

(117–119) Proposals to make the pre-publication deposit of key nomenclatural information in a recognized repository a requirement for valid publication of organisms treated as fungi under the *Code*

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Mycologists first proposed the introduction of some form of a mandatory indexing system for newly proposed fungal names in the 1950s (Ainsworth & Ciferri in *Taxon* 4: 3–6. 1955). Following informal discussions amongst mycologists – particularly during the 7th International Mycological Congress in Oslo in 2002 – the CBS-Fungal Diversity Centre in Utrecht initiated MycoBank in 2004 (Crous & al. in *Mycol. Res.* 108: 1236–1238. 2004; Crous & al. in *Stud. Mycol.* 50: 19–20. 2004). This step was taken in order to test the willingness of mycologists to use a depository system where they could place information on new scientific names they were proposing. MycoBank is a fully online system whereby the proposers of new scientific names of organisms treated as fungi under the *Code* (i.e., including chytrids, oomycetes, and slime moulds; Pre. 7 of the *ICBN*; McNeill & al. in *Regnum Veg.* 146. 2006) can deposit key information that becomes public and freely available on the worldwide web only after effective publication of the work including those names. Each name is assigned a unique number from a range made available by Index Fungorum to MycoBank. (Index Fungorum is a partnership of CAB International, CBS-KNAW Fungal Diversity Centre, and Landcare Research, that offers a freely available nomenclator of fungal names in all ranks online to the public.) As of January 2010, the Index Fungorum database held information on 450,280 names; see <http://www.indexfungorum.org/>.

MycoBank operates similarly to GenBank, which provides unique identifiers for molecular sequence data. MycoBank does not require any hard-copy material to be lodged at CBS or elsewhere, but serves to disseminate information on newly proposed taxa widely and rapidly at no cost to all users, whether they are depositors or interrogators. Since 2007, MycoBank has operated under the auspices of the International Mycological Association (IMA), which has assumed long-term responsibility for its operation. Like IAPT, IMA is a Scientific Member of the International Union of Biological Sciences (IUBS).

Scientific names in all ranks are covered in the existing MycoBank system. The basic information required for deposition of a newly described taxon is the name itself, the validating Latin (or for fossil fungi, English) description or diagnosis, details of the nomenclatural type, and (for species and infraspecific taxa) where the type is permanently preserved. New combinations and replacement names require only the full bibliographic reference to the basionym or replaced name, as already specified by Art. 33.4. MycoBank personnel check the uniqueness of the name, alert the depositor to any earlier homonym, and draw attention to orthographic errors (such as incorrect Latin terminations), but do not express any taxonomic opinions; i.e., there is no censorship. Index Fungorum, as the body issuing unique numbers for fungal names, automatically receives a copy of all nomenclatural information deposited in MycoBank.

Depositors are additionally encouraged – but not required – to provide available information (e.g., GenBank accession identifiers, where living cultures are deposited, detailed descriptions, illustrations, other comments, or a copy of in-press publications). After publication, the actual volume and page references can be inserted in the MycoBank database, and some publishers (e.g., Elsevier, Mycotaxon) have indicated that they have no objection to the full text of published articles being attached, for example as Portable Document Format files (PDFs).

MycoBank and Index Fungorum are now favourably and almost universally accepted by the mycological community (Stalpers & al. in Bull. Zool. Nomencl. 66: 14–17. 2009). The proportion of newly proposed names deposited in MycoBank is increasing: in 2005, 353 of 1893 new fungal names introduced that year were deposited (i.e., 19%); in 2006, 857 of 2339 (37%); in 2007, 1392 of 2436 (57%); in 2008, 1292 of 2342 (55%); and in 2009, 1666 (the total for the year is not yet available from the *Index of Fungi*). Further, *Taxon* and the leading mycological journals that regularly publish new scientific names of fungi now require authors to deposit information in MycoBank and cite the MycoBank reference numbers as a condition of publication. These journals include: *The Bryologist*, *Czech Mycology*, *Fungal Biology* (formerly *Mycological Research*), *Fungal Diversity*, *Graphis Scripta*, *The Lichenologist*, *Mycologia*, *Mycologica Balcanica*, *Mycology*, *Mycoscience*, *Mycosphere*, *Mycotaxon*, *Nova Hedwigia* (lichen papers), *Opuscula Philolichenum*, *Persoonia*, *Studies in Mycology*, and *Sydowia*.

The attitudes of individual mycologists to the existing MycoBank system and other nomenclatural issues were explored by questionnaires distributed at three major mycological meetings in August–September 2007: nomenclatural sessions or symposia at the Mycological Society of America annual meeting (Baton Rouge, Louisiana), the XV Congress of European Mycologists (St Petersburg, Russia), and the XVI Simposio Botánica Criptogámica de España (Léon, Spain). A total of 95 ballots was completed from this geographically dispersed spectrum of mycologists. All did not vote on all issues, but of those voting, 85% (73) were in favour of making deposit in MycoBank mandatory for the valid publication of new fungal taxa (Hawksworth in Mycol. Res. 111: 1363–1364. 2007). Further, in July 2008 the International Association for Lichenology (IAL), meeting in Asilomar, California, passed a resolution endorsing the establishment of MycoBank under the auspices of the IMA, encouraging lichenologists to deposit information on newly recognized taxa in it, and urging editors who had not yet done so to make such deposits a condition of publication.

