Minutes

A. Oren, *Secretary*
A. Ventosa, *Chairman*

International Committee on Systematics of Prokaryotes

Subcommittee on the taxonomy of *Halobacteriaceae*

Minutes of the meetings, 7 August 2008, Istanbul, Turkey

Session 1 – Closed meeting

Minute 1. Call to order. The closed meeting was held on 7 August 2008, at the Istanbul Convention and Exhibition Centre, Istanbul, Turkey. The chairman, Dr A. Ventosa, opened the meeting at 09:15.

Minute 2. Record of attendance. The members present were Drs A. Ventosa (Chairman) and A. Oren (Secretary). Apologies were received from R. R. Colwell, M. L. Dyall-Smith, M. Kamekura, C. D. Litchfield, Y. Ma, F. Rodríguez-Valera, H. Stan-Lotter, B. J. Tindall and R. H. Vreeland.

Minute 3. Approval of agenda. The agenda of the meeting was approved.

Minute 4. Minutes of the previous meeting. The minutes of the open joint meeting of the Subcommittee on the taxonomy of *Halobacteriaceae* and the Subcommittee on the taxonomy of *Halomonadaceae* held in Colchester, UK, 3 September 2007 [Oren *et al.*, *Int J Syst Evol Microbiol* 57 (2007), 2975–2978], were approved.

Minute 5. Resignation of W. D. Grant as member of the subcommittee. The secretary read a letter from W. D. Grant in which he expressed the wish to resign from the subcommittee. The subcommittee accepted the resignation and thanked Dr Grant, who was one of its founding members in 1982, for his many years of activity in the subcommittee.

Minute 6. Confirmation of R. Montalvo-Rodríguez as a member of the subcommittee. R. Montalvo-Rodríguez (Mayaguez, Puerto Rico), who was nominated as a new member of the subcommittee at its closed meeting in San Francisco in 2005, was unanimously accepted as a member.

Minute 7. Nominations of new members of the subcommittee. Aharon Oren nominated Dr Shuang-Jiang Liu of the Institute of Microbiology, the Chinese Academy of Sciences, Beijing, and Antonio Ventosa nominated Dr Thane Papke of the University of Connecticut, Storrs, CT, USA, as new members of the subcommittee. Both had already consented to be nominated. The secretary will formally invite both to join the subcommittee at its next meeting.

Minute 8. Current membership. The current membership of the subcommittee is as follows: A. Ventosa (Seville, Spain) (Chairman), A. Oren (Jerusalem, Israel) (Secretary), R. R. Colwell (Baltimore, MD, USA), M. L. Dyall-Smith (Melbourne, Australia), M. Kamekura (Noda, Japan), C. D. Litchfield (Manassas, VA, USA), Y. Ma (Beijing, China), R. Montalvo-Rodríguez (Mayaguez, Puerto Rico), F. Rodríguez-Valera (Alicante, Spain), H. Stan-Lotter (Salzburg, Austria), B. J. Tindall (Braunschweig, Germany) and R. H. Vreeland (West Chester, PA, USA).

Minute 9. Next meeting of the subcommittee. The next meeting of the subcommittee will be held in association with the international meeting on halophilic microorganisms, scheduled to take place in Beijing, China, in 2010, or in association with the International Union of Microbiological Societies' meetings to be held in Sapporo, Japan, in September 2011.

Minute 10. Adjournment. The meeting was adjourned at 09:40 on 7 August 2008.

Session 2 – Open meeting

Minute 11. Call to order. The open meeting was held on 7 August 2008, at the Convention and Exhibition Centre, Istanbul, Turkey. The chairman, Dr A. Ventosa, opened the meeting at 10:10.

Minute 12. Record of attendance. The subcommittee members present at the closed meeting also attended the open meeting. In addition, the meeting was attended by subcommittee member F. Rodríguez-Valera (Alicante, Spain) and by M. A. Amoozegar (Teheran, Iran), D. R. Arahal (Valencia, Spain), M. Birbir (Istanbul, Turkey), M. Enache (Bucharest, Romania) and L. Pašić (Ljubljana, Slovenia).

Minute 13. New taxa. Reports on the following new taxa and reclassification of existing taxa were presented, as published between September 2007 and July 2008:

Natronococcus jeotgali sp. nov. [Roh *et al.*, *Int J Syst Evol Microbiol* 57 (2007), 2129–2131], with type strain KCTC 4018^T, DSM 18795^T, JCM 14583^T, CECT 7216^T.

Halococcus thailandensis sp. nov. [Namwong *et al.*, *Int J Syst Evol Microbiol* **57** (2007), 2199–2203], with type strain BCC 20213^T, JCM 13552^T, PCU 278^T.

Halorubrum litoreum sp. nov. [Cui *et al.*, *Int J Syst Evol Microbiol* **57** (2007), 2204–2206], with type strain CGMCC 1.5336^T, JCM 13561^T.

Halalkalicoccus jeotgali sp. nov. [Roh *et al.*, *Int J Syst Evol Microbiol* **57** (2007), 2296–2298], with type strain KCTC 4019^T, DSM 18796^T, JCM 14584^T, CECT 7217^T.

Halorubrum ejinorensense sp. nov. [Castillo *et al.*, *Int J Syst Evol Microbiol* **57** (2007), 2538–2542], with type strain CECT 7194^T, CGMCC 1.6782^T, JCM 14265^T.

