

# International Committee on Systematic Bacteriology

## Subcommittee on the taxonomy of *Bifidobacterium*, *Lactobacillus* and related organisms

Minutes of the meetings, 26 and 29 August 1996, Budapest, Hungary

### Session 1. Open meeting

**Minute 1. Call to order.** Chairman E. Lauer called the open meeting to order at 14:00 on 26 August 1996.

**Minute 2. Record of attendance.** The members present were: B. Biavati, F. Dellaglio, L. M. T. Dicks, F. Gasser, W. Holzapfel, E. Lauer and G. Reuter. Apologies for absence were received from: W. P. Hammes, A. Kagermeier-Callaway, K. W. Knox, J. London, T. Mitsuoka and M. C. Montel. The guests present were: F. Berthier (alternate for M. C. Montel), C. Bonaparte, G. Klein, B. Pot, S. Torriani and other people attending the International Symposium *Food Micro '96*.

**Minute 3. Call for research reports.** The following research reports were presented: B. Pot, K. Kersters 'Advanced identification and classification of lactic acid bacteria, with emphasis on SDS-PAGE of whole-cell proteins'; W. Holzapfel 'The role of lactic acid fermentation in the nutrition of some developing countries'; S. Torriani, L. M. T. Dicks, F. Dellaglio and C. A. Van Reenen 'Evaluation of numerical analysis of RAPD-PCR as a method to differentiate subgroups within *Lactobacillus sake* and *Lactobacillus curvatus*'; G. Klein 'Molecular typing of *Lactobacillus sake* and *Lactobacillus curvatus*'; F. Berthier 'Grouping of the strains of the *Lactobacillus sake/curvatus* group by RAPD'; F. Gasser 'Some comments on the final report of the Frankfurt workshop on the safety of lactic acid bacteria'. A brief discussion followed each presentation.

**Minute 4. Adjournment.** The open meeting was adjourned at 17:00 on 26 August 1996.

### Session 2. Closed meeting

**Minute 5. Call to order.** Chairman E. Lauer called the closed meeting to order at 09:00 on 29 August 1996.

**Minute 6. Record of attendance.** The members present were: B. Biavati, F. Dellaglio, F. Gasser, W. Holzapfel and E. Lauer. Apologies for absence were received from: L. M. T. Dicks, W. P. Hammes, A. Kagermeier-Callaway, K. W. Knox, J. London, T. Mitsuoka, M. C. Montel and G. Reuter. B. Pot and G. Klein were invited to attend this meeting immediately after their election as new members. B. Biavati agreed to serve as Secretary as alternate for A. Kagermeier-Callaway, who was absent.

**Minute 7. Changes in membership.** A commemoration of Vittorio Scardovi who passed away on 11 August 1995 was given by B. Biavati. His valuable contributions to research

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It is with great sadness that the members of the subcommittee record the death of W. E. C. Moore in Blacksburg, VA, USA, on 25 September 1996. His contribution as a member of the subcommittee and to the general problems of taxonomy was invaluable.

and his work on the subcommittee were remembered by E. Lauer. A letter of resignation from membership was received from K. W. Knox. Also by letter, A. Kagermeier-Callaway expressed her desire to step down as Secretary. E. Lauer was asked to remain Chairperson and F. Dellaglio agreed to assist him as Deputy Chairman.

**Minute 8. Election of new members.** Two scientists were invited to serve as members on the subcommittee: B. Pot (Gent, Belgium) was nominated by F. Dellaglio, and the nomination was seconded by W. Holzapfel. G. Klein (Berlin, Germany) was nominated (by correspondence) by G. Reuter and the nomination was seconded (also by correspondence) by K. W. Knox. The election of all nominees was unanimous. After their election as new members they were invited to participate in the closed meeting.

**Minute 9. Election of a new Secretary.** G. Klein was nominated as Recording Secretary by W. Holzapfel, and the nomination was seconded by F. Dellaglio. The election was unanimous.

**Minute 10. Old business.** A draft of the Minimal Standard requirements for the description of new species of the genus *Bifidobacterium* was presented by E. Lauer. It was decided to distribute the draft to all members for approval or further suggestions, to be returned to E. Lauer within 4 months. E. Lauer pointed out that serious problems still persist and are apparent from the literature, i.e. with respect to the taxonomy of both of the following groups of species: the *Bifidobacterium indicum/Bifidobacterium coryneforme/Bifidobacterium asteroides* group and the *Bifidobacterium infantis/Bifidobacterium suis/Bifidobacterium longum* group. Apparently, the problem has also influenced the Ribosomal Database Project [Yang & Woese: 16S ribosomal phylogeny of bifidobacteria. *Abstr Ann Meeting ASM* (1989), p. 282; Larsen *et al.*, The Ribosomal Database Project. *Nucleic Acid Res* **21** (1993), 3021–3023], because there it was reported that *Bifidobacterium indicum*, *Bifidobacterium infantis*, *Bifidobacterium suis* and *Bifidobacterium breve* share at least 94% sequence similarity. Perhaps the identity of the investigated type strains i.e. of *Bifidobacterium indicum* and *Bifidobacterium infantis* has not been verified by determining the murein type prior to molecular analyses, which could explain these discrepancies.

