**Limimonas halophila** gen. nov., sp. nov., an extremely halophilic bacterium in the family *Rhodospirillaceae*

Mohammad Ali Amoozegar,1,2 Ali Makhdoumi-Kakhki,3 Mohadaseh Ramezan,2 Mahdi Moshtaghi Nikou,2 Seyed Abolhassan Shahzadeh Fazeli,2,4 Peter Schumann5 and Antonio Ventosa6

Correspondence
Mohammad Ali Amoozegar
amoozegar@ibrc.ir or amozegar@ut.ac.ir

1Extremophiles Laboratory, Department of Microbiology, Faculty of Biology, and Center of Excellence in Phylogeny of Living Organisms, College of Science, University of Tehran, Tehran, Iran
2Microorganisms Bank, Iranian Biological Resource Centre, Academic Centre for Education, Culture and Research, Tehran, Iran
3Department of Biology, Faculty of Sciences, Ferdowsi University of Mashhad, Mashhad, Iran
4Genetic Department, Rojan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran
5Leibniz-Institut–Deutsche Sammlung von Mikroorganismen und Zellkulturen, Inhoffenstraße 7B, D-38124 Braunschweig, Germany
6Department of Microbiology and Parasitology, Faculty of Pharmacy, University of Sevilla, 41012 Sevilla, Spain

A novel, Gram-staining-negative, non-pigmented, rod-shaped, strictly aerobic, extremely halophilic bacterium, designated strain IA16T, was isolated from the mud of the hypersaline Lake Aran-Bidgol, in Iran. Cells of strain IA16T were not motile. Growth occurred with 2.5–5.2 M NaCl (optimum 3.4 M), at pH 6.0–8.0 (optimum pH 7.0) and at 30–50 °C (optimum 40 °C). Phylogenetic analysis based on 16S rRNA gene sequences indicated that strain IA16T belonged in the family *Rhodospirillaceae* and that its closest relatives were *Rhodovibrio sodomensis* DSM 9895T (91.6 % sequence similarity), *Rhodovibrio salinarum* NCIMB 2243T (91.2 %), *Pelagibius litoralis* CL-UU02T (88.9 %) and *Fodinicurvata sediminis* YIM D82T (88.7 %). The novel strain’s major cellular fatty acids were C19 : 0cyclo8c and C18 : 0and its polar lipid profile comprised phosphatidylglycerol, diphosphatidylglycerol, four unidentified phospholipids, three unidentified aminolipids and two other unidentified lipids. The cells of strain IA16T contained the ubiquinone Q-10. The G+C content of the novel strain’s genomic DNA was 67.0 mol%. The physiological, biochemical and phylogenetic differences between strain IA16T and other previously described taxa indicate that the strain represents a novel species in a new genus within the family *Rhodospirillaceae*, for which the name *Limimonas halophila* gen. nov., sp. nov. is proposed. The type strain of *Limimonas halophila* is IA16T (=IBRC-M 10018T =DSM 25584T).

The family *Rhodospirillaceae*, belonging to the order *Rhodospirillales* (Pfennig & Trüper, 1971) of the class *Alphaproteobacteria*, is a morphologically, metabolically and ecologically diverse group. Members of this family include chemo-organotrophs, chemolithotrophs and facultative phototrophs, and some of them are also able to grow photoautotrophically (Garrity et al., 2005). At the time of writing, this family comprises 29 genera, species of which have been isolated from various habitats, such as freshwater, activated sludge biomass, air, soil, roots, cystic fibrosis patients, Antarctic white rock and desert sand (Skerman et al., 1983; Coenye et al., 2002; Garrity et al., 2005; Weon et al., 2007; Yamada et al., 2011; Liu et al., 2011). Each of the genera *Rhodovibrio* (Mack et al., 1993), *Rhodospira* (Pfennig et al., 1997), *Thalassospira* (Kodama et al., 2008), *Thalassobaculum* (Zhang et al., 2008), *Nisaea* (Urios et al., 2008), *Marispirillum* (Lai et al., 2009a), *Oceanibaculum* (Lai et al., 2009b) and *Caenispirillum* (Ritika et al., 2012) include species that were isolated from...