Kineosporia babensis sp. nov., isolated from plant litter in Vietnam

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Abstract: Three actinomycetes, designated strains VN05A0342, VN05A0351 and VN05A0415^T, were isolated from plant-litter samples collected in the north of Vietnam and examined in a polyphasic taxonomic study. Phylogenetic analysis based on the 16S rRNA gene sequences showed that these isolates were most closely related to the type strain of Kineosporia mikuniensis (98.5% sequence similarity). Morphological properties (the formation of spore domes and motile spores) and chemotaxonomic data supported the assignment of the three isolates to the genus Kineosporia. The isolates all contained the following: meso-diaminopimelic acid in the peptidoglycan (with small amounts of the LL isomer); ribose, mannose, galactose and glucose as the whole-cell sugars; MK-9(H_4) as the predominant isoprenoid quinone; $C_{18:1}$, and $C_{16:0}$ as the major cellular fatty acids; and phosphatidylcholine, phosphatidylglycerol, diphosphatidylglycerol and phosphatidylinositol as the phospholipids. The high DNA-DNA relatedness (>71%) among the three isolates showed that they represented a single species. On the other hand, the DNA-DNA relatedness between the novel isolates and all type strains of Kineosporia species was less than 46%. The physiological properties of our isolates were distinct from those of all of the Kineosporia species with validly published names, e.g. decomposition of L-tyrosine and aesculin and the utilization of raffinose and D-arabitol. Therefore, strains VN05A0342, VN05A0351 and VN05A0415^T represent a novel species of the genus Kineosporia, for which the name Kineosporia babensis sp. nov. is proposed. The type strain is VN05A0415^T (=VTCC-A-0961^T =NBRC 104154^T). © 2009 IUMS.

Index Keywords: bacterial RNA; cardiolipin; diaminopimelic acid; fatty acid; galactose; glucose; mannose; peptidoglycan; phosphatidylcholine; phosphatidylglycerol; phosphatidylinositol; phospholipid; quinone derivative; ribose; RNA 16S; Actinobacteria; article; bacterium isolate; chemotaxonomy; gene sequence; Kineosporia babensis; new species; nonhuman; nucleotide sequence; phylogeny; plant litter; priority journal; sequence homology; type strain; Actinobacteria (class); Kineosporia; Micromonospora echinaurantiaca

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Chemicals/CAS: diaminopimelic acid, 583-93-7; galactose, 26566-61-0, 50855-33-9, 59-23-4; glucose, 50-

99-7, 84778-64-3; mannose, 31103-86-3, 3458-28-4; peptidoglycan, 9047-10-3; phosphatidylcholine, 55128-59-1, 8002-43-5; ribose, 34466-20-1, 50-69-1, 93781-19-2
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