positions of two novel aerobic, Gram-positive actinobacteria, designated strains RB29T and RB68T, were determined using a polyphasic approach. Based on 16S rRNA gene sequence analysis, the closest phylogenetic neighbours of RB29T were identified as *Actinomadura rayongensis* DSM 102126T (99.2 % similarity) and *Actinomadura atramentaria* DSM 43919T (98.7 %), and for strain RB68T was *Actinomadura hibisca* DSM 44148T (98.3 %). Digital DNA-DNA hybridization (dDDH) between RB29T and its closest phylogenetic neighbours, *A. rayongensis* DSM 102126T and *A. atramentaria* DSM 43919T, 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 102126T and 82.3 % (78.9 %) for *A. atramentaria* DSM 43919T. dDDH analysis between strain RB68T and *A. hibisca* DSM 44148T gave a similarity value of 24.5 % (22.2-27.0 %). Both strains, RB29T and RB68T, 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 RB29T and MK-9(H4) and MK-9(H6) for RB68T. The main fatty acids were identified as 10-methyloctadecanoic acid (10-methyl C18:0), 14-methylpentadecanoic acid (iso-C16:0), hexadecanoic acid (C16:0) and cis-9-octadecanoic acid (C18 : 1 ω9c). Here, we propose two novel species of the genus Actinomadura: *Actinomadura rubteroloni* sp. nov. with the type strain RB29T (=CCUG 72668T=NRRL B-65537T) and *Actinomadura macrotermitis* sp. nov. with the type strain RB68T (=CCUG 72669T=NRRL B-65538T).

Identifier

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