Agrobacterium salinitolerans sp. nov., a saline–alkaline-tolerant bacterium isolated from root nodule of *Sesbania cannabina*

Authors: Jun Yan (/search?value1=Jun+Yan&option1=author&noRedirect=true)[1], Yan Li (/search?value1=Yan+Li&option1=author&noRedirect=true)[2], Hui Yan (/search?value1=Hui+Yan&option1=author&noRedirect=true)[3,4], Wen Feng Chen (/search?value1=Wen+Feng+Chen&option1=author&noRedirect=true)[3,4], Xiaoxia Zhang (/search?value1=Xiaoxia+Zhang&option1=author&noRedirect=true)[5], En Tao Wang (/search?value1=En+Tao+Wang&option1=author&noRedirect=true)[6], Xiao Zeng Han (/search?value1=Xiao+Zeng+Han&option1=author&noRedirect=true)[1], Zhi Hong Xie (/search?value1=Zhi+Hong+Xie&option1=author&noRedirect=true)[2]

VIEW AFFILIATIONS

***Correspondence:** Xiao Zeng Han, xzhan@iga.ac.cn (mailto:xzhan@iga.ac.cn) Zhi Hong Xie, zhxie@yic.ac.cn (mailto:zhxie@yic.ac.cn)

First Published Online: 20 June 2017, International Journal of Systematic and Evolutionary Microbiology 67: 1906-1911, doi: (Digital Object Identifier) 10.1099/ijsem.0.001885 (https://dx.doi.org/10.1099/ijsem.0.001885)

Subject: New Taxa - Proteobacteria

Received: 04/07/2016 Accepted: 16/02/2017 Cover date: 01/06/2017

Supplementary Material (1)

Preview this:

Two Gram-staining-negative, aerobic bacteria (YIC 5082^T and YIC4104) isolated from root nodules of *Sesbania cannabina* grown in a high-salt and alkaline environment were identified as a group in the genus *Agrobacterium (https://doi.org/10.1601/nm.1310)* because they shared 100 and 99.7% sequence similarities of 16S rRNA and *recA+atpD* genes, respectively. These two strains showed 99.2/100% and 93.9/95.4% 16S rRNA and *recA+atpD* gene sequence similarities to *Agrobacterium radiobacter (https://doi.org/10.1601/nm.1317)* LMG140^T and *Agrobacterium (https://doi.org/10.1601/nm.1310) . pusense* NRCPB10^T, respectively. The average nucleotide identities (ANI) of genome sequences were 89.95% or lower between YIC 5082^T and the species of the genus *Agrobacterium (https://doi.org/10.1601/nm.1310)* examined. Moreover, these two test strains formed a unique *nifH* lineage deeply separated from other rhizobia. Although the *nodC* gene was not detected in YIC 5082^T and YIC4104, they could form effective root nodules on *S. cannabina* plants. The main cellular fatty acids in YIC 5082^T were summed feature 8 ($C_{18:1}\omega7c/C_{18:1}\omega6c$), $C_{19:0}$cyclo ω8*c*, summed feature 2 ($C_{12:0}$ aldehyde/unknown equivalent chain length 10.9525) and $C_{16:0}$. The DNA G+C content of YIC 5082^T was 59.3 mol%. The failure to utilize d-sorbitol as a carbon source distinguished YIC 5082^T from the type strains of related species. YIC 5082^T could grow in presence of 5.0% (w/v) NaCl and at a pH of up to 10.0. Based on results regarding the genetic and phenotypic properties of YIC 5082^T and YIC4104 the name *Agrobacterium salinitolerans* sp. nov. is proposed and YIC 5082^T (=HAMBI 3646^T=LMG 29287^T) is designed as the type strain.

The accession numbers of the 16S rRNA, *atpD*, *recA*, *glnII* and *nifH* genes for the type strain YIC 5082^T and YIC4104 (https://www.ncbi.nlm.nih.gov/nuccore?term=YIC4104) in GenBank are KP142169 (https://www.ncbi.nlm.nih.gov/nuccore?term=KP142169) and KR362868 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR362868), KP142172 (https://www.ncbi.nlm.nih.gov/nuccore?term=KP142172) and KR154036 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR154036), KP142170 (https://www.ncbi.nlm.nih.gov/nuccore?term=KP142170) and KR154006 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR154006), KP202170 (https://www.ncbi.nlm.nih.gov/nuccore?term=KP202170) and KR154021 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR154021) and KR154052 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR154052) and KR154050 (https://www.ncbi.nlm.nih.gov/nuccore?term=KR154050), respectively. The genomes have been deposited in GenBank under the accession numbers of MRDH00000000 (https://www.ncbi.nlm.nih.gov/nuccore?term=MRDH00000000) for *A. Salinitolerans* YIC 5082^T, MRDG00000000 (https://www.ncbi.nlm.nih.gov/nuccore?term=MRDG00000000) for *A. radiobacter* LMG140^T and MRDJ00000000 (https://www.ncbi.nlm.nih.gov/nuccore?term=MRDJ00000000) for *A. pusense* NRCPB10^T.

Two supplementary figures and one supplementary table are available with the online Supplementary Material.

Keyword(s): Agrobacterium salinitolerans sp. nov. (/search?value1=%27Agrobacterium+salinitolerans+sp.+nov.%27&option1=pub_keyword), Sesbania cannabina (/search?value1=%27Sesbania+cannabina%27&option1=pub_keyword), symbiosis (/search?value1=%27symbiosis%27&option1=pub_keyword), Polyphasic taxonomy (/search?value1=%27Polyphasic+taxonomy%27&option1=pub_keyword)

Access Key

F Free content

OA Open access content

S Subscribed content

T Free Trial content

Back to top

About Us

About the Society (http://www.microbiologysociety.org/about-us/)

Terms and Conditions (/about/terms-and-conditions/)

Privacy Policy (http://www.microbiologysociety.org/privacy)

Contact us (/about/contact-us/)

Submit a Publishing Proposal (/about/submit-proposal/)

Publications

Microbiology (/content/journal/micro)

Journal of General Virology (/content/journal/jgv)

Journal of Medical Microbiology (/content/journal/jmm)

JMM Case Reports (/content/journal/jmmcr)

Microbial Genomics (/content/journal/mgen)

International Journal of Systematic and Evolutionary Microbiology (/content/journal/ijsem)

Resources

For Authors (/authors/information-for-authors)

For Librarians (/librarians/get-access)

For Reviewers (/about/for-reviewers)

Feedback (/about/contact-us/)

FAQs (/about/frequently-asked-questions)

Editorial Policies (/authors/editorial-policies)

Rights and Permissions (/about/rights-and-permissions)

Reprints and Advertising (/about/reprints-and-advertising)

Who's Who (http://www.microbiologysociety.org/whoswho)

Microbe Post (http://microbepost.org)

eISSN 1466-5034 ISSN 1466-5026