

# Fungal nomenclature evolving: changes adopted by the 19<sup>th</sup> International Botanical Congress in Shenzhen 2017, and procedures for the Fungal Nomenclature Session at the 11<sup>th</sup> International Mycological Congress in Puerto Rico 2018

David L. Hawksworth<sup>1</sup>, Tom W. May<sup>2</sup>, and Scott A. Redhead<sup>3</sup>

<sup>1</sup>Jodrell Laboratory, Royal Botanical Gardens, Kew, Richmond, Surrey TW9 3DS, UK; and Department of Life Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD, UK. corresponding author e-mail: d.hawksworth@kew.org

<sup>2</sup>Royal Botanic Gardens Victoria, Birdwood Avenue, Melbourne, VIC 3004, Australia

<sup>3</sup>Ottawa Research and Development Centre, Science and Technology Branch, Agriculture and Agri-Food Canada, 960 Carling Avenue, K.W Neatby Building, Ottawa, Ontario K1A 0C6, Canada

**Abstract:** This article summarizes the key changes in the rules relating to the nomenclature of fungi made at the XIX International Botanical Congress in Shenzhen, China, in July 2017. Most significant was the decision to transfer decision-making on matters related only to the naming of fungi from International Botanical to International Mycological Congresses (IMCs). The rules relating to fungi are to be grouped together in a separate section of the *International Code of Nomenclature for algae, fungi, and plants* (ICN). The way in which the Fungal Nomenclature Session will operate at the upcoming IMC in Puerto Rico in 2018 is summarized and the timetable for new proposals is presented. In addition, approval for names included on lists of protected names to be protected against unlisted as well as known competing names were passed, as were some simplifications relating to the naming of pleomorphic fungi. From 1 January 2019, it will also be necessary to deposit details of lecto-, neo-, and epitypifications in one of the recognized repositories of fungal names in order for them to be validly published and to establish their priority. Various aspects relating to typifications were referred to a new Special Committee, with a separate Special Subcommittee charged with addressing the issue of using DNA sequences as types for all groups covered by the ICN. It is anticipated that the Shenzhen Code will be published in the first half of 2018.

**Key words:**

Code  
governance  
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## BACKGROUND

At the VIIIth International Mycological Congress (IMC8) in Cairns, Australia, in 2006, some delegates expressed a desire for mycologists to become responsible for the rules governing the nomenclature of fungi. In response to that concern, proposals as to how that might be achieved were published (Hawksworth *et al.* 2009) and these were debated and endorsed at IMC9 in Edinburgh in 2010 (Norvell *et al.* 2010). That Congress also favoured the use of English as an alternative to Latin for validating diagnoses or descriptions of new taxa, requiring the deposit of key nomenclatural information in approved depositories for valid publication, electronic publication, lists of protected names, and a move to the end of the separate naming of morphs of a single species. These issues were debated further at the “One Fungus = One Name” symposium in Amsterdam in April 2011, from which emerged the Amsterdam Declaration on Fungal Nomenclature (Hawksworth *et al.* 2011), providing a road map for the future direction of fungal nomenclature.

Changes to the nomenclatural rules for algae, fungi, and plants as set out in what had been called the *International*

*Code of Botanical Nomenclature* have been discussed in the Nomenclature Section of six-yearly International Botanical Congresses (IBCs). The XVIIIth IBC in Melbourne in July 2011 considered and approved proposals to re-name the *Code* as the *International Code of Nomenclature for algae, fungi, and plants* and heralded in English as an alternative to Latin. In relation to rules related to fungi, the Congress also approved deposit in recognized repositories for key nomenclatural information as a requirement for valid publication, preparation of lists of names protected against names they were listed as protected over, and the end to the separate naming of morphs of the same species, while still favouring names typified by the sexual morph (Hawksworth 2011, McNeill *et al.* 2012). The Melbourne IBC did not, however, approve changes in the rules to move decision-making on matters concerning fungi from IBCs to IMCs, but formed a Special Subcommittee to consider the issue and report to the next IBC in 2017 (May 2016).

Issues continued to be debated at the “One Genus = Which Gene?” and “Genera of Fungi” symposia in Amsterdam in 2013 and 2014, respectively, and proposals based on those discussions were published (Hawksworth

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2014). Nomenclature Sessions convened during IMC10 in Bangkok in 2014 considered the changes proposed, and there was again strong support for the production of lists of names protected against any listed or unlisted names, equal treatment for sexually and asexually typified names for morphs of the same species, removal of the remaining exemptions for lichen-forming fungi, mandatory registration of later typifications in the recognized name repositories, provision of diagnostic statements, and movement of decision making on fungal matters to IMCs (Redhead *et al.* 2014). Formal proposals to effect those modifications at the next IBC in 2017 were subsequently drafted, considered by the International Commission on the Taxonomy of Fungi (ICTF) and published (Hawksworth 2015; May *et al.* 2016). The subject of this contribution is the actions taken on proposals by the 2017 IBC and the resulting implications for fungal nomenclature at the next IMC in 2018.

