International Committee on Systematic Bacteriology Subcommittee on the Taxonomy of the Lactobacilli and Related Organisms

Minutes of the Meetings, 10 and 12 August 1982, Boston, Massachusetts

Session 1. Open meeting

Minute 1. Call to order and record of attendance. The open meeting was called to order at 14:00 by the Chairperson, M. Rogosa. Present were K. W. Knox, J. London, E. Lauer, (alternate for O. Kandler), T. Mitsuoka, W. E. C. Moore, G. Reuter, and M. Rogosa. The guests present were A. Kagermeier, D. McCoy, and V. Scardovi.

Minute 2. Call for old business. Based on discussions at the meeting held in Munich, Federal Republic of Germany, M. Rogosa announced that the species *Lactobacillus fermentum* and *Lactobacillus cellobiosus* have high levels of deoxyribonucleic acid homology and will be combined into one species (*L. fermentum* has priority). Similarly, "*Lactobacillus jugurti*" and *Lactobacillus helveticus* will be merged into one species (*L. helveticus*). *Lactobacillus bulgaricus*, *Lactobacillus leichmanii*, and *Lactobacillus lactis* are synonyms for a single species, which will be called *Lactobacillus delbrueckii*. In all instances, subspecies designations will be maintained to facilitate identification of all industrially important organisms.

Minute 3. Call for research reports. Research reports were presented by A. Kagermeier, K. W. Knox, E. Lauer, and G. Reuter. A discussion followed.

Minute 4. Acceptance of species. The following species were accepted as valid by the Subcommittee: *Lactobacillus agilis* Weiss et al., 1981 (13); *Lactobacillus alimentarius* Reuter, 1983 (12); *Lactobacillus amylovorus* Nakamura, 1981 (9); *Lactobacillus amylophilus* Nakamura and Crowell, 1979 (10); *Lactobacillus farciminis* Reuter, 1983 (12); *Lactobacillus gasseri* Lauer and Kandler, 1980 (7); *Lactobacillus maltaromicus* Miller et al., 1974 (8); *Lactobacillus murinus* Hemme et al., 1980 (2); *Lactobacillus pentosus* Fred et al. (1), 1921; *Lactobacillus reuteri* Kandler et al., 1980 (4); *Lactobacillus rogosa* Holdeman and Moore, 1974 (3); *Lactobacillus sake* Katagiri et al., 1934 (5); *Lactobacillus sanfrancisco* Kline and Sugihara, 1971 (6); *Lactobacillus sharpeae* Weiss et al., 1981 (13); and *Lactobacillus vaccinostricus* Okada et al., 1979 (11).

The meeting was adjourned at 15:55 on 10 August.

Session 2. Closed meeting

Minute 5. Call to order and record of attendance. The closed meeting was called to order at 15:00 by the Chairperson, M. Rogosa. Present were K. W. Knox, E. Lauer, J. London, T. Mitsuoka, W. E. C. Moore, G. Reuter, M. Rogosa, V. Scardovi, and P. H. A. Sneath (ex officio).

Minute 6. Discussion of the open meeting. The closed meeting was convened after a short discussion of the reports presented at the previous open meeting.

Minute 7. Merger with *Bifidobacterium* Subcommittee. P. H. A. Sneath suggested that the Subcommittee should be reorganized and expanded in accordance with informal discussions of this action that were initiated by O. Kandler at the Munich meeting. M. Rogosa called for a vote on the merger of the *Bifidobacterium* Subcommittee with the Subcommittee on the Taxonomy of the Lactobacilli and Related Organisms. A poll of the members of the Subcommittee on the Taxonomy of the Lactobacilli and Related Organisms

resulted in seven affirmative votes and two opposed. Members of the *Bifidobacterium* Subcommittee voted five affirmative and two opposed. K. W. Knox then moved that the two subcommittees be merged; the motion was seconded by W. E. C. Moore and carried by a vote of seven to two. A joint meeting ensued, and it was decided that the membership would decide on an appropriate name for the new subcommittee at a later date.

