Taxonomic Note

Correspondence

B. J. Tindall

bti@dsmz.de

Clarifying Rule 24a of the International Code of Nomenclature of Bacteria

B. J. Tindall

DSMZ – Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH, Inhoffenstrasse 7B, 38124 Braunschweig, Germany

Note 1 of Rule 24a of the International Code of Nomenclature of Bacteria can be interpreted in an ambiguous fashion, because the wording is not sufficiently clear. It is proposed that the wording of this note be modified to clarify this point.

Rule 24a (including Note 1) of the International Code of Nomenclature of Bacteria (to become the International Code of Nomenclature of Prokaryotes; the Code) (Lapage *et al.*, 1992) states:

‘Valid publication of names (or epithets) which are in accordance with the Rules of this Code dates from the date of publication of the Code.

Priority of publication dates from 1 January 1980. On that date, all names published prior to 1 January 1980 and included in the Approved Lists of Bacterial Names of the ICSB are treated for all nomenclatural purposes as though they had been validly published for the first time on that date, the existing types being retained (but see Rule 24b).

Note 1. Names of bacteria in the various taxonomic categories published up to 31 December 1977 were assessed by the Judicial Commission with the assistance of taxonomic experts. Lists of names were prepared together with the names of the authors who originally proposed the names. These Approved Lists of Bacterial Names were approved by the ICSB and published in the IJSB on 1 January 1980. Names validly published between 1 January 1978 and 1 January 1980 were included in the Approved Lists of Bacterial Names [Note: the 1975 revision of the Bacteriological Code uses the wording ‘Names validly published under this Code between 1 January 1978 and 1 January 1980 will be added to the Approved Lists of Bacterial Names’].

No further names will be added to the Approved Lists. Those names validly published prior to 1 January 1980 but not included in the Approved Lists have no further standing in nomenclature. They were not added to the lists of *nomina rejicienda* and are thus available for reuse in the naming of new taxa. The reuse of a particular name cannot be recommended if such reuse is likely to result in confusion due to previous or continuing

use of the name as a synonym, a strain designation, or for other reasons.

The Approved Lists of Bacterial Names contain for each name a reference to an effectively published description and the type whenever possible. In the case of species or subspecies, if a type strain is available it is listed by its designation and the culture collection(s) from which it may be obtained is indicated. If such a strain is not available, a reference strain or reference material is listed if possible. Neotypes may be proposed in conformity with Rule 18c on such lists. (For citation of names on the Approved Lists, see Rules 33b and 34a.)’

In a number of cases, confusion has arisen because a small number of names that were published in the IJSB between 1 January 1978 and 1 January 1980 were not included on the Approved Lists of Bacterial Names. Part of this confusion has arisen because it is often wrongly assumed that a name published in the IJSB or IJSEM is automatically validly published. This is not true, as indicated by the criteria listed under Rule 27, as applicable to the 1975 and 1990 revisions of the Code (Lapage *et al.*, 1975, 1992):

‘A name of a new taxon, or a new combination for an existing taxon, is not validly published unless the following criteria are met.

- (1) The name is published in the IJSB.
- (2) The publication of the name in the IJSB is accompanied by a description of the taxon or by a reference to a previous effectively published description of the taxon (see Rules 25a and 25b and, for genus and species, Rules 29–32).
- (3) The type is designated for a new taxon, or cited for a new combination, in the IJSB.’

In cases where a name is not typified or accompanied by a description, it is evident that such a name is not in accordance with the Code nor can it be validly published. In such cases, these names were not included in the

Approved Lists because they did not fulfil the criteria laid down by the Code. However, in some cases, the criteria for valid publication appear to have been met, and some degree of detective work is required to determine whether a name was intentionally not included on the Approved Lists.

Examples include:

(i) The subgenera *Moraxella* subgen. *Moraxella* and *Moraxella* subgen. *Branhamella*. At the time that these names were published in the IJSB, the appropriate taxa were not clearly typified, nor were descriptions of the taxa provided (Bøvre, 1979). The problem has been compounded by the publication of a taxonomic treatment that dealt with the names as validly published (Bøvre, 1984a), by their inclusion in updated lists (Moore *et al.*, 1985) and by their further inclusion in a Validation List (Bøvre, 1984b) without taking the care to discover that the names were either not typified and/or that descriptions of the taxa had not been given in the relevant publication cited as the effective publication. No subgenus names were included on the Approved Lists and the wording of Sneath (2005) throws new light on this issue: 'there were also problems associated with the ranks of subgenera and subspecies, because such names cause a major increase in the complexity of the Rules. In the event few were listed, and there has been no complaint on this'.