## INTRODUCTION

The Nomenclature Section of the XIXth International Botanical Congress (IBC) in Shenzhen, China, in 17–21 July 2017 considered 397 proposals to modify the *International Code of Nomenclature for algae, fungi, and plants* (ICN; McNeill *et al.* 2012), some of which were of particular significance to mycologists. The decisions of the Section were subsequently ratified by the closing ceremony of the IBC on 29 July 2017, and became effective from that date unless an alternative date was specified.

An annotated synopsis of all 397 proposals is provided by Turland & Wiersema (2017), and the action taken on those

proposals by the Section is summarized by Turland *et al.* (2017). Note that final wordings and placements of text in the ICN will be determined at a meeting of the Editorial Committee for the Shenzhen *Code* to be held on 11–15 December 2017 in Berlin. It is anticipated that the final version of the *Code* will be published by mid-2018.

The Shenzhen Nomenclature Section was attended by 155 delegates (collectively carrying an additional 427 institutional votes). This was a substantially lower number of delegates than at the previous two IBCs, although the situation was different for mycologists. Sixteen mycologists were amongst the number of delegates, compared with just seven and ten at the previous two IBCs in 2005 and 2011, respectively; it was gratifying that so many Chinese mycologists, especially younger ones, had been able to attend. Nevertheless, the number of mycologists present at IBC Nomenclature Sections has been far less than the number who have attended the informal nomenclature sessions and debates of the last several International Mycological Congresses. This disparity in representation of the mycological community in decision making forums that control fungal nomenclature has been a driving factor in proposing the move of ‘fungi governance’ (the way that decisions about matters in the *Code* relating solely to fungi are made) from IBCs to IMCs.

The major changes to the rules in the *Code* relating to fungi that were enacted at the Shenzhen IBC are summarised below, starting with rules about fungal names and ending with the ground-breaking changes to fungi governance; followed by an explanation of the procedures that will be in place at the newly instituted Fungal Nomenclature Session of the 2018 International Mycological Congress.

### Box 1

#### Acronyms for nomenclature bodies, meetings, and publications

FNB	Fungal Nomenclature Bureau (organises the FNS).
FNS	Fungal Nomenclature Session of an International Mycological Congress
GC	General Committee on Nomenclature (reports to the Nomenclature Section of an International Botanical Congress)
IBC	International Botanical Congress
ICN	<i>International Code of Nomenclature for algae, fungi, and plants</i>
ICTF	International Commission on the Taxonomy of Fungi (initiates working groups on names to be considered for inclusion in protected lists or rejected)
IMC	International Mycological Congress
NCF	Nomenclature Committee for Fungi (reports to the GC)

## PROTECTED NAMES

In order to avoid confusion, the proposal to refer to names on lists developed by international working groups and proposed to be safeguarded as “protected” was approved. This was important to make the distinction from names which are “conserved” as that system continues and will be able to deal with cases where names on the protected lists compete. The proposal to term names over which names on the list were protected as “suppressed” was, however, rejected as

such names would have an identical status to the current lists of rejected names in the ICN Appendices. The provision that excluded the possibility of names of lichen-forming fungi being included in lists of protected names was also deleted as that became superfluous with a change made in regard to names of pleomorphic fungi (see p. 213).

Of major importance, the IBC approved the proposal that names on the lists would be protected against unlisted names. This opens the prospect of protection of major lists of familiar names, such as one based on the “without prejudice”

list proposed for generic names of fungi (Kirk *et al.* 2013). This mechanism has the potential to be a major stabilizing effect in preventing the take-up of long-forgotten names for names now being employed. Further, there is no requirement that would inhibit the lists of protected names being updated.

## PLEOMORPHIC FUNGI

Concern had been expressed at the Melbourne IBC that the use of priority of publication alone as a criterion for deciding the correct name of a fungal species that had sexually and asexually typified morphs could lead to unfortunate changes in names. Consequently, a complex procedure was introduced to deal with such situations — requiring rejection of a formal proposal to reject an earlier asexually typified name in favour of a later sexually typified one (Art. 57.2). This requirement had proved unnecessarily complicated, and mycological practice has come to ignore it (May 2015). Article 57.2 was deleted in Shenzhen, which means that now, where there are competing asexually and sexually typified names, the choice can be made irrespective of the morph represented by the types of the names. An earlier asexually typified name can now be taken up over a sexually typified one without any need for formal action.