**Minute 11. New business.** It was suggested that the relationship of strains from the *Bifidobacterium infantis/Bifidobacterium longum/Bifidobacterium suis* group and new isolates from calf faeces should be reinvestigated. The original species description of *Bifidobacterium asteroides* (Scardovi and Trovatielli 1969) has to be emended because of the lack of accordance with type strain *Bifidobacterium asteroides* ATCC 25910, as was shown previously [Lauer & Kandler, *Syst Appl Microbiol* **4** (1983), 42–64]. In addition, the relationship of the species *Bifidobacterium asteroides*,

*Bifidobacterium indicum* and *Bifidobacterium coryneforme* to each other and on the genus level have to be reinvestigated because of conflicting data based on recent rRNA studies [Frothingham *et al.*, Ribosomal DNA sequences of bifidobacteria: implications for sequence-based identification of the human colonic flora. *Microb Ecol Health Dis* **6** (1993), 23–27; Leblond-Bourget *et al.*, 16S rRNA and 16S to 23S internal transcribed spacer sequence analyses reveal inter- and intraspecific *Bifidobacterium* phylogeny. *Int J Syst Bacteriol* **46** (1996), 102–111]. The taxonomic problem with respect to *Lactobacillus casei*/*Lactobacillus paracasei*/*Lactobacillus zae* was further evaluated, and it was proposed to submit to the Judicial Commission a statement from the subcommittee in favour of the proposals by Dicks *et al.* [*Int J Syst Bacteriol* **46** (1996), 337–340]. E. Lauer presented a draft to be further evaluated by J. London and A. Kagermeier-Callaway. Furthermore, it seems necessary to verify the separate species status of *Lactobacillus animalis* and *Lactobacillus murinus*. It was pointed out that the type strain of the species *Lactobacillus panis* cannot be obtained from the DSMZ (Braunschweig, Germany) where it was deposited by Wiese *et al.* [*Int J Syst Bacteriol* **46** (1996), 449–453], nor is it available from any other source. In order to raise this problem it was decided to write a Request for an Opinion, requesting the rejection of *Lactobacillus panis* as a valid species. W. Holzzapfel agreed to prepare a draft for the Minimal Standard requirements for the description of new species of the genus *Lactobacillus*.

**Minute 12. Scope of the subcommittee.** The Secretary for Subcommittees has granted permission to include *Tetragenococcus* and *Weissella* within the purview of the subcommittee.

**Minute 13. Acceptance of new species.** The following new species were acknowledged as valid species by the subcommittee: *Bifidobacterium denticolens* [F. Crociani, B. Biavati, A. Alessandrini, C. Chiarini & V. Scardovi, *Int J Syst Bacteriol* **46** (1996), 564–571]; *Bifidobacterium inopinatum*, F. Crociani, B. Biavati, A. Alessandrini, C. Chiarini & V. Scardovi, *Int J Syst Bacteriol* **46** (1996), 564–571; *Bifidobacterium ruminantium*, B. Biavati & P. Mattarelli, *Int J Syst Bacteriol* **41** (1991), 163–168; *Lacto-*

*bacillus kefirgranum*, S. Takizawa, S. Kojima, S. Tamura, S. Fujinaga, Y. Benno & T. Nakase, *Int J Syst Bacteriol* **44** (1994), 435–439; *Lactobacillus parakefir*, S. Takizawa, S. Kojima, S. Tamura, S. Fujinaga, Y. Benno & T. Nakase, *Int J Syst Bacteriol* **44** (1994), 435–439; *Lactobacillus paraplantarum*, M. C. Curk, J. C. Hubert & F. Bringel, *Int J Syst Bacteriol* **46** (1996), 595–598].

**Minute 14. Acceptance of new genera.** The new genus *Oenococcus oeni* [L. M. T. Dicks, F. Dellaglio & M. D. Collins, *Int J Syst Bacteriol* **45** (1995), 395–397] was acknowledged as valid by the subcommittee. The discussions about *Lactosphaera pasteurii* [P. H. Janssen, S. Evers, F. A. Rainey, N. Weiss, W. Ludwig, C. G. Harfoot & B. Schink, *Int J Syst Bacteriol* **45** (1995), 565–571] and Opinion 68 of the Judicial Commission: designation of strain B213c (DSM 20284) in place of strain NCDO 1895 as the type strain of *Pediococcus acidilactici* Lindner 1887 [*Int J Syst Bacteriol* **46** (1996), 835] were postponed to the next meeting.

**Minute 15. Present membership.** The following individuals are members of the subcommittee on *Bifidobacterium*, *Lactobacillus* and related organisms: Bruno Biavati (alternate Secretary), Bologna, Italy; Matthew D. Collins, Reading, UK; Franco Dellaglio (Deputy Chairman), Verona, Italy; Leon M. T. Dicks, Stellenbosch, South Africa; Francis Gasser, Paris, France; Walter Hammes, Stuttgart, Germany; Wilhelm Holzzapfel, Karlsruhe, Germany; Angelika Kagermeier-Callaway, Mainz, Germany; Günter Klein, Berlin, Germany; Eckhard Lauer (Chairperson), Berlin, Germany; Jack London, Bethesda, MD, USA; Tomotari Mitsuoka, Tokyo, Japan; Marie-Christine Montel, Saint-Genes-Champanelle, France; Bruno Pot, Gent, Belgium; Gerhard Reuter, Berlin, Germany; Barbara Sgorbati, Bologna, Italy; Norbert Weiss, Braunschweig, Germany.

**Minute 16. Date and place of the next meeting.** The next meeting of the subcommittee will take place in Veldhoven, The Netherlands, in September 1999.

**Minute 17. Adjournment.** The closed meeting was adjourned at 13:00 on 29 August 1996.

Bruno Biavati, *Alternate Secretary*