Minute 8. Scope of Subcommittee. P. H. A. Sneath suggested that the purview of the Subcommittee be enlarged to officially include other lactic acid bacteria, such as the genera *Leuconostoc*, *Brochothrix*, *Aerococcus*, and several others that are not now being considered by standing subcommittees. The Secretary was charged with contacting the appropriate International Committee on Systematic Bacteriology officers and subcommittee secretaries to facilitate the transfers.

Minute 9. Membership. Drs. Garvie and Stouthamer have conveyed their desire to retire from Subcommittee service. The membership wished to acknowledge the valuable contributions of these individuals and to thank them for their service in a formal letter. M. Rogosa and O. Kandler expressed their desire to relinquish the chairmanships of the Subcommittee on the Taxonomy of the Lactobacilli and Related Organisms and the *Bifidobacterium* Subcommittee, respectively. J. London nominated G. Reuter as Chairperson of the newly merged Subcommittee, and the nomination was seconded by W. E. C. Moore. G. Reuter declined the nomination, and M. Rogosa volunteered to remain Chairperson until Subcommittee members could vote for a new Chairperson by mail. J. London was asked to remain as Recording Secretary until 1986; he acceded to the request.

Minute 10. New members. Three microbiologists were invited to serve as members of the newly merged Subcommittee. Eckhard Lauer (Med-Präparate, Berlin, West Germany) was nominated by K. W. Knox and seconded by J. London. Norbert Weiss (Deutsche Sammlung für Mikroorganismen, Botanisches Institut der Universität, Munich, West Germany) was nominated by O. Kandler (by correspondence) and seconded by W. E. C. Moore. Angelika Kagermeier (National Institute of Dental Research, Bethesda, Md.) was nominated by M. Rogosa and seconded by K. W. Knox. The election of each nominee was unanimous.

Minute 11. New Business. G. Reuter submitted a formal request from O. Kandler that the Subcommittee undertake a comparative study of the following species and strains of *Bifidobacterium* to resolve discrepancies between results from several laboratories: *Bifidobacterium asteroides* ATCC 25910 and ATCC 25909, *Bifidobacterium indicum* ATCC 25912, *Bifidobacterium coryneforme* ATCC 25911, *Bifidobacterium suis* ATCC 27533, and *Bifidobacterium longum* ATCC 15707. T. Mitsuoka, V. Scardovi, W. E. C. Moore, and E. Lauer volunteered to pursue the project.

Minute 12. New species. The isolation and characterization of two newly described species of *Bifidobacterium* were announced. T. Mitsuoka informed the membership of his studies on a new species to be named *Bifidobacterium*

gallinarum; E. Lauer also reported that he had isolated a new species, which will be named *Bifidobacterium gallicum* (strain DSM 20093).

Minute 13. *Original strain of Bifidobacterium bifidum.* G. Reuter raised the question of whether the original strain of *B. bifidum* of Tissier is still in existence. T. Mitsuoka replied that his laboratory has maintained this strain and will send it to G. Reuter for validation.

The meeting was adjourned at 16:04 on 12 August.

The following individuals are members of the Subcommittee on Bifidobacteria, Lactobacilli, and Closely Related Organisms: Francis Gasser, Institut Pasteur, Service de Physiologie Cellulaire, Paris, France; Angelika Kagermeier, Laboratory of Microbiology and Immunology, National Institute of Dental Research, Bethesda, Md.; Otto Kandler, Botanische Institut der Universität München, Munich, West Germany; Kenneth W. Knox, Institute of Dental Research, United Dental Hospital, Sydney, Australia; Eckhard Lauer, Med. Präparate J. Carl Pflüger, Berlin, West Germany; Jack London (Secretary), Laboratory of Microbiology and Immunology, National Institute of Dental Research, Bethesda, Md.; Tomotari Mitsuoka, Department of Biomedical Science, Faculty of Agriculture, University of Tokyo, Tokyo, Japan; W. E. C. Moore, Anaerobe Laboratory, Virginia Polytechnic Institute and State University, Blacksburg, Va.; Gerhard Reuter, Institut für Lebensmittelhygiene der Freien Universität, Berlin, West Germany; Morrison Rogosa (Chairperson), National Institute of Dental Research, Bethesda Md.; Vittorio Scardovi, Istituto di Microbiologia Agraria, Bologna, Italy; M. Elisabeth Sharpe, National Institute for Research in Dairying, Shinfield, Reading, England; Peter H. A. Sneath (ex officio), Medical Research Council, Microbial Systematics Unit, Leicester, England; and Norbert Weiss, Deutsche Sammlung für Mikroorganismen, Munich, West Germany.