Hawksworth *et al.* (2013) proposed that where the same species epithet had been deliberately utilized in one genus when a new morph was discovered for an already known species in another genus, such cases should be treated as new combinations from the first to the second genus rather than separate names. This proposal would potentially avoid the take-up of unfamiliar epithets because familiar epithets (only priorable from their introduction as a new morph) would otherwise be pre-occupied in the desired generic name. This proposal was not accepted, but instead referred to a Special Committee due to concerns about unintended consequences where the types of the two names utilising the same epithet were not conspecific. It was also considered desirable to have at hand a complete list of the cases covered by the proposal. An alternative approach to amending the *Code* is also now available — by submitting lists of ‘same epithet’ new names for protection, as required for nomenclatural stability, *via* working groups set up under Art. 14.13.

## LICHEN-FORMING FUNGI

The names of lichen-forming fungi had been excluded from the rule according priority for sexually typified morphs at the Melbourne IBC (Art. 57.2) because of concerns over possible disruption, even though pleomorphism is almost unknown amongst lichens. With the deletion of Art. 57.2, this is no longer an issue.

As the first focus of the lists of names to be protected under Art 14.13 concerned competing names in pleomorphic fungi, lichen-forming fungi had also been excluded from inclusion on such lists. This led to a situation that while names of lichenicolous or saprobic species in a genus could potentially be included on lists of protected names, those of lichen-forming fungi in the same genus could not. This

anomaly was removed and opens the possibility of names of lichen-forming taxa being include in lists of protected names.

With these two deletions, names relating to lichen-forming fungi are now treated in an identical manner to those of other fungi. The only provision relating solely to lichen-forming fungi remaining in the ICN is the ruling that names given to “lichens” refer to the fungal partner. This is a welcome clarification, especially for fungi of uncertain biology.

## TYPIIFICATION

### Registration

Tracking down places where lectotypes, neotypes or epitypes have been published can be a major cause of frustration and uncertainty. It was therefore agreed that from 1 January 2019 it would be mandatory for such future typification acts to be registered in one of the three approved repositories of fungal names (i.e. Fungal Names, Index Fungorum, or MycoBank). Later typifications not so registered will not be regarded as validly published.

### Cultures as types

Whereas metabolically inactive cultures of fungi (e.g. lyophilized or in liquid nitrogen) have been acceptable as nomenclatural types of names since 1993, metabolically active living cultures (e.g. slants, cultures or under oil, cultures even in refrigeration) are not. As it is not always made clear in publications whether a cited culture is preserved in a metabolically active state, the requirement to state this in the protologue from 1 January 2019 was introduced. If that is not done after that date, the name will not be considered as validly published.

### DNA sequences as types

Numerous environmental samples include DNA sequences not conforming to any described taxa and, in some instances, it has been considered desirable to give unseen taxa formal scientific names, especially when repeatedly recovered. Some mycologists have endeavoured to circumvent the need for a physical specimen by preserving the sample from which the DNA was isolated (Kirk 2012) or publishing an illustration of the alignments (Lücking & Moncada 2017), though in at least one instance just the sequence was cited (De Beer *et al.* 2016). A set of proposals to permit sequence data alone to be acceptable as a type (Hawksworth *et al.* 2016) was rejected, and as the topic was considered of wider significance than for fungi alone, a Special Committee was appointed to address the matter and report to the next IBC. This rejection means that names where DNA sequences were designated as “holotypes” are not validly published.

### Epitypes

The requirement to establish that an extant type was “demonstrably ambiguous” before designating an epitype has been a particular problem for mycologists when DNA sequence data was seen as essential in order to precisely fix the application of a name, but it was not possible to even be allowed to attempt to extract DNA from the type which the epitype would interpret. While the proposal to insert “in the

opinion of the author” was rejected, the inclusion of a new example to illustrate this situation was approved in principle and referred to the Editorial Committee. The proposal to rephrase the current rule was also referred to the new Special Committee on Typification.

### Illustrations

As illustrations of fungi are not always sufficiently diagnostic for the taxon to which they are considered to refer, it had been proposed that they could not be designated as lectotypes unless they exhibited diagnostic features. Both that proposal and ones that suggested that illustrations alone should not in the future be designated as neotypes or epitypes types of fungal names were referred to the new Special Committee on Typification. A proposal from the floor to modify the definition of illustration to make clear it was of an anatomical or morphological diagnostic feature, in order to explicitly exclude DNA sequence alignments (see p. 213), was debated and referred to the same Special Committee.