(ii) *Rhodococcus sputi*. This name is clearly accompanied by a description as well as clear designation of the type (Tsukamura, 1978). There would appear to be no case for not considering the name to be in accordance with the Rules of the 1975 revision of the Code (Lapage *et al.*, 1975). Whether this is a case of inadvertent omission has a direct bearing on the revival of the names by Tsukamura & Yano (1985), together with the application of the rule of priority when considering the question of synonymy with other names (Zakrzewska-Czerwińska *et al.*, 1988; Tsukamura, 1982, 1983).

(iii) *Lysobacter enzymogenes*. Although divided into subspecies by Christensen & Cook (1978), the two subspecies names were not included in the Approved Lists. Tindall & Euzéby (2006) have outlined some of the problems associated with clearly identifying which descriptions apply to which taxa, as well as associated typification. The other question is whether these subspecies were deliberately omitted from the Approved Lists (see Sneath, 2005).

(iv) *Streptococcus casseliflavus*. This name is listed by Vaughan *et al.* (1979) as a new combination and a type is designated (in the abstract at least), but a description may be missing, although the name is clearly based on *Streptococcus faecium* subsp. *casseliflavus*. The problem is outlined by Tindall & Euzéby (2006).

These are clear cases of uncertainty/confusion and have either been the subject of articles (Tindall & Euzéby, 2001) and Requests for an Opinion (Euzéby, 2001; Tindall & Euzéby, 2006) or are the subject of ongoing discussions

(Judicial Commission, 2008; Tindall, 2008). There is a need for clarification.

In order to avoid confusion for future generations, it is proposed that a number of small changes be made to the wording of Note 1 to Rule 24a as follows:

'Valid publication of names (or epithets) which are in accordance with the Rules of this Code dates from the date of publication of the Code.

Priority of publication dates from 1 January 1980. On that date all names published prior to 1 January 1980 and included in the Approved Lists of Bacterial Names of the ICSB are treated for all nomenclatural purposes as though they had been validly published for the first time on that date, the existing types being retained (but see Rule 24b).

Note 1. Names of prokaryotes in the various taxonomic categories published up to 31 December 1977 were assessed by the Judicial Commission with the assistance of taxonomic experts. Lists of names were prepared together with the names of the authors who originally proposed the names. These Approved Lists of Bacterial Names were approved by the ICSB and published in the IJSB on 1 January 1980. Names [delete **validly**] published between 1 January 1978 and 1 January 1980 **and considered to be in accordance with the Code** were included in the Approved Lists of Bacterial Names. **They are validly published by inclusion on the Approved Lists of Bacterial Names.**

No further names will be added to the Approved Lists. Those names [delete **validly**] published prior to 1 January 1980 but not included in the Approved Lists have no further standing in nomenclature. They were not added to the lists of *nomina rejicienda* and are thus available for reuse in the naming of new taxa. The reuse of a particular name cannot be recommended if such reuse is likely to result in confusion due to previous or continuing use of the name as a synonym, a strain designation, or for other reasons.

The Approved Lists of Bacterial Names contain for each name a reference to an effectively published description and the **appropriate** type whenever possible. In the case of species or subspecies, if a type strain is available it is listed by its designation and the culture collection(s) from which it may be obtained is indicated. [It may also be possible to delete the wording **If such a strain is not available, a reference strain or reference material is listed if possible.**] Neotypes may be proposed in conformity with Rule 18c on such lists. **Rule 18f deals with the designation of the type strain of a taxon not previously represented by a strain.** (For citation of names on the Approved Lists, see Rules 33b and 34a.)'

This wording would help to clarify that, with the publication of the Approved Lists of Bacterial Names, a new starting date was set for the valid publication of a name, 1 January 1980. Based on this new starting date, a name cannot be validly published if it is only included in an article published before that date. Dates prior to 1 January 1980 may be used to determine priority, but only if used on the Approved Lists, and have no other function (Rule 24b). A further consequence would be that it may be necessary to make available an amended listing of names on the Approved Lists of Bacterial Names.

