Antonie van Leeuwenhoek (2015) 107:749–758
DOI 10.1007/s10482-014-0369-z

ORIGINAL PAPER

Cupriavidus yeoncheonense sp. nov., isolated from soil of ginseng

Priyanka Singh · Yeon-Ju Kim · Ngoc-Lan Nguyen · Van-An Hoang · Johan Sukweenadhi · Mohamed El-Agamy Farh · Deok-Chun Yang

Received: 30 September 2014 / Accepted: 23 December 2014 / Published online: 19 February 2015

Abstract A novel bacterial strain, DCY86^T (=KCTC 42053^T = JCM 19890^T) was isolated from soil of a ginseng field in Yeoncheon province (38°04′00″N 126°57′00″E), Republic of Korea using a serial dilution method. Strain DCY86^T was observed to be Gram-stain negative, strictly aerobic, to grow optimally at 25–30 °C, at pH 7–7.5 and on tryptic soya agar medium. The cells were found to be sensitive to ceftazidine and tetracycline. Based on 16S rRNA gene sequence comparisons, strain DCY86^T was found to be most closely related to *Cupriavidus basilensis* LMG 18990^T (98.48 %), *Cupriavidus numazensis* LMG 26411^T (98.34 %), *Cupriavidus pinatabonesis* KCTC 22125^T (98.34 %) and *Cupriavidus laharis* KCTC 22126^T (98.00 %). The G+C content was determined to be 64.23 mol %. The only isoprenoid quinone detected in strain DCY86^T was ubiquinone Q-8. The major polar lipids were identified as diphosphatidylglycerol, phosphtidylethanolamine, phosphatidylglycerol, unidentified aminophosphoglycolipids and unidentified phospholipids. The major fatty acids were identified as $C_{16:0}$ summed feature 3 ($C_{16:1}$ ω7c/ω6c and/or iso-$C_{15:0}$ 2-OH) and summed feature 8 ($C_{18:1}$ ω7c and/or $C_{18:1}$ ω6c). These data support the affiliation of strain DCY86^T to the genus *Cupriavidus*. Strain DCY86^T was also found to be able to solubilize phosphate and produce siderophores. The results of physiological and biochemical tests enabled strain DCY86^T to be differentiated genotypically and phenotypically from the recognized species of the genus *Cupriaividus*. Therefore, the novel isolate can be considered to represent a novel species, for which the name *Cupriavidus yeoncheonense* sp. nov. is proposed here. The type strain is DCY86^T (=KCTC 42053^T = JCM 19890^T).

Keywords *Cupriavidus yeoncheonense* · *Proteobacteria* · Ginseng · Polyphasic taxonomy

Electronic supplementary material The online version of this article (doi:10.1007/s10482-014-0369-z) contains supplementary material, which is available to authorized users.

P. Singh · Y.-J. Kim · N.-L. Nguyen · V.-A. Hoang · D.-C. Yang
Department of Oriental Medicinal Material and Processing, College of Life Science, Kyung Hee University, Seocheon-dong, Giheung-gu, Gyeonggi-do, Yongin-si 446-701, Republic of Korea

Y.-J. Kim (✉) · J. Sukweenadhi · M. E.-A. Farh · D.-C. Yang (✉)
Graduate School of Biotechnology, Ginseng Genetic Resource Bank, College of Life Science, Kyung Hee University, Yongin 446-701, Republic of Korea
e-mail: yeonjukim@khu.ac.kr

D.-C. Yang
e-mail: deokchunyang@yahoo.co.kr

Introduction

The genus *Ralstonia* was proposed in 1995 to accommodate the misplaced species *Burkholderia pickettii*,