### Largely mechanical type selection

Following the report of the Special Committee on Publications Using a Largely Mechanical Method of Selection of Types (McNeill *et al.* 2016) a new Article was approved that establishes criteria for determining whether or not publications (appearing prior to 1 January 1935) adopted a largely mechanical method of type selection. Such criteria include statements that the ‘American Code’ was being followed, or, for publications appearing prior to 1 January 1921, the fact that authors were employees or recognized associate of the New York Botanical Garden. Proposed examples included some lectotypifications of fungal names by W A Murrill (1869–1957) that must be superseded, as they are considered to be largely mechanical.

### CITATIONS

The Recommendation that permits a colon (“:”) to be used in an author citation to indicate that a name has been sanctioned for use in specified works by Persoon and Fries continues to confuse even experienced mycologists and is often not understood at all by non-mycologists, which has implications in all-biota databases. Nevertheless, the proposal to delete the Recommendation was defeated. The use of “nom. sanct.” as an alternative to the colon to indicate the special nomenclatural status of a sanctioned name was, however, approved.

### HOMONYMS

The ICN currently recommends that the introduction of names that already exist in bacteriology or zoology should be avoided. From 1 January 2019, it was agreed that a new name proposed for a fungus that was a homonym of an existing bacterial or protozoan name would be treated as illegitimate.

## REGISTRATION

Semantic issues about ‘names’ in the current wording of Art. 42 (on registration) raised by Kirk & Yao (2016) were referred to the Editorial Committee. Other issues around registration of new fungal names and combinations remain unresolved, including the correctability or otherwise of miscited identifiers and whether details as originally lodged when obtaining an identifier may be altered. Being specific to fungal names, these issues can be the subject of proposals to be considered at the next IMC.

## SPECIAL FORMS

Although names in the rank of “special form” have been ruled as not governed by the ICN since the Edinburgh IBC of 1964, they were included as a formal category from 1910 until that date. The 1964 decision had no date and so was retroactive, which meant that any new combinations based on names of special forms up to that time was unclear. However, a proposal to clarify the position, suggesting that where names in the rank of special form complied with other requirements for valid publication they were acceptable as basionyms, was rejected.

## GOVERNANCE

The detailed proposals to transfer responsibility for changing rules related only to the nomenclature of fungi from IBCs to IMCs (May *et al.* 2016) prepared by the Special Subcommittee appointed for that purpose (May 2016) were designed to mirror those used by the Nomenclature Section meetings of IBCs with some minor modifications: there would be no institutional votes; proposals to change the *Code* solely relating to fungi would in future be published in *IMA Fungus*; and to reduce possibilities of confusion, the IMC meeting would be referred to as a “Fungal Nomenclature Session” and names of the officers would be modernized (Chair instead of President, and Secretary instead of Rapporteur-général). The Subcommittee also proposed that the NCF was to be elected at IMCs and not IBCs.

Subsequent to the report of the Subcommittee, it was suggested that all matters solely relating to fungi be placed in a separate section in the ICN, a view supported by the ICTF and IMA Executive Committee (Miller *et al.* 2017). For convenience, the separate section is here referred to as Chapter F (although the final designation in the Shenzhen *Code* may differ). It would be matter in ‘Chapter F’ that would be subject to change at IMCs. The suggestion to create a separate section was accepted as a “friendly” amendment to the formal proposal on fungi governance by the Subcommittee members prior to the Shenzhen meetings. The Section approved the amended proposal on a card vote: 346 “yes” votes (266 institutional and 80 personal), i.e. 65.8 % for the changes. It was gratifying to see that the number of personal votes was 80 as there were only 16 mycologists present. With algologists, bryologists, and palaeobotanists represented by an even lower number of delegates (three or less), the

**Box 2****Proposals to amend the Code specific to fungi**

The key function of the Fungal Nomenclature Session of the International Mycological Congress is to consider proposals to amend the material in the Code specific to fungi, by changing the wording of existing rules in the Shenzhen Code or introducing novel rules (specific to fungi). Mycologists wishing to propose such amendments to the Code should submit proposals to *IMA Fungus* by 1 March 2018. Authors intending to prepare proposals should contact the Editor-in-Chief of *IMA Fungus* in the first instance for advice on the wording on the Shenzhen Code

changes enacted for governance of the nomenclature of fungi offer a model in how nomenclature might be more directly governed in different categories of organisms, while retaining the overarching apparatus of the *Code* and its associated committees.

We wish to make clear that the change in governance relates to the rules themselves, and that the NCF will continue to deal, as at present, with proposals for conservation or rejection of names, adoption of lists of names for protection, requests for binding decisions on problematic cases, and confirmation of approved repositories. Further, rules that relate to all organismal groups covered by the ICN in other sections of the Code will continue to apply to organisms treated as fungi. These other rules will not be subject to change at IMCs (unless specifically limited to organisms treated as fungi) and will continue to be subject to change at IBCs.

