

# International Committee on Systematic Bacteriology

## Subcommittee on the taxonomy of phototrophic bacteria

Minutes of the meetings, 10 September 1997, Vienna, Austria

### Session 1. Closed meeting

**Minute 1. Call to order.** The open meeting was held on 10 September 1997 at the Academia Hotel, Vienna. The chairman, Dr J. F. Imhoff, opened the meeting at 20:30.

**Minute 2. Record of attendance.** The members present were Drs R. W. Castenholz (Eugene, OR, USA), P. Caumette (Arcachon, France), L. Giovannetti (Florence, Italy), M. Herdman (Paris, France), A. Hiraishi (Toyohashi, Japan), J. F. Imhoff (Kiel, Germany), J. Komárek (Trebón, Czech Republic), R. Rippka (Paris, France), H. G. Trüper (Bonn, Germany), S. Ventura (Florence, Italy) and A. Wilmette (Liege, Belgium).

Apologies were received from E. I. Friedmann (Tallahassee, FL, USA), V. M. Gorlenko (Moscow, Russia), M. T. Madigan (Carbondale, IL, USA), A. Oren (Jerusalem, Israel), J. B. Waterbury (Woods Hole, MA, USA), J. Weckesser (Freiburg, Germany) and B. A. Whitton (Durham, UK).

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

**Minute 4. Minutes of previous meeting.** The minutes of the meeting held in Urbino, 1994, were approved.

**Minute 5. Elena N. Kondratieva.** The chairman reported that Dr Elena N. Kondratieva, a long-time active member of the subcommittee, had passed away in 1994. The subcommittee rose for three minutes of silence to her memory.

**Minute 6. Changes in membership.** Drs B. Gromov, P. Roger and J. Weckesser had resigned from the subcommittee; the chairman expressed his appreciation and thanks for their work. Drs Ferran Garcia-Pichel, Jörg Overmann and Vladimir Yurkov were proposed as new members. Drs Overmann and Garcia-Pichel were elected unanimously, Dr Yurkov with one abstention.

**Minute 7. Election of officers.** This was directed by Dr H. G. Trüper: Drs J. F. Imhoff and M. T. Madigan were re-elected to their respective offices (Dr J. F. Imhoff unanimously, Dr M. T. Madigan with one abstention).

**Minute 8. Present membership.** Drs R. W. Castenholz (Eugene, OR, USA), P. Caumette (Arcachon, France), E. I. Friedmann (Tallahassee, FL, USA), F. Garcia-Pichel (Bremen, Germany), L. Giovannetti (Florence, Italy), V. M. Gorlenko (Moscow, Russia), M. Herdman (Paris, France), A. Hiraishi (Toyohashi, Japan), J. F. Imhoff (chairman; Kiel, Germany), J. Komárek (Trebón, Czech Republic), M. T. Madigan (secretary; Carbondale, IL, USA), A. Oren (Jerusalem, Israel), J. Overmann (Oldenburg, Germany), R. Rippka (Paris, France), H. G. Trüper (Bonn, Germany), S. Ventura (Florence, Italy), J. B. Waterbury (Woods Hole, MA, USA), B. A. Whitton (Durham, UK), A. Wilmette (Liege, Belgium) and V. Yurkov (Vancouver, Canada).

**Minute 9. Adjournment.** The meeting was closed by the chairman at 21:00.

### Session 2. Open meeting

**Minute 10. Call to order.** The open meeting was held on 10 September 1997 at the Academia Hotel, Vienna. The chairman, Dr J. F. Imhoff, opened the meeting at 21:10 and welcomed the new members of the subcommittee, Drs Garcia-Pichel, Overmann and Yurkov.

**Minute 11. Record of attendance.** The members who were present at the closed meeting also attended the open meeting, together with the new members Drs F. Garcia-Pichel (Bremen, Germany), J. Overmann (Oldenburg, Germany) and V. Yurkov (Vancouver, Canada). Drs C. A. Abella, W. Brandenburg, J. Glaeser, E. Hanada, O. Lhotsky, H. V. P. Nagashima, U. Nübel, P. Scheldeman, and E. Trüper were also in attendance.

**Minute 12. Problems with culture collections.** The chairman reported on problems that were experienced with culture collections: an increasing number of strains and species were unavailable:

Lost species and type strains. *Chlorobium chlorovibrioides* DSM 1377<sup>T</sup>, *Prosthecochloris phaeoasteroidea* DSM 1370<sup>T</sup>, *Pelodictyon phaeoclathratiforme* DSM 5477<sup>T</sup>, *Thiopedia rosea* DSM 1236<sup>T</sup> and *Thiospirillum jenense* DSM 216<sup>T</sup>.