LITERATURE CITED

1. Fred, E. B., W. H. Peterson, and A. J. Anderson. 1921. The characteristics of certain pentose destroying bacteria, especially as concerns their action on arabinose. *J. Biol. Chem.* **48**:385-412.
2. Hemme, D., P. Raibaud, R. Ducluzeau, J.-V. Galpin, P. Sicard, and J. Van Heijenoort. 1980. *Lactobacillus murinus* n. sp., une nouvelle espece de la flore dominante autochtone du tube digestif du rat et de la souris. *Ann. Microbiol. (Paris)* **131A**:297-208.
3. Holdeman, L. V., and W. E. C. Moore. 1974. New genus, *Coprococcus*, twelve new species, and emended descriptions of four previously described species of bacteria from human feces. *Int. J. Syst. Bacteriol.* **24**:260-277.
4. Kandler, O., K. O. Stetter, and R. Köhl. 1980. *Lactobacillus reuteri* sp. nov., a new species of heterofermentative lactobacilli. *Zentralbl. Bakteriell. Parasitenkd. Infektionskr. Hyg. Abt. 1 Orig. Reihe C* **1**:264-269.
5. Katagiri, H., K. Kitahara, and K. Fukami. 1934. The characteristics of the lactic acid bacteria isolated from moto, yeast mashes for sake manufacture. IV. Classification of the lactic acid bacteria. *Bull. Agric. Chem. Soc. Jpn.* **10**:156-157.
6. Kline, L., and T. F. Sugihara. 1971. Microorganisms of the San Francisco sour dough bread process. *Appl. Microbiol.* **21**:459-465.
7. Lauer, E., and O. Kandler. 1980. *Lactobacillus gasseri* sp. nov., a new species of the subgenus *Thermobacterium*. *Zentralbl. Bakteriell. Parasitenkd. Infektionskr. Hyg. Abt. 1 Orig. Reihe C* **1**:75-78.
8. Miller, A., III, M. E. Morgan, and L. M. Libbey. 1974. *Lactobacillus maltaromicus*, a new species producing a malty aroma. *Int. J. Syst. Bacteriol.* **24**:346-354.
9. Nakamura, L. K. 1981. *Lactobacillus amylovorus*, a new starch-hydrolyzing species from cattle waste-corn fermentation. *Int. J. Syst. Bacteriol.* **31**:56-63.
10. Nakamura, L. K., and C. D. Crowell. 1979. *Lactobacillus amylophilus*, a new starch hydrolyzing species from swine waste-corn fermentation. *Dev. Ind. Microbiol.* **20**:531-540.
11. Okada, S., Y. Suzuki, and M. Kosaki. 1979. A new heterofermentative *Lactobacillus* species with meso-diaminopimelic acid in peptidoglycan, *Lactobacillus vaccinostrercus* Kozaki and Okada. *J. Gen. Appl. Microbiol.* **25**:215-221.
12. Reuter, G. 1983. *Lactobacillus alimentarius* sp. nov. nom. rev. and *Lactobacillus farciminis* sp. nov. nom. rev. *Syst. Appl. Microbiol.* **4**:277-279.
13. Weiss, N., U. Schillinger, M. Laternser, and O. Kandler. 1981. *Lactobacillus sharpeae* sp. nov. and *Lactobacillus agilis* sp. nov., two new species of homofermentative, meso-diaminopimelic acid-containing lactobacilli isolated from sewage. *Zentralbl. Bakteriell. Parasitenkd. Infektionskr. Hyg. Abt. 1 Orig. Reihe C* **2**:242-253.

JACK LONDON, *Secretary*