The Subcommittee's proposal that the NCF was to be elected at IMCs and not IBCs was also approved.

**FUNGAL NOMENCLATURE SESSION AT IMC11 (2018)**

Following the changes to the governance provisions of the ICN, the Fungal Nomenclature Session (FNS) at IMC 11 in Puerto Rico in July 2018 will consider and decide on formal proposals that either change any of the rules in the newly organized fungal chapter of the *Code* or introduce new rules that relate only to fungi. Overall, the procedures in the IMC Nomenclature Session will mirror those at IBCs, with the exception that there are no institutional votes. The FNS will be held on one day, running for between a half and a full day, depending on the number of proposals submitted. The Session will be organised and run by the Fungal Nomenclature Bureau.

**Fungal Nomenclature Bureau**

The Fungal Nomenclature Bureau (FNB) of the International Mycological Congress is responsible for running the FNS, including defining the sequence and timing of debates and advising the Chair on procedural matters. The FNB comprises the following officers: Chair of the FNS ; up to five Deputy Chairs; Secretary; Deputy Secretary; and Recorder.

The Chair is elected by the NCF in consultation with the General Committee for Nomenclature (GC) prior to the IMC. The Chair chairs the debates and is responsible for their harmony and timely conclusion; recognizes and silences

speakers; may end a debate; decides on procedural matters not covered in Div. III of the *Code*; and is authorized to move a resolution on behalf of the FNS at a plenary session of the same IMC that the decisions and appointments of the FNS be approved.

The Deputy Chairs are appointed by the FNB, either in advance of the Congress or from those present at the FNS. A Deputy Chair serves in place of the Chair if and when requested.

The Secretary of the FNS is elected by the previous IMC, on the suggestion of the Nominating Committee of the FNS. For the inaugural FNS in 2018, given that the changes to the *Code* that enable a FNS were enacted at the 2017 IBC, the Secretary of the 2017 IMC FNB was elected at that time. The Nominating Committee of the 2017 IBC Nomenclature Section proposed Tom W May (Australia) as the Secretary, a choice confirmed by the Plenary Session of the 2017 IBC. The Deputy Secretary is appointed by the Secretary and approved by the NCF in consultation with the GC. The Deputy Secretary assists and, if necessary, serves in place of the Secretary.

The Recorder is appointed by the IMC Organizing Committee in consultation with the Secretary. The Recorder is responsible for co-ordinating the local facilities needed by the FNS, such as the venue and its equipment, and in particular for the detailed recording of the proceedings of the Session and for facilitating the voting.

An invitation will be extended to the Rapporteur-général for the next International Botanical Congress (as appointed by the previous IBC) to attend the FNS as a non-voting advisor.

**Who can attend**

Attendees of the IMC NS must be registered to attend at least one day of the International Mycological Congress.

**Nominating Committee**

The FNS appoints a Nominating Committee that proposes the Secretary of the FNB for the Nomenclature Session of the following IMC in 2022; and any changes to the membership of the NCF. The nominations of the Nominating Committee are subject to approval by the FNS and ultimately the plenary session of the IMC.

**Committees**

The FNS may consider setting up Special Committees addressing particular issues (solely related to fungi), generally those raised in proposals that are not accepted, but considered to be of continuing significant interest.

**Table 1.** Material in the *International Code of Nomenclature for algae, fungi, and plants* specific to fungi. Changes implemented at the Shenzhen IBC are in **bold**.

Preamble 8	What organisms are treated as fungi.
Art. 13.1 (d)	Starting point date.
Arts 14.13 and 56.3	Treatment of lists of names from working groups. <b>Exemption for lichen-forming fungi removed. Art 14.13 amended so that names on lists are designated as 'protected', with addition of protection against unlisted names as well as listed names.</b>
Art. 15 and Rec. 50E.3	Sanctioning. <b>Added option of citing as nom. sanct.</b>
Art. 42	Registration. <b>Added compulsory registration of later typifications from 1 Jan 2019.</b>
Art. 57.2	<b>Deleted.</b>
Art. 59	Pleomorphic fungi.
Div. III	Governance. <b>Changed to empower formal Fungal Nomenclature Session at IMC and election of Nomenclature Committee for Fungi by IMC.</b>

Should Special Committees be set up, their reports would be received by the FNS of the next Congress. Membership of Special Committees is confirmed by the NCF in consultation with the GC.

The FNS also has the power to establish *ad hoc* committees to consider specific questions and report back to the Session. Due to the brevity of the Session it is highly unlikely that *ad hoc* committees will be required.

