Taxonomic Note

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Proposals that the International Committee on Systematics of Prokaryotes establish a public database of validly published names and that the *Bacteriological Code* be amended to change the prescription for citation of validly published names

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It is proposed that the International Committee on Systematics of Prokaryotes formally maintain a readily accessible database of validly published names and that Rule 33b of the *International Code of Nomenclature of Bacteria* be revised to allow a new, abbreviated, format as the sole method by which authors indicate validation of previously published names.

Proposal 1

Publications that address matters concerning bacterial classification and nomenclature have a long-standing convention to cite the authorities for names when first mentioned in the text. The *International Code of Nomenclature of Prokaryotes* (hitherto the *International Code of Nomenclature of Bacteria*, referred to here as 'the Code'; Lapage *et al.*, 1975, 1992) states that 'citation of the name of a taxon should include both the name of the author(s) and the year of publication' (the Code; Rule 33b). The intent of the Code is to ensure that the citation 'enables the date of publication to be verified, the original description to be found, and the use of the name by different authors for different organisms to be distinguished' (the Code; Rule 33b Note 1). Furthermore, the Code indicates that 'full citation should include reference to the page number(s) in the main text of the scientific work in which the name was proposed' (Rule 33b Note 2). This stipulation probably reflects an older tradition ordered by the Botanical Code (Greuter *et al.*, 2000), from which the Code is derived, when proposals for new names often were not made in issues of serially published journals (rather, they were included in chapters of books) and when a specific page number would enable direct access to the exact location of a description and confirmation of the name. Nevertheless, author citation of a name is often given cursory treatment in text according to the prescriptions of the Code, and publications often do not support the citation by inclusion of full details in a reference list and thus do not take account of the provisions in the Code that created the process of validation of names (Rule 27), described in detail by Tindall *et al.* (2006). Several factors, including the way in which the record of names is now maintained, militate against the simple tracking of data contained in author citations.

The modern Code, first elaborated in the 1976 revision (Lapage *et al.*, 1975), specifies that, after 1980, only those names that are recorded as validly published names in the *International Journal of Systematic Bacteriology* [now the *International Journal of Systematic and Evolutionary Microbiology* (IJSEM)] are accepted. Publication in IJSEM, the official organ of the International Committee on Systematics of Prokaryotes (ICSP) (the Code; General Consideration 6), is the determinant of formal nomenclatural status. Legitimate names published before 1980 were validly published by inclusion in the Approved Lists of Bacterial Names ('the Approved Lists'; Skerman *et al.*, 1980). Since 1980, new names and new combinations have been validly published either by being proposed directly in subsequent volumes of IJSEM and recorded in Notification Lists or, for new names and new combinations published outside IJSEM, by being included in Validation Lists in IJSEM. In the period 1980–2000, records of names were referenced in volume subject and author indices, but records in Validation Lists were not. Since 2001, authors of all validly published names have been indexed in each issue and complete volume, but the names themselves have not been. An addendum to the Approved Lists (Moore & Moore, 1989) of names of bacteria and yeasts validly published between 1980 and 1988 has not been updated. Since 1980, the number of validly published names has expanded from 1791 species in 290 genera by an additional 6000 species and 1200 genera [Euzéby, 1997; <http://www.bacterio.cict.fr/> (last full update 1 February 2007)], but there is no single, simple, way to confirm details of original or valid publication of a name used in contemporary literature because authorities are not usually given.

The relevant sections of the Code have not been significantly revised since 1980 (Lapage *et al.*, 1992) to take account of the

different environment in which names are now proposed without reference to the Approved Lists. IJSEM is the official curator for lists of validly published names, but as the number of names increases, it will become ever more difficult to confirm the legitimacy of any name. In order to establish valid publication of a name by discovery of the relevant list, it is necessary to search each list in turn or to identify the relevant list indirectly by reference to a database, such as that of Euzéby (1997), that has no formal status. The difficulty can be resolved by creation of a formally recognized database of validly published names, which could be accessed through IJSEM or ICSP websites, or by formal recognition of a database such as that of Euzéby (1997) as an authoritative source.

We propose that a searchable database be authorized by the ICSP to give direct access to validly published names in order of priority together with full references to originally published proposals.

Proposal 2

Inclusion of references to confirm appropriate use of bacterial names in publications has little immediacy and is treated haphazardly, and sometimes arbitrarily, by many authors and journals. For instance, such inclusion is not a requirement of IJSEM. This is understandable because, as indicated above, the application and relevance of such references are no longer clear. However, as the taxonomic literature expands, with increased publication of names outside IJSEM that are neither legitimate nor validly published, it will become more important that the valid status of names be affirmed before use in the literature.

Some publications, such as editions of *Bergey's Manual of Systematic Bacteriology*, have used the superscript ^{AL} following first mention of a name in a text to indicate valid publication in the Approved Lists and the superscript ^{VP} to indicate names for new taxa validated by publication in IJSEM. Although the Code [Rule 33b Note 3 (ii)] provides for contraction of authorities for names published before 1980 by reference to the Approved Lists, it does not, as presently set out, allow these alternatives to satisfy the practical need of giving ready access to original literature, nor does it allow easy discovery of authenticating publications.

In combination with the database proposed above, a single, unequivocal method by which an author could confirm the valid status of a name used in any publication would reinforce the intent of the Code.

We propose that Rule 33b of the Code be revised to allow valid publication to be indicated by including the superscript ^{VP},

following the first mention of a name in text to confirm valid publication in the Approved Lists or in a Notification or Validation List in IJSEM, and that no other citation for a validly published name be required.

Epilogue – publish and be damned?

At present, the name of an author, published by whatever valid means, is recognized in the literature in perpetuity. Although never acknowledged, this must occasionally foster the creation of taxa for which supporting data are marginal and therefore of nomenclature which, although validly published, is inherently weak and possibly inadequate. If one effect of the proposal made here is to simplify the indication of valid status by a neutral superscript, rather than by a direct reference that includes the names of original authors, another may be to reduce the temptation to make premature nomenclatural proposals.

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References

- Euzéby, J. P. (1997). List of bacterial names with standing in nomenclature: a folder available on the Internet. *Int J Syst Bacteriol* 47, 590–592.
- Greuter, W., McNeill, J., Barrie, F. R., Burdet, H. M., Demoulin, V., Filgueiras, T. S., Nicolson, D. H., Silva, P. C., Skog, J. E. & other authors (2000). *International Code of Botanical Nomenclature (Saint Louis Code)*. Königstein, Germany: Koeltz Scientific Books.
- 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 (1976 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)*. Bacteriological Code. Washington, DC: American Society for Microbiology.
- Moore, W. E. C. & Moore, L. V. H. (1989). *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 1989)*. Washington, DC: American Society for Microbiology.
- Skerman, V. B. D., McGowan, V. & Sneath, P. H. A. (editors) (1980). Approved lists of bacterial names. *Int J Syst Bacteriol* 30, 225–420.
- Tindall, B. J., Kämpfer, P., Euzéby, J. P. & Oren, A. (2006). Valid publication of names of prokaryotes according to the rules of nomenclature: past history and current practice. *Int J Syst Evol Microbiol* 56, 2715–2720.