

International Committee on Systematics of Prokaryotes Subcommittee on the taxonomy of *Bifidobacterium*, *Lactobacillus* and related organisms. Minutes of closed and open meetings, 3 September 2018, Berlin, Germany

Paola Mattarelli,^{1,*} Giovanna E. Felis,² Wilhelm H. Holzapfel³ and Charles M. A. P. Franz⁴

Abstract

The meeting of International Committee on Systematics of Prokaryotes, Subcommittee on the taxonomy of *Bifidobacterium*, *Lactobacillus* and related organisms was held within the frame of the FoodMicro 2018 Congress (FoodMicro 2018, 3–6 September 2018, Berlin, Germany). The meeting comprised an open session with a workshop entitled 'Modern approaches of LAB identification and conservation' and a closed session on issues related to ICSP Subcommittee activities.

SESSION 1 – CLOSED MEETING

Minute 1. Call to order

B. Biavati (Acting Chairman) called the closed meeting to order at 11:00 on 3 September 2018.

Minute 2. Record of attendance

The Subcommittee members present were B. Biavati (Malta), C. Bonaparte (Germany), G. E. Felis (Italy), C. M. A. P. Franz (Germany), W. H. Holzapfel (Republic of Korea), P. Mattarelli (Italy), B. Pot (Belgium) and K. Watanabe (Taiwan). Apologies for absence were received from F. Dellaglio (Italy), J. Björkroth (Finland), A. Endo (Japan), L. M. T. Dicks (South Africa), G. Reuter (Germany) and Paul Lawson (USA). The guests present were Iain Sutcliffe (UK) and Elke Brockmann (Denmark).

Minute 3. Approval of the agenda

The proposed agenda was approved.

Minute 4. Commemoration of Professor G. Klein, former Secretary of the Subcommittee

A minute of silence was observed and then it was decided to prepare a plaque with commemoration text for Professor Klein's wife.

Minute 5. Election of new Chairman and Secretary

As reported in the minutes of the meeting of 19 July 2016 in Dublin, F. Dellaglio had expressed his desire to step back from his position after having served as Chairman since

1999. G. E. Felis and B. Biavati proposed C. M. A. P. Franz as new Chairman and P. Mattarelli as new Secretary, respectively. G. E. Felis agreed to assist him as Deputy Chairperson. The election of all nominees was unanimous.

Minute 6. Minutes of the previous meetings

The minutes of the meetings of the Subcommittee in Dublin, Ireland, on 19 July 2016 were approved.

Minute 7. Policy for candidate members (academia and industry)

Members confirmed that there are no limitations of possible members from industry.

Minute 8. Proposal of new candidates

C. M. A. P. Franz proposed Peter Vandamme (Belgium) and Christian Hertel (Germany), briefly summarizing their CV, received in advance and already circulated among members. G. E. Felis proposed Elke Brockmann (Denmark), Elisa Salvetti (Italy) and Paul O'Toole (Ireland), briefly summarizing their CV, received in advance and already circulated among members. All members agreed on the value of these candidates and unanimously approved their candidatures. The acceptance of E. Salvetti is already effective because she gave her presentation at the last meeting in Dublin while final decision on acceptance of E. Brockmann has been postponed until after her presentation in the open meeting. P. Vandamme, C. Hertel and P. O'Toole will be invited to give a presentation at the next open meeting.

Author affiliations: ¹Department of Agriculture and Food Sciences, University of Bologna, Bologna, Viale Fanin 44, 40127 Bologna, Italy; ²Department of Biotechnology, University of Verona, Strada Le Grazie 15, 37134 Verona, Italy; ³School of Life Sciences, Handong Global University, Pohang, Gyeongbuk 791-798, Republic of Korea; ⁴Department of Microbiology and Biotechnology, Max Rubner-Institut, Federal Research Institute for Nutrition and Food, Hermann-Weigmann-Str. 1, D-24103 Kiel, Germany.

*Correspondence: Paola Mattarelli, paola.mattarelli@unibo.it

Keywords: minutes; *Bifidobacterium*; *Lactobacillus*; taxonomy.

Minute 9. Scope of the Subcommittee

Several taxonomic rearrangements have been performed in the genera involved in the scope of the subcommittee. The Secretary was therefore charged with contacting the Secretary for Subcommittees to request guidance on how to proceed for the updating the scope of the subcommittee.