### 'Chapter F'

A useful suggestion in the discussions on fungal governance in the lead-up to the Shenzhen IBC was to place all material in the *Code* that solely relates to organisms considered to be fungi in a separate section of the *Code* (provisionally referred to here as 'Chapter F'; see p. 214). The new chapter F will include existing Articles related to fungi from the Melbourne *Code* and the new Articles applying solely to fungi that were introduced at the Shenzhen IBC (Table 1).

There are three types of proposal that mycologists can make to amend the *Code* in relation to material that solely relates to fungi: (1) propose an amendment to material currently in Chapter F; (2) propose an entirely new Article, Recommendation or Example to be added to Chapter F; or (3) take existing material from other sections of the *Code*, and propose to modify it, with the amendments concomitantly limited to fungi.

### Proposals

Proposals to change material in the section of the ICN that solely relates to fungi must be submitted to *IMA Fungus* by 1 March 2018, where they will be published in a section edited by the journal's Editor-in-Chief and followed by a *Synopsis of proposals* prepared by the Secretary and Deputy Secretary of the FNB (that includes the opinions of the NCF and the GC on the proposals).

Mycologists preparing proposals to amend the *Code* for consideration by the FNS should consult Turland & Wiersema (2013) for general advice on preparing proposals to amend the *Code*. In particular, proposals should be concise, include the rationale for the change, and state explicitly what text is to be altered, deleted, or added in the fungal section of the *Code*, along the lines of 'insert a new Article', 'change an existing Article to read', or 'add the following Example'. In

general, proposals that contribute to nomenclatural stability are more likely to be successful. Proposals on the same issue may be submitted by different groups of authors, as long as they contain amendments to the *Code*. Where there are wider issues of significance to consider that require a more discursive approach, mycologists are encouraged to prepare a separate paper to be submitted to *IMA Fungus* (or some other journal).

If there is any doubt as to whether a proposal 'relates solely to fungi' the appropriateness of putting the proposal before the FNS will be decided by the NCF in consultation with the GC.

Until now, proposals to amend the *Code* have been based on the *Code* arising from the previous IBC. In the case of the 2018 IMC FNS, the appropriate *Code* will be the Shenzhen *Code*, which will also be the basis for discussions in the FNS. However, it is likely that the printed version of the Shenzhen *Code* will not be available prior to the deadline for submitting proposals to amend the material in Chapter F of the *Code*. Therefore, mycologists preparing proposals should utilise the Melbourne *Code* in association with the text of the proposals to amend the *Code* that were adopted by the Shenzhen IBC (successful proposals relating to fungi were adopted word for word except for a minor addition to Prop. 363 on the election of the NCF by IMCs). Confirmation of wording in the final text of the Shenzhen *Code* can be provided by the FNB Secretary or Editor-in-Chief of *IMA Fungus* (both of whom are members of the Editorial Committee for the Shenzhen ICN).

As noted above (p. 215), the FNS will not consider proposals to conserve or reject names, lists of names proposed for protection, or requests for binding decisions — such proposals should continue to be submitted to the journal *Taxon* for consideration by the NCF.

### Approval of repositories

Under Art. 42.3, the NCF is empowered to formally appoint repositories that issue identifiers for names of fungi (and from 1 Jan 2019, that issue identifiers for typification acts for names of fungi) or to cancel such appointments. Such decisions on the appointment of repositories are subject to ratification by a subsequent IMC. Although not spelt out in the new Div. III, it will be appropriate for any decisions by the NCF

on repositories to be put before the FNS prior to ratification by the Plenary Session of the IMC.

### Guiding vote

The set of published proposals will be made open for a guiding vote, which will be on-line. A link will be sent to all those eligible to vote. Those entitled to vote in the on-line ballot include members of the IMA (i.e. those who attended IMC10), members of organizations affiliated with the IMA and those who have published proposals or are members of the NCF. Organizations affiliated with the IMA are: (1) its member mycological organizations (MMOs), which include the Australasian, British, Danish, Dutch, Finnish, Indian, Indonesian, Norwegian, and Swedish Mycological Societies; the Mycological Societies of America, China, Japan, and the Republic of China; and the German and Korean Societies of Mycology; and (2) the British Lichen Society and the Southern African Society for Plant Pathology. Each eligible person has one vote, irrespective of how many categories they fall under.

Other pertinent organizations may be added to those eligible to vote, as agreed by the FNB. In the report of the Special Subcommittee on Fungi Governance (May 2016) the low representation from Africa and Latin America among the IMA MMOs was noted. The preferred method of engaging with the guiding vote for national and regional organizations is through affiliation with the IMA. For international societies, organizations that could be considered for inclusion in the guiding vote (after approval by the FNB) include, but are not limited to, the International Association for Lichenology (IAL) and the International Commission on the Taxonomy of Fungi (ICTF). These organizations will be contacted about participation of their members in the guiding vote. Any other international organization that wishes to enable their members to participate should contact the Secretary, Fungal Nomenclature Bureau by 31 December 2017.