The proposals below aim to incorporate into the *Code* what has become the regular practice of most mycologists and of key mycological journals. If accepted, the proposals made here will benefit the entire mycological community, which then will be assured of immediate and complete access to the key nomenclatural information on new fungal names proposed after 1 January 2013.

This will be of enormous and immediate benefit to the discipline, because mycology now has an almost complete catalogue of fungal names in Index Fungorum (www.indexfungorum.org), and this new proposal will mean mycologists have access to a free, ongoing, and continuously updated repository for new fungal names. There is already a major lag in the time between publication of a name and appearance in the printed twice-yearly *Index of Fungi*; the latest issue (July 2009) comprises only names published in 2008 and before. As mycology no longer has any institution with the resources to search out all names from the literature, do-it-yourself repositories provide a relatively easy and effective mechanism to establish and maintain an accurate and up-to-date list of fungal names.

We wish to draw attention to two differences between the proposals made here and previous proposals on the “registration” of botanical names: (1) there is no requirement to submit printed matter (including protologues) to a registering office designated by the International Association for Plant Taxonomy (IAPT) as proscribed in the text incorporated into the *Toyko Code* (Art. 32.2); and (2) the deposit of names is restricted to their author(s) and deposition by third parties of newly proposed names is not allowed after the requirement becomes mandatory, contrary to the proposals of Borgen & al. (in *Taxon* 47: 899–904. 1998). Technological advances since 1996 have rendered the first requirement superfluous, and author-restricted deposition and activation clarifies author intent. However, the proposals do not preclude others depositing information on names proposed prior to 1 January 2013 after that date. The deposit of nomenclatural information in a recognized repository, as proposed below, does not obviate the need for author(s) to fulfil the current requirements of the *Code* in relation to effective publication (Art. 29.1), nor does it affect the date of effective publication (Art. 31.1).

We forward these proposals at this time so that they will be available for debate at the Nomenclature Session to be convened during the IX International Mycological Congress in Edinburgh in August 2010. We shall transmit the outcomes of that debate to the Nomenclature Section meetings at the International Botanical Congress in Melbourne in July 2011 for final decision.

We wish to emphasize that, while most of us making these proposals have, or have recently held, positions in international mycological organizations or committees, we make them here in our personal capacities in anticipation of their consideration by mycologists as a whole at the forthcoming IXth International Mycological Congress.

(117) Add a new Article 37bis:

37bis.1. For organisms treated as fungi under this *Code* (Pre.7), from 1 January 2013 the citation of an identifier issued by a recognized repository (Art. 37bis.3) in the protologue is an additional requirement for valid publication.

37bis.2. For an identifier to be issued by a recognized repository as required by Art. 37bis.1, the minimum elements of information that must be accessioned by author(s) of scientific names are those required for valid publication under Art. 32.1 (b–e).

Note 1. Issuance of an identifier by a recognized repository based upon the presumed future fulfilment of requirements under Art. 32.1 (b–e) does not in itself constitute or guarantee a valid publication of a proposed name; that can occur only on effective publication (Art. 29) if the requirements of Art. 32.1 (b–e) are simultaneously fulfilled in that publication.

37bis.3. The Committee for Fungi (Div. III.2 (4)) has the power to: (1) appoint one or more localized or decentralized open and accessible electronic repositories to perform this function*; (2) remove such repositories at its discretion; and (3) set aside the requirement to deposit information on newly proposed scientific names for organisms treated as fungi under the *Code* in a recognized repository, should the repository mechanism, or essential parts thereof, cease to function. Decisions made by the Committee under these powers are subject to ratification at the subsequent International Mycological Congress.

*The only current operational repository appointed is MycoBank (www.mycobank.org).

The Editorial Committee may wish to consider combining the existing Arts 38 and 39, both of which deal with illustrations, to avoid changing the numbering of subsequent articles in the *Code*. In addition, the Committee is also requested to: (1) change “International

Mycological Congress” to “International Botanical Congress” in the proposed Art. 37*bis*.3 should Props 016–020 (Hawksworth & al. in Taxon 58: 658–659. 2009; Hawksworth & al. in Mycotaxon 108: 1–4. 2009) not be accepted by the Nomenclature Section; and (2) revise the wording of the proposed footnote as necessary to take account of any decisions on repositories made by the Committee for Fungi prior to the publication of the Melbourne Code.

(118) Insert a new Recommendation 37*bis*A.1:

“37*bis*A.1. Authors of names of organisms treated as fungi under this *Code* are encouraged to: (a) deposit minimal elements of information in relation to the names in a recognized repository, and obtain accession identifiers, as soon as possible after their papers are accepted for publication; and (b) after the effective publication of the name, inform

the recognized repository of the complete bibliographical details, including for example, the volume, part number, page number, date of publication, and (for books) the publisher and place of publication.”

(119) Insert a new paragraph Art. 33.1*bis*:

“33.1*bis*. On or after 1 January 2013, in the case of organisms treated as fungi under this *Code*, the citation of a repository identifier (Art. 37*bis*.1) for the new combination or new name in the publication in which it is introduced is required for valid publication.”

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