Minute 10. Discussion on possible subdivision of genus *Lactobacillus*

G. E. Felis briefly explained the main results obtained by different research groups in the recent publications, which suggest the possibility to split the genus, revise classification of the families *Lactobacillaceae* and *Leuconostocaceae*, and define novel nomenclatures. A task force will be formed in the next months to address this topic.

Minute 11. Proposal of revival of the species *Lactobacillus zeae*

The revival of the species name *Lactobacillus zeae*, which has been rejected by the Judicial Commission of the ICSP in 2008 (Opinion 82), was proposed by K. Watanabe. B. Pot and G. E. Felis suggested to include other species of the *Lactobacillus casei* group in the study.

Minute 12. Call for old business

Regarding the old issues about the high similarity of the species *Bifidobacterium indicum*–*Bifidobacterium coryneforme*, P. Mattarelli suggested to sequence genomes of *Bifidobacterium indicum* (type and one reference strain) and *Bifidobacterium coryneforme* (type and one reference strain) and to write a taxonomic note in the IJSEM.

Minute 13. 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* 2014;64:1434–1451). A discussion on updating of Minimal Standards followed. Due to the importance of the genome sequencing to study phylogenetic relationships, it was unanimously decided to add genome sequencing and analysis as strongly recommended criteria. Guidelines about identification at genus level will be added. Minimal standards should also be ‘minimal’, i.e. care should be taken to restrictively define the minimum requirements.

Minute 14. Call for new business

The chairman of the ICSP, Dr I. Sutcliffe, was asked about the possibility of maintaining a website on the ICSP site, this was deemed possible but should be discussed with Daniel Brown of the ICSP. The website will be updated. P. Mattarelli asked about the permission to acknowledge the Subcommittee as a non-financial supporter in the workshop on taxonomy that will be held in Bologna, at the end of 2018, to commemorate the centenary of the birth of Professor Vittorio Scardovi, who was a member of the Subcommittee and one of the most relevant experts on bifidobacteria. The Subcommittee approved the request.

Minute 15. Review of novel species and subspecies

The reporting period is from August 2016 to October 2018. The following novel species and subspecies were acknowledged by the Subcommittee (as from August 2016 to October 2018) (Jeon et al. *Int J Syst Evol Microbiol* 2017;67:2225–2230); *Weissella jogaejeotgali* sp. nov. (Lee et al. *Int J Syst Evol Microbiol* 2015;65:4674–4681); *Bifidobacterium vansinderenii* sp. nov. (Duranti et al. *Int J Syst Evol Microbiol* 2017; 67:3987–3995); *Bifidobacterium apri* sp. nov. (Pechar et al. *Int J Syst Evol Microbiol* 2017;67:2349–2356); *Bifidobacterium catulorum* sp. nov. (Modesto et al. *Int J Syst Evol Microbiol* 2018;68:575–581); *Bifidobacterium callitrichidarum* sp. nov. (Modesto et al. *Int J Syst Evol Microbiol* 2018;68:141–148); *Lactobacillus ixorae* sp. nov. (Techo et al. *Int J Syst Evol Microbiol* 2016;66:5500–5505); *Lactobacillus wasatchensis* sp. nov. (Oberge et al. *Int J Syst Evol Microbiol* 2016;66:158–164); *Lactobacillus caviae* sp. nov. (Killer et al. *Int J Syst Evol Microbiol* 2017;67:2903–2909); *Lactobacillus colini* sp. nov. (Zhang et al. 2017;67:325–329); *Lactobacillus allii* sp. nov. (Jung et al. *Int J Syst Evol Microbiol* 2017;67:4936–4942); *Lactobacillus cerevisiae* sp. nov. (Koob et al. *Int J Syst Evol Microbiol* 2017;67:3452–3457); *Lactobacillus curtus* sp. nov. [Asakawa et al. *Int J Syst Evol Microbiol* 2017;67:3899–3906]; *Lactobacillus musae* sp. nov. (Chen et al. *Int J Syst Evol Microbiol* 2017;67:5144–5149); *Lactobacillus silagincola* sp. nov. and *Lactobacillus pentosiphilus* sp. nov. (Tohno, Masanori, et al. *Int J Syst Evol Microbiol* 2017;67:3639–3644); *Lactobacillus silagincola* sp. nov. and *Lactobacillus pentosiphilus* sp. nov. (Tohno et al. *Int J Syst Evol Microbiol* 2017;67:3639–3644); *Lactobacillus metriopterae* sp. nov. (Chiba et al. *Int J Syst Evol Microbiol* 2018;68:1484–1489); *Lactobacillus micheneri* sp. nov., *Lactobacillus timberlakei* sp. nov. and *Lactobacillus quenuiaie* sp. nov. (McFrederick et al. *Int J Syst Evol Microbiol* 2018;68:1879–1884); *Lactobacillus panisapium* sp. nov. (Wang et al. *Int J Syst Evol Microbiol* 2018;68:703–708); *Alloscardovia venturai* sp. nov. (Sechovcová et al. *Int J Syst Evol Microbiol* 2017;67:2842–2847).