References

- Bøvre, K. (1979).** Proposal to divide the genus *Moraxella* Lwoff 1939 emend. Henriksen and Bøvre 1968 into two subgenera, subgenus *Moraxella* (Lwoff 1939) Bøvre 1979 and subgenus *Branhamella* (Catlin 1970) Bøvre 1979. *Int J Syst Bacteriol* **29**, 403–406.
- Bøvre, K. (1984a).** Genus II. *Moraxella* Lwoff 1939, 173 emend. Henriksen and Bøvre 1968, 391^{AL}. In *Bergey's Manual of Systematic Bacteriology*, vol. 1, pp. 296–303. Edited by N. R. Kreig & J. G. Holt. Baltimore: Williams & Wilkins.
- Bøvre, K. (1984b).** *Branhamella* subgen. nov. and *Moraxella* subgen. nov. In *Validation of the Publication of New Names and New Combinations Previously Effectively Published Outside the IJSB*, List no. 15. *Int J Syst Bacteriol* **34**, 355–357.
- Christensen, P. & Cook, F. D. (1978).** *Lysobacter*, a new genus of nonfruiting, gliding bacteria with a high base ratio. *Int J Syst Bacteriol* **28**, 367–393.
- Euzéby, J. P. (2001).** Nomenclature of the subgenera *Moraxella* and *Branhamella* and of the nine species included in these subgenera and proposal to modify Rule 34a of the *Bacteriological Code* (1990 Revision). Request for an Opinion. *Int J Syst Evol Microbiol* **51**, 1939–1941.
- Judicial Commission (2008).** The subgenus names *Moraxella* subgen. *Moraxella* and *Moraxella* subgen. *Branhamella* and the species names included within these taxa should have been included on the Approved Lists of Bacterial Names and a ruling on the proposal to make changes to Rule 34a. Opinion 83. *Int J Syst Evol Microbiol* **58**, 1766–1767.
- Lapage, S. P., Sneath, P. H. A., Lessel, E. F., Skerman, V. B. D., Seeliger, H. P. R. & Clark, W. A. (editors) (1975).** *International Code of Nomenclature of Bacteria* (1975 revision). Washington, DC: American Society for Microbiology.
- Lapage, S. P., Sneath, P. H. A., Lessel, E. F., Skerman, V. B. D., Seeliger, H. P. R. & Clark, W. A. (editors) (1992).** *International Code of Nomenclature of Bacteria* (1990 Revision). Washington, DC: American Society for Microbiology.
- Moore, W. E. C., Cato, E. P. & Moore, L. V. H. (1985).** Index of the bacterial and yeast nomenclatural changes published in the *International Journal of Systematic Bacteriology* since the 1980 Approved Lists of Bacterial Names (1 January 1980 to 1 January 1985). *Int J Syst Bacteriol* **35**, 382–407.
- Sneath, P. H. A. (2005).** The preparation of the Approved Lists of Bacterial Names. *Int J Syst Evol Microbiol* **55**, 2247–2249.
- Tindall, B. J. (2008).** Challenging Opinion 83. *Int J Syst Evol Microbiol* **58**, 1772–1774.
- Tindall, B. J. & Euzéby, J. P. (2001).** A taxonomic note on the authorship and date of valid publication of *Rhodococcus sputi*. *Int J Syst Evol Microbiol* **51**, 255–256.
- Tindall, B. J. & Euzéby, J. P. (2006).** *Lysobacter enzymogenes* subsp. *enzymogenes* Christensen and Cook 1978, *L. enzymogenes* subsp. *cookii* Christensen 1978 and *Streptococcus casseliflavus* (Mundt and Graham 1968) Vaughan *et al.* 1978 should have been cited in the Approved Lists of Bacterial Names. Request for an Opinion. *Int J Syst Evol Microbiol* **56**, 2707–2709.
- Tsukamura, M. (1978).** Numerical classification of *Rhodococcus* (formerly *Gordona*) organisms recently isolated from sputa of patients: description of *Rhodococcus sputi* Tsukamura sp. nov. *Int J Syst Bacteriol* **28**, 169–181.
- Tsukamura, M. (1982).** Numerical analysis of the taxonomy of nocardiae and rhodococci. Division of *Nocardia asteroides* sensu stricto into two species and descriptions of *Nocardia paratuberculosis* sp. nov. Tsukamura (formerly the Kyoto-1 group of Tsukamura), *Nocardia nova* sp. nov. Tsukamura, *Rhodococcus aichiensis* sp. nov. Tsukamura, *Rhodococcus chubuensis* sp. nov. Tsukamura, and *Rhodococcus obuensis* sp. nov. Tsukamura. *Microbiol Immunol* **26**, 1101–1119.
- Tsukamura, M. (1983).** *Rhodococcus chubuensis* sp. nov. and *Rhodococcus obuensis* sp. nov. In *Validation of the Publication of New Names and New Combinations Previously Effectively Published Outside the IJSB*, List no. 12. *Int J Syst Bacteriol* **33**, 896–897.
- Tsukamura, M. & Yano, I. (1985).** *Rhodococcus sputi* sp. nov., nom. rev., and *Rhodococcus aurantiacus* sp. nov., nom. rev. *Int J Syst Bacteriol* **35**, 364–368.
- Vaughan, D. H., Riggsby, W. S. & Mundt, J. O. (1979).** Deoxyribonucleic acid relatedness of strains of yellow-pigmented, group D streptococci. *Int J Syst Bacteriol* **29**, 204–212.
- Zakrzewska-Czerwińska, J., Mordarski, M. & Goodfellow, M. (1988).** DNA base composition and homology values in the classification of some *Rhodococcus* species. *J Gen Microbiol* **134**, 2807–2813.