

Minutes

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Günter Klein, *Secretary*

International Committee on Systematics of Prokaryotes

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

Minutes of the meetings, 1 September 2014, Nantes, France

Session 1 – Open meeting

Minute 1. Call to order. The open meeting was called to order as part of the FoodMicro 2014 symposium in Nantes, France at 13:30 on 1 September 2014, by Chairman F. Dellaglio.

Minute 2. Record of attendance. The Subcommittee members present were B. Biavati, F. Dellaglio (Chairman), P. Mattarelli, B. Pot and K. Watanabe. Apologies for absence were received from J. Björkroth, C. Bonaparte, A. Endo, G. Felis, L. M. T. Dicks, C. Franz, W.-H. Holzapfel, G. Klein (Secretary) and G. Reuter. The guest present was Paul Lawson.

Minute 3. Call for research reports. Research reports on topics related to the taxonomy of *Lactobacillus* and related organisms and bifidobacteria were presented within the workshop ‘*Lactobacillus* and *Bifidobacterium* taxonomy: a navigator in bacterial diversity and applications’. The workshop took place with the support of the Society for Applied Microbiology (SfAM). The invited speaker, Paul Lawson, presented a key lecture entitled ‘Microbial Genomic Taxonomy: A Look to the Future’. Other presentations were: ‘Definition of minimal standards for the accurate taxonomic description and identification of species belonging to *Bifidobacterium*, *Lactobacillus* and related genera’ (Paola Mattarelli, Italy); ‘Diversity of *Lactobacillus delbrueckii* and *Bifidobacterium longum* revealed by multilocus approaches and amplified fragment length polymorphism’ (Koichi Watanabe, Japan); ‘The European culture collections join the Microbial Resources Research Infrastructure (MIRRI) project: road map for improving access to the microbial resources’ (Raquel Hurtado-Ortiz, France). The attendance of the of the meeting was numerous. A brief discussion followed each presentation.

Minute 4. Adjournment. The chairman thanked the presenters for their contributions. The open meeting was adjourned at 15:00 on 1 September 2014.

Session 2 – Closed meeting

Minute 5. Call to order. Chairman F. Dellaglio called the closed meeting to order at 15:00 on 1 September 2014.

Minute 6. Record of attendance. The Subcommittee members present were B. Biavati, F. Dellaglio (Chairman), P. Mattarelli, B. Pot and K. Watanabe. Apologies for absence were received from J. Björkroth, C. Bonaparte, A. Endo, G. Felis, L. M. T. Dicks, C. Franz, W.-H. Holzapfel, G. Klein (Secretary) and G. Reuter. The guest present was Paul Lawson.

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 Istanbul, Turkey, on 4 September 2012 [*Int J Syst Evol Microbiol* **63** (2013), 1574–1576] were approved.

Minute 9. Membership. A candidate for membership of the Subcommittee, P. Lawson, was present. P. Lawson was proposed as a new member by F. Dellaglio and was seconded by P. Mattarelli. The Subcommittee accepted the candidate as a new member.

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*, *Jeotgalibaca*, *Lactosphaera*, *Desemzia*, *Weissella*, *Oenococcus*, *Sharpea*, *Vagococcus*, *Catelicoccus*, *Gardnerella*, *Paralactobacillus*, *Alloscardovia*, *Metascardovia*, *Scardovia*, *Aeriscardovia*, *Pseudoscardovia*, *Bombiscardovia* and *Parascardovia*.

Minute 11. Call for old business. Regarding issues within the high similarity of *Bifidobacterium indicum*–*Bifidobacterium coryneforme*, K. Watanabe, B. Biavati and P. Mattarelli performed the following new analysis: DNA–DNA hybridization, 16S rRNA and HSP60 gene analysis, amplified fragment length polymorphism (AFLP), enterobacterial repetitive intergenic consensus (ERIC)-PCR, matrix-assisted laser desorption/ionization-time of flight (MALDI-TOF) mass spectrometry and restriction fragment length polymorphism (RFLP) HSP60 analysis. The results indicate that DNA–DNA hybridization values range from 63% to 68% while the value for 16S rRNA gene sequence similarity is 98.65%. These values are borderline for species discrimination, but the other analyses show values or profiles

differentiating the two species. Based on the results, members agreed to proceed with the writing of a note in order to clarify the taxonomic position of these two species, maintaining *Bifidobacterium indicum* and *Bifidobacterium coryneforme* as separate species. K. Watanabe, B. Biavati and P. Mattarelli will draft such a note.

Minute 12. Minimal standards. In April 2014, minimal standards containing the guidelines to describe new taxa belonging to *Bifidobacterium*, *Lactobacillus* and related genera were published [Mattarelli *et al.*, *Int J Syst Evol Microbiol* **64** (2014) 1434–1451].

Minute 13. Call for new business. The Internet website of the Subcommittee has been created within the website of ICSP. At the time of writing these minutes, the information present are the history of the Subcommittee and the minutes of all past meetings of the Subcommittee. The inclusion of information about ‘taxa covered’ by the Subcommittee was proposed. B. Pot suggested that members can contribute to updating the site by asking the secretary (depository of key access) to insert new information.

Minute 14. Review of novel species and subspecies.