Minute 16. Review of novel genera

Galliscardovia ingluviei gen. nov., sp. nov. (Pechar et al. *Int J Syst Evol Microbiol* 2017;67:2403–2411).

Minute 17. Present membership

The following individuals are currently members of the Subcommittee on *Bifidobacterium*, *Lactobacillus* and related organisms: Bruno Biavati (Malta); Johanna Björkroth (Finland); Christine Bonaparte (Germany); Elke Brockmann (Denmark); Leon M. T. Dicks (South Africa); Akihido Endo (Japan); Giovanna E. Felis, Deputy Chairperson (Italy); Charles M. A. P. Franz, Chairman (Germany); Wilhelm H. Holzapfel (Republic of Korea); Paul Lawson (USA); Paola Mattarelli, Secretary (Italy); Bruno Pot (Belgium); Gerhard Reuter (Germany); Elisa Salvetti (Italy); and Koichi Watanabe (Taiwan, ROC).

Minute 18. Date and place of the next meeting

Possible site for the next meeting of the Subcommittee could be at 13th International Scientific Conference on Probiotics, Prebiotics, Gut Microbiota and Health – IPC 2019 (Prague, 17–20 June 2019).

Minute 19. Adjournment

The closed meeting was adjourned at 14:30 on 3 September 2018.

SESSION 2 – OPEN MEETING**Minute 20. Call to order**

The open meeting was called to order as part of the Food-Micro 2018 Symposium in Berlin, Germany at 14:30 on 3 September 2018, by Bruno Biavati (Acting Chairman).

Minute 21. Record of attendance

The Subcommittee members present were: B. Biavati; C. Bonaparte (Germany); G. E. Felis, Deputy Chairperson (Italy); C. M. A. P. Franz, Chairman (Germany); W.H. Holzapfel (Republic of Korea); P. Mattarelli, Secretary (Italy); B. Pot (Belgium); G. Reuter (Germany); and K. Watanabe (Taiwan). Apologies for absence were received from: F. Delaglio (Italy); J. Björkroth (Finland); A. Endo (Japan); L. M.

T. Dicks (South Africa); P. Lawson (USA); and G. Reuter (Germany). The guests present were Iain Sutcliffe (UK) and Elke Brockman (Denmark).

Minute 22. Call for research reports

Research reports on topics related to the taxonomy of *Bifidobacterium*, *Lactobacillus* and related organisms were presented within the workshop ‘Modern approaches of LAB identification and conservation’. The invited speaker, Iain Sutcliffe (UK), presented a key lecture entitled ‘Do androids dream of electric sheep? Do systematists dream of digital protologues?’. Other presentations were: ‘Applied taxonomy in an industrial setting’ (Elke Brockmann, Denmark) and ‘From phylogenomics to taxonomy: the case of the genus *Lactobacillus*’ (Giovanna E. Felis, Italy). The attendance of the meeting was numerous. A brief discussion followed each presentation. The chairman (W. H. Holzapfel) thanked the presenters for their contributions.

Adjournment. The open meeting was adjourned at 16:30 on 3 September 2018.

Paola Mattarelli (Secretary), Wilhelm H. Holzapfel (member), Giovanna E. Felis (Deputy Chairperson) and Charles M. A. P. Franz (Chairman).

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