Proposals that do not receive more than 75 % support in the guiding vote will not be considered by the FNS unless raised from the floor with at least five seconders. Any Examples proposed will be automatically passed to the Editorial Committee for consideration.

### Amended and new proposals

A member of the FNS may propose an amendment to a proposal to amend the *Code*. If accepted by the original proposer(s), such a 'friendly' amendment does not require the support of other members (seconders). Otherwise, an amendment to an existing proposal may be introduced by a member of the Session only when seconded by five other members.

At Nomenclature Sections of IBCs, it has also been possible to introduce new proposals 'from the floor'. As with 'unfriendly' amendments, a new proposal may be introduced only when seconded by five other members. At the one-week IBC Nomenclature Sections, proposals from the floor have usually dealt with 'tidying up' of proposals accepted earlier in the week, where unintended consequences have been detected; or significant re-wording of proposals discussed already, where there was agreement on the general intent of the proposal, but time is needed to draft a clear new wording, presented as a new proposal.

The facility to introduce new proposals from the floor is present in the revised fungi governance rules. However, new proposals will be strongly discouraged as experience shows these are often too hastily prepared and subsequently found to have unforeseen ramifications. Due to the short (one day or less duration) of the FNS, new proposals (not related to those already published) will only be added to the business of the FNS at the commencement of the Session (and must have been communicated to the Secretary along with the necessary secondment by five others prior to the Session).

### No institutional votes

In contrast to the IBC NS, there are no institutional votes at the IMC NS. Each person attending the Session has one vote.

### No card vote

At the IBC NS a 'card vote' may be called for, to facilitate counting of the combination of individual and institutional votes. Because there are no institutional votes at the IMC NS, there is no need for a card vote. Voting will be by show of hands.

### Voting

A qualified majority (at least 60 %) of votes cast in the Session will be required to accept a proposal to amend the ICN, end discussion of a topic and proceed to a vote (i.e. "to call the question"), or accept a time limit for a particular debate.

A simple majority (more than 50 %) will be sufficient for all other purposes. These other purposes will include electing the Nominating Committee, accepting the *Code* as modified at the previous IMC, choosing between alternative proposals, accepting an amendment to a proposal, referring items to the Editorial Committee, establishing and referring items to a Special-purpose Committee, establishing an *ad hoc* committee, and approving the nominations of the Nominating Committee.

### Confirmation by Plenary Session

Actions of the IMC NS are confirmed by a resolution put before the Plenary Session of the IMC.

### Reporting and modifications to the Code

The proceedings will be recorded. The FNB will serve as the Editorial Committee for the revision of the fungal section of the ICN, as required, with guidance from the Rapporteur-général appointed by the IBC. A report on approved actions from the FNS will be published in *IMA Fungus*, along with the wording of the new version of Chapter F, which will also be amended in the on-line version of the *Code*. The hard copy of the Shenzhen Code (to be published in 2018) will include a statement that mycologists should be aware that there may be subsequent changes, reflected in the on-line version of the *Code*, arising from the 2018 and 2022 IMC Nomenclature Sessions.

### Deadlines

**31 December 2017** – Organizations wishing to be added to those whose members are eligible to participate in the Guiding vote to contact Secretary FNB

- 1 March 2018** – Proposals to amend the Code specific to fungi to be submitted to the Editor-in-Chief, *IMA Fungus*
- 1 April 2018** – Proposals published in *IMA Fungus*
- 30 April 2018** – Synopsis of proposals published in *IMA Fungus*
- 1 May 2018** – Online Guiding vote commences
- 10 June 2018** – Online Guiding vote ends
- 15 July 2018** – Results of Guiding vote made available at IMC11
- 18 July 2018** – IMC11 Fungal Nomenclature Session
- 1 November 2018** – Report of the Fungal Nomenclature Session and revised version of the fungal section of the ICN published in *IMA Fungus*

