

Minutes

Christine Bonaparte, *Acting Secretary*
Günter Klein, *Secretary*

International Committee on Systematics of Prokaryotes

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

Minutes of the meetings, 31 August 2011, Egmond aan Zee, The Netherlands

Session 1 – Open meeting

Minute 1. Call to order. The open meeting was called to order as part of the LAB10 symposium, Egmond aan Zee, The Netherlands, at 14:35 on 31 August, 2011, by the Chairman F. Dellaglio.

Minute 2. Record of attendance. The members present were: B. Biavati (Deputy Chairman), J. Björkroth, C. Bonaparte (Acting Secretary), F. Dellaglio (Chairman), L. M. T. Dicks (Deputy Chairman), C. Franz, B. Pot. Apologies for absence were received from: G. Felis, W. P. Hammes, W.-H. Holzapfel, G. Klein (Secretary), G. Reuter, B. Sgorbati. The guests present were: Akihito Endo, Paola Mattarelli, K. Watanabe and Elisa Salvetti.

Minute 3. Call for research reports. Research reports on topics related to taxonomy of the genus *Lactobacillus* and related organisms and bifidobacteria were presented by Paola Mattarelli, Akihito Endo and Koichi Watanabe. The presentations were as follows: Paola Mattarelli: ‘*Bifidobacteriaceae* occurrence in human hypochloridric stomach’ and ‘Folate production in bifidobacteria from non-human primates and carnivores’; Akihito Endo: ‘Impact of carbohydrates used for enrichment isolation of LAB’; Koichi Watanabe: ‘Novel subspeciation of *Lactobacillus delbrueckii* by genotypic identification’. A brief discussion followed each presentation.

Minute 4. Adjournment. The chairman thanked all of the presenters for their contributions. The open meeting was adjourned at 15:30 on 31 August 2011.

Session 2 – Closed meeting

Minute 5. Call to order. Chairman F. Dellaglio called the closed meeting to order at 15:30 on 31 August 2011.

Minute 6. Record of attendance. The members present were: B. Biavati (Deputy Chairman), J. Björkroth, C. Bonaparte (Acting Secretary), F. Dellaglio (Chairman), L. M. T. Dicks (Deputy Chairman), C. Franz, B. Pot. Apologies for absence were received from: G. Felis, W. P. Hammes, W.-H. Holzapfel, G. Klein (Secretary), G. Reuter, B. Sgorbati. The guests present were: Akihito Endo, Paola Mattarelli and K. Watanabe.

Minute 7. Approval of the agenda. The proposed agenda was approved.

Minute 8. Minutes of the previous meetings. The minutes of the meetings of the subcommittee in Egmond aan Zee, The Netherlands, on 3 September 2008 were approved.

Minute 9. Membership. Intentions of resignation were received from the following members: W.P. Hammes and B. Sgorbati. The subcommittee accepted the resignations. The chairman and all present members of the subcommittee expressed their gratitude for the work and contributions of the retiring members. Two candidates for membership were present at the meeting: A. Endo and P. Mattarelli. The subcommittee accepted both candidates as new members. K. Watanabe was listed as a candidate for consideration at the next meeting.

Minute 10. Scope of the Subcommittee. The status quo of genera within the purview of the subcommittee is as follows: *Bifidobacterium*, *Lactobacillus*, *Carnobacterium*, *Leuconostoc*, *Fructobacillus*, *Pediococcus*, *Tetragenococcus*, *Isobaculum*, *Lactosphaera*, *Desemzia*, *Weissella*, *Oenococcus*, *Sharpea*, *Vagococcus*, *Catelicoccus*, *Gardnerella*, *Paralactobacillus*, *Alloscardovia*, *Metascardovia*, *Scardovia*, *Aeriscardovia* and *Parascardovia*.

Minute 11. Call for old business. Regarding problems with the type strains within the *Bifidobacterium indicum*/*B. coryneforme*/*B. asteroides*-group, B. Biavati collected the type strains from different culture collections and compared them by using DNA fingerprinting. Analysis of the type strains derived from ATCC, DSMZ and LMG-BCCM culture collections and reinvestigations by B. Biavati and P. Mattarelli of the type strains, including the collection where the type strains were firstly deposited, and from the Bologna University Scardovi Collection of Bifidobacteria (BUSCOB) by DNA fingerprinting, led to the following conclusions. Considering *B. coryneforme*, all type strains in all collections are identical to the original strain. For *B. indicum* and *B. asteroides*, the identity of all type strains has so far not been confirmed and further investigations are needed.