Lost type strains. *Thiocapsa pfennigii* DSM 1375<sup>T</sup> and *Chromatium weissei* DSM 171<sup>T</sup>.

Colleagues are asked to let the chairman know of the source of any of these type strains and if alternative strains of lost species are available.

**Minute 13. Abbreviation of names of genera.** The subcommittee agreed on the recommendation of the use of three-letter abbreviations for genera of the anoxygenic phototrophic bacteria as follows:

*Blastochloris* (Blc.), *Rhodobacter* (Rba.), *Rhodobium* (Rbi.), *Rhodocista* (Rcs.), *Rhodocyclus* (Rcy.), *Rhodoferax* (Rfx.), *Rhodomicrobium* (Rmi.), *Rhodopila* (Rpi.), *Rhodoplanes* (Rpl.), *Rhodopseudomonas* (Rps.), *Rhodospira* (Rsa.), *Rhodospirillum* (Rsp.), *Rhodovulum* (Rdv.), *Rubrivivax* (Rvi.);

*Ancalochloris* (Anc.), *Chlorobium* (Chl.), *Chloroflexus* (Cfl.), *Chloroherpeton* (Chp.), *Chloronema* (Cln.), *Clathrochloris* (Clt.), *Heliothrix* (Htr.), *Oscillochloris* (Osc.), *Pelodictyon* (Pld.), *Prosthecochloris* (Ptc.);

*Amoebobacter* (Amb.), *Chromatium* (Chr.), *Ectothiorhodospira* (Ect.), *Halorhodospira* (Hlr.), *Lamprobacter* (Lpb.), *Lamprocystis* (Lpc.), *Rhabdochromatium* (Rbc.), *Thiocapsa* (Tca.), *Thiocystis* (Tcs.), *Thiodictyon* (Tdc.), *Thiopedia* (Tpd.), *Thiorhodococcus* (Trc.), *Thiorhodovibrio* (Trv.), *Thiospirillum* (Tsp.);

*Heliobacillus* (Hba.), *Heliobacterium* (Hbt.), *Heliophilum* (Hph.);

*Erythrobacter* (Erb.), *Erythromicrobium* (Erm.), *Porphyrobacter* (Por.), *Roseobacter* (Rsb.), *Roseococcus* (Rsc.).

**Minute 14. New edition of Bergey's.** The chairman and Dr R. W. Castenholz reported on the proposed new edition of

*Bergey's Manual of Systematic Bacteriology*. Volume I will include chapters on all phototrophic bacteria with the exception of the purple bacteria, which will only given a cursory mention as chapters on these bacteria will appear in Volume II together with other members of the *Proteobacteria*.

**Minute 15. Bergey Award.** The subcommittee congratulated one of its members, Dr Rosemarie Rippka, for receiving the Bergey Award.

**Minute 16. Cyanobacteria.** Dr M. Herdmann reported on the present status of the taxonomy of the cyanobacteria, especially on strains held in the Pasteur collection. He emphasized that ecological factors have not been given sufficient prominence in the taxonomy of these bacteria.

**Minute 17. Purple bacteria.** The chairman reported on developments in the taxonomy of the purple bacteria. The following new species of the family *Chromatiaceae* have been described: *Chromatium glycolicum* sp. nov. [Caumette *et al.* (1997). *Arch Microbiol* **167**, 11–18], *Thiorhodococcus minus* gen. nov., sp. nov. (correct name *Trc. minor*) [Guyoneaud *et al.* (1997). *Arch Microbiol* **168**, 16–23], *Rhabdochromatium marinum* gen. nom. rev., sp. nov. [Dilling *et al.* (1995). *Arch Microbiol* **164**, 125–131]. New species, genera and combinations of the *Ectothiorhodospiraceae* are *Halorhodospira* gen. nov., *Halorhodospira halophila* comb. nov., *Halorhodospira halochloris* comb. nov., *Halorhodospira abdelmalekii* comb. nov., *Ectothiorhodospira marina*, sp. nov., *Ectothiorhodospira haloalkaliphila*, sp. nov. [Imhoff & Süling (1996). *Arch Microbiol* **165**, 106–113].