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## REFERENCES

- De Beer ZW, Marincowitz S, Duong TA, Kim JJ, Rodrigues A, Wingfield MJ (2016) *Hawksworthiomyces* gen. nov. (*Ophiostomatales*), illustrates the urgency for a decision on how to name novel taxa known only from environmental nucleic acid sequences (ENAS). *Fungal Biology* **120**: 1323–1340
- Hawksworth DL (2011) A new dawn for the naming of fungi: impacts of decisions made in Melbourne in July 2011 on the future publication and regulation of fungal names. *MycKeys* **1**: 7–20; *IMA Fungus* **2**: 155–162.
- Hawksworth DL (2014) Possible house-keeping and other draft proposals to clarify or enhance the naming of fungi within the *International Code of Nomenclature for algae, fungi, and plants* (ICN). *IMA Fungus* **5**: 31–37.
- Hawksworth DL (2015) Proposals to clarify and enhance the naming of fungi under the *International Code of Nomenclature for algae, fungi, and plants*. *IMA Fungus* **6**: 199–205; *Taxon* **64**: 858–862.
- Hawksworth DL, Crous PW, Dianese JC, Gryzenhout M, Norvell LL, Seifert KA (2009) Proposals to amend the Code to make it clear that it covers the nomenclature of fungi, and to modify the governance with respect to names of organisms treated as fungi. *Taxon* **58**: 658–659; *Mycotaxon* **108**: 1–4.
- Hawksworth DL, Crous PW, Redhead SA, Reynolds DR, Samson RA, *et al.* (2011) The Amsterdam Declaration on Fungal Nomenclature. *IMA Fungus* **2**: 105–112.
- Hawksworth DL, Hibbett DS, Kirk PM, Lücking R (2016) (308–310) Proposals to permit DNA sequence data to serve as types of names of fungi. *Taxon* **65**: 899–900.
- Hawksworth DL, McNeill J, De Beer, ZW, Wingfield MJ (2013) Names of fungal species with the same epithet applied to different morphs: how to treat them. *IMA Fungus* **4**: 53–56.
- Kirk PM (2012) Nomenclatural novelties. *Index Fungorum* **1**: 1.
- Kirk PM, Yao Y-J (2016) (340) Proposal to add a Note of interpretation and guidance to Articles 42.1 and 42.2. *Taxon* **65**: 913.
- Kirk PM, Stalpers JA, Braun U, Crous PW, Hansen K, *et al.* (2013) A without-prejudice list of generic names of fungi for protection under the *International Code of Nomenclature for algae, fungi, and plants*. *IMA Fungus* **4**: 381–443.
- Lücking R, Moncada B (2017) Dismantling *Marchandiomphalina* into *Agonimia* (*Verrucariaceae*) and *Lawreymyces* gen. nov. (*Corticaceae*): setting a precedent to the formal recognition of thousands of voucherless fungi based on type sequences. *Fungal Diversity* **84**: 119–138.
- May T (2015) Advice to mycologists concerning Article 57.2 *IMA Fungus* **6**: (43)–(44).
- May TW (2016) Report of the Special Subcommittee on Governance of the Code with Respect to Fungi. *Taxon* **65**: 249–253.
- May TW, de Beer ZW, Crous PW, Hawksworth DL, Liu X, *et al.* (2016) (363–363) Proposals to amend the Code to modify its governance with respect to names of organisms treated as fungi. *Taxon* **65**: 246–248.
- McNeill J, Barrie FR, Buck WR, Demoulin V, Greuter W, *et al.* (2012) *International Code of Nomenclature for algae, fungi, and plants (Melbourne Code) adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011*. [Regnum Vegetabile No. 154.] Königstein: Koeltz Scientific Books.
- McNeill J, Barrie FR, Gandhi KN, Hollowell VC, *et al.* (2016) Report of the Special Committee on Publications Using a Largely Mechanical Method of Selection of Types (Art. 10.5(b)) (especially under the *American Code*). *Taxon* **65**: 1443–1448.
- Miller A, Cai L, Crous PW, De Beer ZW, Hawksworth DL, *et al.* (2017) Mycologists' committees strongly support changes to the governance of fungal nomenclature. *IMA Fungus* **8**: (9)–(11).
- Norvell LL, Hawksworth DL, Petersen RG, Redhead SA (2010) The IMC9 Edinburgh Nomenclature Sessions. *Mycotaxon* **113**: 503–511; *IMA Fungus* **1**: 143–147.
- Redhead SA, Demoulin V, Hawksworth DL, Seifert KA, Turland NJ (2014) Fungal Nomenclature at IMC10: report of the Nomenclature Sessions. *IMA Fungus* **5**: 449–462.
- Turland NJ, Wiersema JH (2013) Procedures and timetable for proposals to amend the *International Code of Nomenclature for algae, fungi, and plants*. *Taxon* **62**: 1071–1072.
- Turland NJ, Wiersema JH, Monro AM, Deng Y-F, Zhang L (2017) XIX International Botanical Congress: report of Congress action on nomenclatural proposals. *Taxon* **66**: DOI:10.12705/665.16.
- Turland NJ, Wiersema JH (2017) Synopsis of proposals on nomenclature – Shenzhen 2017: a review of the proposals concerning the *International Code of Nomenclature for algae, fungi, and plants* submitted to the XIX International Botanical Congress. *Taxon* **66**: 217–274.