Minute 12. Minimal Standards. On the basis of the draft for the minimal standards, entitled ‘Recommended minimal

standards for new species of *Bifidobacterium*, *Lactobacillus* and related genera', P. Mattarelli summarized the requirement for establishing minimal standards (i. e. description of family, general criteria as phenotypic and genotypic characterization). B. Biavati and P. Mattarelli have prepared a draft minimal standard for the family *Bifidobacteriaceae*. They will now prepare drafts for the other families and send them to the 'specialist' members within two months. The 'specialist' members will then add information concerning specific requirements. The final revision will be submitted to W. Holzapfel and F. Dellaglio. The experts designated for the genera *Lactobacillus*, *Paralactobacillus* and *Pediococcus* of the family *Lactobacillaceae* were B. Pot, G. Felis and C. Franz; C. Franz, W. Holzapfel for the genera *Carnobacterium*, *Desemzia*, *Isobaculum* and *Lactosphaera* of the family *Carnobacteriaceae*; A. Endo, L. Dicks and J. Björkroth for the genera *Fructobacillus*, *Leuconostoc*, *Oenococcus* and *Weissella* of the family *Leuconostocaceae*; L. Dicks for the genera *Tetragenococcus*, *Vagococcus* and *Catelicoccus* of the family *Enterococcaceae*, and P. Mattarelli, C. Bonaparte, B. Biavati for the genera *Bifidobacterium*, *Aeriscardovia*, *Alloiscardovia*, *Metascardovia*, *Parascardovia*, *Scardovia* and *Gardnerella* of the family *Bifidobacteriaceae*.

Minute 13. Call for new business. The establishment of a separate website for the subcommittee was discussed. F. Dellaglio will explore the possibilities and discuss the issue with K. Watanabe.

Minute 14. Review of new species and subspecies. The reporting period is from January 2009 to August 2011. In addition, all 'Papers in Press' have been considered, which were available up to December 2011. These taxonomic units have been therefore included in these minutes. The following novel species were acknowledged by the subcommittee (as from January 2009 to December 2011): *Bifidobacterium mongoliense* [Watanabe et al., *Int J Syst Evol Microbiol* **59** (2009) 1535–1540], *Bifidobacterium bombi* [Killer et al., *Int J Syst Evol Microbiol* **59** (2009) 2020–2024], *Bifidobacterium stercoris* [Kim et al., *Int J Syst Evol Microbiol* **60** (2010) 2823–2827], *Bifidobacterium actinocoloniiforme* [Killer et al., *Int J Syst Evol Microbiol* **61** (2011) 1315–1321], *Bifidobacterium bohemicum* [Killer et al., *Int J Syst Evol Microbiol* **61** (2011) 1315–1321], *Bifidobacterium kashiwanohense* [Morita et al., *Int J Syst Evol Microbiol* **61** (2011) 2610–2615], *Carnobacterium jeotgali* [Kim et al., *Int J Syst Evol Microbiol* **59** (2009) 3168–3171], *Fructobacillus tropaeoli* [Endo et al., *Int J Syst Evol Microbiol* **61** (2011) 898–902], *Lactobacillus fabifermentans* [De Bruyne et al., *Int J Syst Evol Microbiol* **59** (2009) 7–12], *Lactobacillus cacaonum* [De Bruyne et al., *Int J Syst Evol Microbiol* **59** (2009) 7–12], *Lactobacillus nodensis* [Kashiwagi et al., *Int J Syst Evol Microbiol* **59** (2009) 83–86], *Lactobacillus kisonensis* [Watanabe et al., *Int J Syst Evol Microbiol* **59** (2009) 754–760], *Lactobacillus otakiensis* [Watanabe et al., *Int J Syst Evol Microbiol* **59** (2009) 754–760], *Lactobacillus rapi* [Watanabe et al., *Int J Syst Evol Microbiol* **59** (2009) 754–760], *Lactobacillus sunkii* [Watanabe et al., *Int J Syst Evol Microbiol* **59** (2009)