Halorhabdus tiamatea sp. nov. [Antunes *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 215–220], with type strain DSM 18392^T, JCM 14471^T.

An emended description of the genus *Halorhabdus* was given [Antunes *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 215–220].

Haloferax elongans sp. nov. [Allen *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 798–802], with type strain JCM 14791^T, ATCC BAA-1513^T, UNSW 104100^T.

Haloferax mucosum sp. nov. [Allen *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 798–802], with type strain JCM 14792^T, ATCC BAA-1512^T, UNSW 104200^T.

Halosarcina gen. nov. [Savage *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 856–860], with type species *Halosarcina pallida*. Recommended three-letter abbreviation: *Hsn*.

Halosarcina pallida sp. nov. [Savage *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 856–860], with type strain KCTC 4017^T, JCM 14848^T.

Halorubrum luteum sp. nov. [Hu *et al.*, *Int J Syst Evol Microbiol* **58** (2008), 1705–1708], with type strain CGMCC 1.6783^T, CECT 7303^T.

Descriptions of the following taxa are in press in *Int J Syst Evol Microbiol*: *Haloterrigena salina*, *Halorubrum californiense*, *Natrinema garumense*, *Halomicrobium katesii*, *Halobacterium piscisalsi* and *Halorubrum kocurii*.

Minute 14. Emendation of genus descriptions. Aharon Oren noted that the family *Halobacteriaceae* currently contains 94 species whose names have been validly published, classified in 27 genera (June 2008). In recent years many novel species have been added to the established genera, but in many cases one or more properties of the novel species do not agree with the published descriptions of the genera. Authors have often failed to provide emended genus descriptions when necessary. Emended descriptions are necessary for the genera *Halobacterium*, *Haloarcula*, *Halococcus*, *Haloferax*, *Halorubrum*, *Haloterrigena*, *Natrialba*, *Halobiforma* and *Natronorubrum*. A draft document was presented that provides emended protologues for these genera. It was noted that with the addition of many novel species, the

distinguishing features of most genera beyond information on the 16S rRNA sequences have become less and less clear. Antonio Ventosa and David R. Arahal volunteered to assist Aharon Oren to prepare the document with emended descriptions of genera of the family *Halobacteriaceae* for publication.

Minute 15. Minimal standards for the *Halobacteriaceae*.

The current Recommended Minimal Standards document for the family *Halobacteriaceae* dates from 1997 [Oren *et al.*, *Int J Syst Evol Microbiol* **47** (1997), 233–238]. A working group consisting of A. Ventosa (Chairman), M. L. Dyall-Smith, C. D. Litchfield, A. Oren, H. Stan-Lotter and R. H. Vreeland that was established at the meeting in Colchester, UK, in 2007 has not been active. The subcommittee discussed whether any changes in the Recommended Minimal Standards document are necessary at present. It was recommended that the current recommendation for PCR amplification of 16S rRNA genes followed by sequencing of the product should be replaced by cloning and sequencing of a number of 16S rRNA gene clones, this is in view of the presence of multiple copies of the gene with different sequences in many members of the family. No need was felt for additional changes to the Recommended Minimal Standards.

Minute 16. Report of the ad-hoc committee for the identification of genes relevant to multilocus gene comparison studies of *Halobacteriaceae*.

Two ad-hoc committees have been appointed in the past to make suggestions for a suitable set of genes for multilocus gene comparisons of the family *Halobacteriaceae*: a committee established in Ljubljana in 2004 consisting of M. Kamekura, C. Daniels, S. DasSarma, W. F. Doolittle, M. L. Dyall-Smith and B. J. Tindall, and a new committee established in Colchester in 2007 consisting of T. Papke (Chairman), S. DasSarma and M. L. Dyall-Smith. This new committee has not yet been active. The secretary will contact Thane Papke with a request that the ad-hoc committee is reactivated and that it includes Lejla Pašić and Francisco Rodríguez-Valera in its discussions.

Minute 17. The proposal by DasSarma and DasSarma (2008) to modernize haloarchaeal taxonomy and terminology.

DasSarma & DasSarma [*Saline Syst* **4** (2008), 5] proposed far-reaching changes in the nomenclature and taxonomy of the halophilic *Archaea* of the order *Halobacteriales*, family *Halobacteriaceae* by renaming the order *Halobacteriales* as *Haloarchaeales*, the family *Halobacteriaceae* as *Haloarchaeaceae* and the genus *Halobacterium* – the type genus of the family and the order – as *Haloarchaeum*, ‘to reflect its membership in the archaeal rather than the bacterial domain’. While reevaluation of the taxonomic classification of strains within the group is to be encouraged, the nomenclatural changes proposed in the paper are unacceptable as they are in violation of the General Considerations, Principles and Rules of the International Code of Nomenclature of Prokaryotes.

Aharon Oren explained the problems related to the proposal and presented a reply, to be published soon [Oren, Nomenclature and taxonomy of halophilic *Archaea* – Comments on the proposal by DasSarma & DasSarma [*Saline Systems* 4 (2008), 5] for nomenclatural changes within

the order *Halobacteriales*, *Int J Syst Evol Microbiol* **58** (2008), 2245–2246].

Minute 18. Adjournment. The meeting was adjourned at 11:45 on 7 August 2008.