The reporting period is from March 2013 to December 2014. The following novel species and subspecies were acknowledged by the Subcommittee (as from March 2013 to December 2014): *Bifidobacterium crudilactis* sp. nov. [Validation list no. 153, *Int J Syst Evol Microbiol* **63** (2013), 3131–3134; Delcenserie *et al.*, *Syst Appl Microbiol* **30** (2007), 381–389]; *Lactobacillus apinorum* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus mellifer* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus mellis* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus melliventris* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus kimbladii* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus helsingborgensis* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus kullabergensis* sp. nov. [Olofsson *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3109–3119]; *Lactobacillus sicerae* sp. nov. [Puertas *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 2949–2955]; *Lactobacillus furfuricola* sp. nov. [Irisawa *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 2902–2906]; *Lactobacillus bombi* sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 2611–2617]; *Lactobacillus rodentium* sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1526–1533]; *Lactobacillus apis* sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 152–157]; *Lactobacillus mudanjiangensis* sp. nov. [Gu *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4698–4706]; *Lactobacillus songhuajiangensis* sp. nov. [Gu *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4698–4706]; *Lactobacillus nenjiangensis* sp. nov. [Gu *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4698–4706]; *Lactobacillus silagei* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4613–4618]; *Lactobacillus*

faecis sp. nov. [Endo *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4502–4507]; *Lactobacillus heilongjiangensis* sp. nov. [Gu *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4094–4099]; *Lactobacillus iwatensis* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 3854–3860]; *Lactobacillus backii* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 3854–3860]; *Lactobacillus delbrueckii* subsp. *jakobsenii* subsp. nov. [Adimpong *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 3720–3726]; *Lactobacillus yonginensis* sp. nov. [Yi *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 3274–3279]; *Lactobacillus oryzae* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 2957–2962]; *Lactobacillus hokkaidonensis* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 2526–2531]; *Lactobacillus shenzhenensis* sp. nov. [Zou *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 1817–1823]; *Lactobacillus curieae* sp. nov. [Lei *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 2501–0505]; *Lactobacillus porcinae* sp. nov. [Nguyen *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 1754–1759]; *Lactobacillus kimchiensis* sp. nov. [Kim *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 1355–1359]; *Lactobacillus gorillae* sp. nov. [Tsushida and Kitahara; *Int J Syst Evol Microbiol* **64** (2014), 4001–4006]; *Weissella fabalis* sp. nov. [Snauwaert *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 1709–1716]; *Weissella diestrammenae* sp. nov. [Oh *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 2951–2956]; *Weissella uvarum* sp. nov. [Nisiotou *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3885–3890]; *Fructobacillus tropaeoli* sp. nov. [Snauwaert *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 1709–1716]; *Leuconostoc gelidum* subsp. *aenigmaticum* subsp. nov. [Rahkila *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1290–1295]; *Leuconostoc gelidum* subsp. *gelidum* subsp. nov. [Rahkila *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1290–1295]; *Aerococcus vaginalis* sp. nov. [Tohno *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1229–1236]; *Vagococcus entomophilus* sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 731–737]; *Bifidobacterium faecale* sp. nov. [Choi *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 3134–3139]; *Bifidobacterium aesculapii* sp. nov. [Modesto *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 2819–2827]; *Bifidobacterium moukalabense* sp. nov. [Tsuchida *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 449–455]; *Alloscardovia macacae* sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4439–4446]; *Bifidobacterium stercoris* has been reclassified as a later heterotypic synonym of *Bifidobacterium adolescentis* [Killer *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4350–4353]; *Metascardovia criceti* has been reclassified as *Alloscardovia criceti* comb. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **63** (2013), 4439–4446]; *Pseudoscardovia radai*, sp. nov. [Killer *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 2932–2938]; *Leuconostoc gasicomitatum* has been reclassified as *Leuconostoc gelidum* subsp. *gasicomitatum* comb. nov. [Rahkila *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1290–1295].

Minute 15. Review of novel orders, families and genera.

The following new genera were acknowledged by the Subcommittee: *Bombiscardovia coagulans* gen. nov., sp. nov., a member of the family *Bifidobacteriaceae* [Validation

list no. 159, *Int J Syst Evol Microbiol* **64** (2014), 2927–2929; Killer *et al.*, *Syst Appl Microbiol* **36** (2013), 11–16]; *Pseudoscardovia suis* gen. nov., sp. nov., a member of the family *Bifidobacteriaceae* [Validation list no. 159, *Int J Syst Evol Microbiol* **64** (2014), 2927–2929; Killer *et al.*, *Syst Appl Microbiol* **36** (2013), 11–16]; *Jeotgalibaca dankookensis* gen. nov., sp. nov., a member of the family *Carnobacteriaceae* [Lee *et al.*, *Int J Syst Evol Microbiol* **64** (2014), 1729–1735].

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; Akihido

Endo, Turku, Finland; Giovanna Felis, Verona, Italy; Charles M. A. P. Franz, Karlsruhe, Germany; Wilhelm H. Holzapfel, Karlsruhe, Germany; Günter Klein (Secretary), Hannover, Germany; Paul Lawson, Oklahoma, USA; Paola Mattarelli, Bologna, Italy; Bruno Pot, Gent, Belgium; Gerhard Reuter, Berlin, Germany; Marc Vancanneyt, Gent, Belgium; and Koichi Watanabe, Tokio, Japan.

Minute 17. Date and place of the next meeting. The next meeting of the Subcommittee will preferably be during FoodMicro 2016 in Dublin, Ireland. If possible the meetings should be scheduled for the first day of this symposium.

Minute 18. Adjournment. The closed meeting was adjourned at 16:30 on 1 September 2014.