New species, genera and combinations of the purple non-sulfur bacteria are *Rhodospira trueperi* gen. nov., sp. nov. [Pfennig *et al.* (1997). *Arch Microbiol* **168**, 39–45]; *Rhodovulum strictum* sp. nov. [Hiraishi & Ueda (1995). *Int J Syst Bacteriol* **45**, 319–326]; *Rhodobacter azotoformans* sp. nov. [Hiraishi *et al.* (1996). *Syst Appl Microbiol* **19**, 168–177]; *Rhodoplanes* gen. nov., *Rhodoplanes roseus* comb. nov. (*Rhodopseudomonas rosea*), and *Rhodoplanes elegans* sp. nov. [Hiraishi & Ueda (1994). *Int J Syst Bacteriol* **44**, 665–673]; *Rhodobium* gen. nov., *Rhodobium marinum* comb. nov. (*Rhodopseudomonas marina*), and *Rhodobium orientis* sp. nov. [Hiraishi *et al.* (1995). *Int J Syst Bacteriol* **45**, 226–234], *Blastochloris* gen. nov., *Blastochloris viridis* comb. nov. and *Blastochloris sulfoviridis* comb. nov. [Hiraishi (1997). *Int J Syst Bacteriol* **47**, 217–219].

*Rhodobacter marinus* [Burgess *et al.* (1994). *Microbiology* **140**, 965–970] belongs to the family *Chromatiaceae*, is particularly closely related to *Chromatium gracile* and should be reclassified.

The species described as *Rhodospirillum centenum* [Favinger *et al.* (1989). *Antonie Leeuwenhoek* **55**, 291–296] is

phylogenetically and phenotypically very different from *Rhodospirillum rubrum* and has been transferred to the genus *Rhodocista* as *Rhodocista centenaria* [Kawasaki *et al.* (1992). *J Gen Appl Microbiol* **38**, 541–551]. Both names are included in Validation List 48 [*Int J Syst Bacteriol* **44** (1994), 182–183] with the same priority.

*Rhodoferax* is of masculine gender.

**Minute 18. Aerobic phototrophic bacteria.** Dr V. Yurkov reported on the aerobic phototrophic bacteria. New species and new combinations described are *Roseococcus thio-sulfatophilus* gen. nov., sp. nov., *Erythromicrobium ramosum* gen. nov., sp. nov. and *Erythrobacter litoralis* sp. nov. [Yurkov *et al.* (1994). *Int J Syst Bacteriol* **44**, 427–434], and *Roseobacter algicola* sp. nov. [Lafay *et al.* (1995). *Int J Syst Bacteriol* **45**, 290–296]. *Rsb. algicola* does not produce bacteriochlorophyll and carotenoids, and therefore does not conform with the properties of the genus *Roseobacter*. It should therefore not be classified as a species of this genus.

**Minute 19. Chlorobiaceae.** Dr J. Overmann reported on the family *Chlorobiaceae*. This family forms a very tight cluster on the basis of 16S rDNA data and a number of reclassifications will be required in the future.

**Minute 20. Chloroflexaceae.** Dr R. W. Castenholz reported on the family *Chloroflexaceae*. *Chloroflexus aggregans* has been described as a new species [Hanada *et al.* (1995). *Int J Syst Bacteriol* **45**, 676–681].

**Minute 21. Heliobacteria.** Dr J. F. Imhoff reported on the heliobacteria on behalf of Dr M. T. Madigan. New species and genera described are *Heliobacterium modesticaldum* sp. nov. [Kimble *et al.* (1995). *Arch Microbiol* **163**, 259–267], and *Heliobacterium gestii* sp. nov. and *Heliophilum fasciatum* gen. nov., sp. nov. [Ormerod *et al.* (1996). *Arch Microbiol* **165**, 226–234].

**Minute 22. Minimal standards for anoxygenic phototrophic bacteria.** The minimal standards document for the anoxygenic phototrophic bacteria was briefly discussed and will be circulated to the subcommittee members for approval.

**Minute 23. Minimal standards for oxygenic phototrophic bacteria.** A minimal standards document on the oxygenic phototrophic bacteria is in preparation.

**Minute 24. Publication of agenda.** The subcommittee will ask for its agenda to be published in the program of the next International Symposium on Phototrophic Prokaryotes.

**Minute 25. Adjournment.** The chairman closed the meeting at 23:55.

H. G. Trüper, *Acting Secretary*  
J. F. Imhoff, *Chairman*