International Committee on Systematic Bacteriology Subcommittee on Taxonomy of the *Enterobacteriaceae*

Minutes of the Meeting, 10 August 1982, Boston, Massachusetts

Minute 1. Call to order. The Chairman, D. J. Brenner, called the meeting to order at 15:00 on 10 August 1982.

Minute 2. Record of attendance. Present were D. J. Brenner, W. Frederiksen, P. H. Mäkelä, and R. Sakazaki. Not present were D. Dye, W. H. Ewing, L. Le Minor, B. Rowe, F. Ørskov, I. Ørskov, and M. P. Starr. D. J. Brenner was instructed to vote for W. H. Ewing. Present as guests were K. A. Bettelheim, F. W. Brenner, J. J. Farmer III, R. Hugh, and G. Wauters. F. W. Brenner graciously agreed to act as Secretary for the meeting.

Minute 3. Opening remarks. The Chairman welcomed those present and announced that a proposal to change the family name from *Enterobacteriaceae* to "*Enterobacteraceae*" had been defeated by a Judicial Commission vote.

Minute 4. Minutes of the last meeting. The minutes of the last meeting, which was held in Munich, Federal Republic of Germany, in 1978 had been circulated previously and were approved as written.

Minute 5. Resignations. P. A. M. Guinée resigned from the Subcommittee, and B. Rowe resigned as Subcommittee Secretary but retained his membership. The Subcommittee members agreed to reluctantly accept these resignations and instructed the Chairman to thank P. A. M. Guinée and B. Rowe for their many contributions to the Subcommittee.

Minute 6. Proposals for changes in the nomenclature of the shigellae. V. Petrovskaya and H. Khomenko proposed five nomenclatural changes in the classification of shigellae. These proposals were circulated to the Subcommittee members, and replies were received. The Chairman will summarize the comments and will circulate a draft recommendation to the Subcommittee members.

Minute 7. *Proteus-Providencia* working group. R. Sakazaki circulated a list of problems in *Proteus*, *Providencia*, and *Morganella* to the members of this working group. The replies received indicated general agreement on acceptance of *Morganella* and transfer of *Proteus rettgeri* from *Proteus* to *Providencia*. There was disagreement as to whether citation for *Providencia* should be attributed to Ewing 1962 or to Kauffmann 1953. Ewing 1962 is the citation given on the Approved Lists. R. Sakazaki will summarize the opinions of his working group and circulate them to the Subcommittee members.

Minute 8. *Klebsiella-Enterobacter-Hafnia-Serratia* working group. R. Sakazaki previously circulated the opinions of this working group to the Subcommittee members. The Subcommittee members must respond to the opinions and decide on appropriate recommendations to be sent to the International Journal of Systematic Bacteriology by the Subcommittee Chairman. If a Subcommittee member(s) disagrees with the majority recommendation, he may submit a minority report. The Subcommittee Chairman will recirculate the working group report for comment.

Minute 9. *Salmonella* nomenclature. L. Le Minor sent preprints of a paper proposing changes in *Salmonella* nomenclature to several Subcommittee members and requested that the Chairman ask the Subcommittee for comments

on these proposals, a summary of which is given below.

(i) Deoxyribonucleic acid relatedness showed that all salmonellae belong to a single species, which can be separated below the species level. The groups correspond to subgenus I, subgenus II, monophasic strains of subgenus III (*Salmonella arizonae*), diphasic strains of subgenus III, and subgenus IV.

(ii) New data show a sixth division composed of *Salmonella bongori* and related strains.

(iii) Le Minor et al. propose that the single *Salmonella* species should be called *Salmonella choleraesuis* and that the six hybridization groups should be designated as subspecies, as follows: *S. choleraesuis* subsp. *choleraesuis* (= subgenus I), *S. choleraesuis* subsp. *salamae* (= subgenus II), *S. choleraesuis* subsp. *arizonae* (= subgenus III monophasic), *S. choleraesuis* subsp. *diarizonae* (= subgenus III diphasic), *S. choleraesuis* subsp. *houtenae* (= subgenus IV), and *S. choleraesuis* subsp. *bongori* (= *S. bongori* and related strains).