754–760], *Lactobacillus tucseti* [Validation List No. 127, *Int J Syst Evol Microbiol* **59** (2009) 923–925; Chenoll et al., *Syst Appl Microbiol* **29** (2006) 389–395], *Lactobacillus oeni* [Mañes-Lázaro et al., *Int J Syst Evol Microbiol* **59** (2009) 2010–2014], *Lactobacillus taiwanensis* [Wang et al., *Int J Syst Evol Microbiol* **59** (2009) 2064–2068], *Lactobacillus uvarum* [Validation List No. 129, *Int J Syst Evol Microbiol* **59** (2009) 2129–2130; Mañes-Lázaro et al., *Syst Appl Microbiol* **31** (2008) 425–433], *Lactobacillus aquaticus* [Mañes-Lázaro et al., *Int J Syst Evol Microbiol* **59** (2009) 2215–2218], *Lactobacillus sucicola* [Irisawa & Okada, *Int J Syst Evol Microbiol* **59** (2009) 2662–2665], *Lactobacillus equicursoris* [Morita et al., *Int J Syst Evol Microbiol* **60** (2010) 109–112], *Lactobacillus similis* [Sakamoto & Benno, *Int J Syst Evol Microbiol* **60** (2010) 187–190], *Lactobacillus paucivorans* [Ehrmann et al., *Int J Syst Evol Microbiol* **60** (2010) 2353–2357], *Lactobacillus florum* [Endo et al., *Int J Syst Evol Microbiol* **60** (2010) 2478–2482], *Lactobacillus odoratitofui* [Chao et al., *Int J Syst Evol Microbiol* **60** (2010) 2903–2907], *Lactobacillus koreensis* [Bui et al., *Int J Syst Evol Microbiol* **61** (2011) 772–776], *Lactobacillus kimchicus* [Liang et al., *Int J Syst Evol Microbiol* **61** (2011) 894–897], *Lactobacillus floricola* [Kawasaki et al., *Int J Syst Evol Microbiol* **61** (2011) 1356–1359], *Lactobacillus ozensis* [Kawasaki et al., *Int J Syst Evol Microbiol* **61** (2011) 2435–2438], *Leuconostoc palmae* [Ehrmann et al., *Int J Syst Evol Microbiol* **59** (2009) 943–947], *Pediococcus lolii* [Doi et al., *Int J Syst Evol Microbiol* **59** (2009) 1007–1010], *Scardovia wiggisiae* [Downes et al., *Int J Syst Evol Microbiol* **61** (2011) 25–29], *Vagococcus penaei* [Jaffrès et al., *Int J Syst Evol Microbiol* **60** (2010) 2159–2164], *Vagococcus acidifermentans* [Wang et al., *Int J Syst Evol Microbiol* **61** (2011) 1123–1126], *Weissella fabaria* [De Bruyne et al., *Int J Syst Evol Microbiol* **60** (2010) 1999–2005], *Weissella beninensis* [Padonou et al., *Int J Syst Evol Microbiol* **60** (2010) 2193–2198], *Weissella ceti* [Vela et al., *Int J Syst Evol Microbiol* **61** (2011) 2758–2762]. *Lactobacillus catenaformis* has been reclassified as *Eggerthia catenaformis* [Salvetti et al., *Int J Syst Evol Microbiol* **61** (2011), 2520–2524], *Lactobacillus vitulinus* has been reclassified as *Kandleria vitulina* [Salvetti et al., *Int J Syst Evol Microbiol* **61** (2011), 2520–2524], the description of *Scardovia inopinata* has been emended [Downes et al., *Int J Syst Evol Microbiol* **61** (2011), 25–29], *Paralactobacillus selangorensis* has been reclassified as *Lactobacillus selangorensis* [Haakensen et al., *Int J Syst Evol Microbiol* **61** (2011), 2978–2983]. The status of 'Bifidobacterium crudilactis' will be checked by B. Pot, as this species name is effectively published but not yet validly published, as it has not appeared in a Validation List of *Int J Syst Evol Microbiol* [Klein, *Int J Syst Evol Microbiol* **59** (2009), 3181–3183].

Minute 15. Review of novel orders, families and genera. The reporting period is from January 2009 to August 2011. In addition, all 'Papers in Press' have been considered, which were published in print up to December 2011. These taxonomic units have been therefore included in these minutes. The following new taxonomic units were acknowledged by the subcommittee (as from January 2009 to

December 2011): The new order *Lactobacillales* [Validation List No. 132, *Int J Syst Evol Microbiol* **60** (2010) 469–472; Ludwig *et al.*, *Bergey's Manual of Systematic Bacteriology, 2nd edn, vol. 3 (The Firmicutes)* (2009) 464] and the new family *Leuconostocaceae* [Validation List No. 132, *Int J Syst Evol Microbiol* **60** (2010) 469–472; Schleifer, *Bergey's Manual of Systematic Bacteriology, 2nd edn, vol. 3 (The Firmicutes)* (2009) 624]. The description of the genus *Scardovia* has been emended [Downes *et al.*, *Int J Syst Evol Microbiol* **61** (2011) 25–29]. The description of the genus *Weissella* has been emended [Padonou *et al.*, *Int J Syst Evol Microbiol* **60** (2010) 2193–2198].

Minute 16. Present membership. The following individuals are members of the Subcommittee on *Bifidobacterium*, *Lactobacillus* and related organisms: Bruno Biavati (Deputy Chairman), Bologna, Italy; Johanna Björkroth, Helsinki,

Finland; Christine Bonaparte, Hannover, Germany; Franco Dellaglio (Chairman), Verona, Italy; Leon M. T. Dicks (Deputy Chairman), Stellenbosch, South Africa; Akihiko Endo, Turku, Finland; Giovanna Felis, Verona, Italy; Charles M. A. P. Franz, Karlsruhe, Germany; Wilhelm H. Holzapfel, Karlsruhe, Germany; Günter Klein, (Secretary), Hannover, Germany; Paola Mattarelli, Bologna, Italy; Bruno Pot, Gent, Belgium; Gerhard Reuter, Berlin, Germany, and Marc Vancanneyt, Gent, Belgium.

Minute 17. Date and place of the next meeting. The preferred date for the next meeting of the subcommittee is during Food Micro 2012, Istanbul, Turkey, from 3–6 September 2012.

Minute 18. Adjournment. The closed meeting was adjourned at 17:20 on 31 August 2011.