In practice only serotype designations, without italics, would be used (i.e., *Salmonella typhi*, *Salmonella typhimurium*, etc. for strains belonging to *S. choleraesuis* subsp. *choleraesuis*). For other subspecies the nonitalicized subspecies name followed by the antigenic formula would be used, as follows: *S. arizonae* 51:z₄,z₂₃—; *S. arizonae* 6,7:1,v;z₅₃; *S. houtenae* 45:g;z₅₁—; *S. salamae* 1,9,12:1,w:e,n,x, etc.

Subcommittee members made the following comments. *S. bongori* may be a second species, but probably should not be separated. *S. choleraesuis* should not be used for the species name; "*Salmonella enterica*," "*Salmonella kauffmannii*," or some other name not previously used would be better. Will there be problems using the new system in various journals? *Salmonella hinshawii* is better than *Salmonella diarizonae* (the type strain of "*Arizona hinshawii*" was monophasic, but "*A. hinshawii*" has no standing in nomenclature, so a subspecies *Salmonella hinshawii* for diphasic strains should pose no problems). Rough strains could be used as type strains for the subspecies. Regardless of the "formal" nomenclature, only serotype names should be used. It was suggested that previously unused species and subspecies names should be used in order to settle the formal nomenclature. Many investigators, including the heads of the larger national *Salmonella* centers, should be consulted before any final action is taken. Once any decision on nomenclature is made, it should be sent to all *Salmonella* centers and to the World Health Organization with a recommendation for them to adopt it.

The Subcommittee members made the following recommendations on the proposal of Le Minor: (i) Le Minor should obtain the views of the *Salmonella* working group; and (ii) the views of this working group and the full proposal should be circulated to the full Subcommittee membership.

Minute 10. Working groups. W. Frederiksen requested an

updated list of members of each working group. The Chairman said he would contact the coordinators of the working groups to obtain this information.

Minute 11. *Another proposal to change the family name Enterobacteriaceae.* Goodfellow and Trüper (Int. J. Syst. Bacteriol. 32:383, 1982) proposed the name "*Escherichiaceae*" to replace *Enterobacteriaceae*. This name had already been informally considered by the Judicial Commission and presumably found less desirable than "*Enterobacteraceae*". At their meeting in Boston, the members of the Judicial Commission turned down the proposal to change *Enterobacteriaceae* to "*Enterobacteraceae*." The Subcommittee members present voted unanimously against the proposed name change, reaffirming two earlier votes against "*Escherichiaceae*." The results of this vote will be communicated to the Judicial Commission when they refer the "*Escherichiaceae*" proposal to the Subcommittee.

Minute 12. *Yersinia.* G. Wauters, Secretary of the *Pasteurella*, *Francisella*, *Yersinia* Subcommittee, stated that the Subcommittee would disband. The *Enterobacteriaceae* Sub-

committee members agreed that the genus *Yersinia* belongs in the family *Enterobacteriaceae* and voted unanimously to accept responsibility for it. The International Committee on Systematic Bacteriology will be informed of this decision. It was agreed to establish a *Yersinia* working group.

Minute 13. *Minimal criteria for description of new taxa.* The Judicial Commission has requested that each Subcommittee describe, with detailed techniques, a set of minimal criteria for the description of new taxa to be submitted to the Judicial Commission and for publication in the International Journal of Systematic Bacteriology. A written set of guidelines for this task was distributed at the Boston meeting of the International Committee on Systematic Bacteriology and to the officers of the taxonomic subcommittees. After some discussion the members present agreed to distribute the International Committee on Systematic Bacteriology guidelines and to seek the opinions of all Subcommittee members.

The meeting was adjourned at 17:15 on 10 August.

DON J. BRENNER, *Chairman*