Regulating the names of fungi

International Code of Nomenclature for algae, fungi, and plants (Madrid Code)

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Authored by the Editorial Committee of the Madrid Code:

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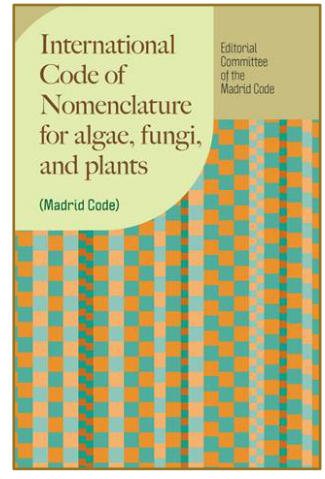

There are two aspects to the naming of fungi, taxonomy and nomenclature, which together form the discipline of systematics. Taxonomy is the classification or categorisation of objects or organisms into kinds, which in the case of organisms are the classes which research indicates merit recognition as species, genera, families, and higher ranks; i.e. as separate taxa. Different researchers can have divergent taxonomies, depending on how they interpret the available data. For example, some may wish to recognise a broad concept for the genus *Cortinarius*, while others prefer to accept a number of separate genera. Taxonomic schemes and concepts are in essence hypotheses open to challenge or re-interpretation. Taxonomy is therefore subjective and scientific, whereas nomenclature is objective and legalistic – and follows taxonomic opinions. Nomenclatural issues in mycology are the province of the Nomenclature Committee for Fungi (NCF) while taxonomic practice is the domain of the International Commission on the Taxonomy of Fungi (ICTF). Both the NCF and ICTF are now elected and report to International Mycological Congresses; the ICTF, established in 1982, publishes guidance on best practice and other matters, including lists of names for protection.

Nomenclature is concerned with how names are to be selected and applied to the taxa taxonomists consider justify recognition and naming. By the mid-19th century, authors varied in the criteria they adopted to arrive at and fix the name for a particular taxon. Chaos was on the horizon, zoologists had started to go a separate way in the 1840s, and in order to get a grip on the situation the International Botanical Congress held in Paris in 1867 adopted laws (or "lois", as they were called in French) to be followed for organisms studied by botanists, including algae, cyanobacteria, fungi, slime moulds, and some protists (for an authoritative historical account see Nicolson, 1991). The rules have since evolved to meet the changing requirements of the scientific community, with possible changes debated and voted on at the now normally six-yearly International Botanical Congresses, or since 2017 if applying only to organisms treated as fungi, the usually four-yearly International Mycological Congresses.

The new international code, the *Madrid Code* has just been published. This reflects the decisions made at both the 20th International Botanical Congress (Madrid, July 2024) and the 12th International Mycological Congress (Maastricht, August 2024) on 433 and seven proposals respectively. All rules come into effect immediately they are adopted by the relevant Congress unless a later date is specified. All mycologists working in taxonomy need to obtain and use the new *Madrid Code* right away to ensure they avoid making erroneous decisions.

The *Code* is a rather intimidating document, but

there is now a decoding guide (Turland, 2019) . The processes it regulates, however, can be seen as a series of filters to be passed through to arrive at the correct name for a taxon (Fig. 1). Note that a single taxon can have several correct names depending on the taxonomy adopted. For example, the names *Boletus chrysenteron* and *Xerocomellus chrysenteron* are both correct depending on whether a broad or narrow generic concept is adopted.

Most of the changes made in Madrid relate to technical clarifications rather than adoption of new provisions. They include improvements in wordings and glossary definitions (Turland, 2025), and the addition of new examples by the Editorial Committee. One decision that attracted much publicity was to reject names proposed from 1 January 2026 that might be considered derogatory to a group of people. In the Preface, the Committee also encourages the practice adopted in the Code of placing scientific names at all ranks in *italics*, something already followed in key mycological journals. In Maastricht, procedures for the listing of protected names were clarified and two new recommendations relating to living cultures as types were adopted. The issue of naming fungi known only from environmental DNA sequences was debated at length, but no decisions were made, and this will be revisited at the 13th International Mycological Congress in Incheon, South Korea in 2027 (it is expected that a revised Chapter F, to replace that in the *Madrid Code*, will be published in *IMA Fungus* following the Incheon congress). The 21st International Botanical Congress is scheduled for Cape Town, South Africa, in 2029.

I have served on the Editorial Board of the *Code* since appointed by the Berlin Congress of 1987. I am indebted for all I have been able to learn from fellow members over the years. It has been a particular privilege to see previously destabilizing rules relating to fungal organisms eventually fundamentally modified or rejected, new procedures such as the compulsory registration of new names and the concept of protected names adopted. We have advanced to a situation where changes in established names due to nomenclatural nuances alone can generally be avoided.

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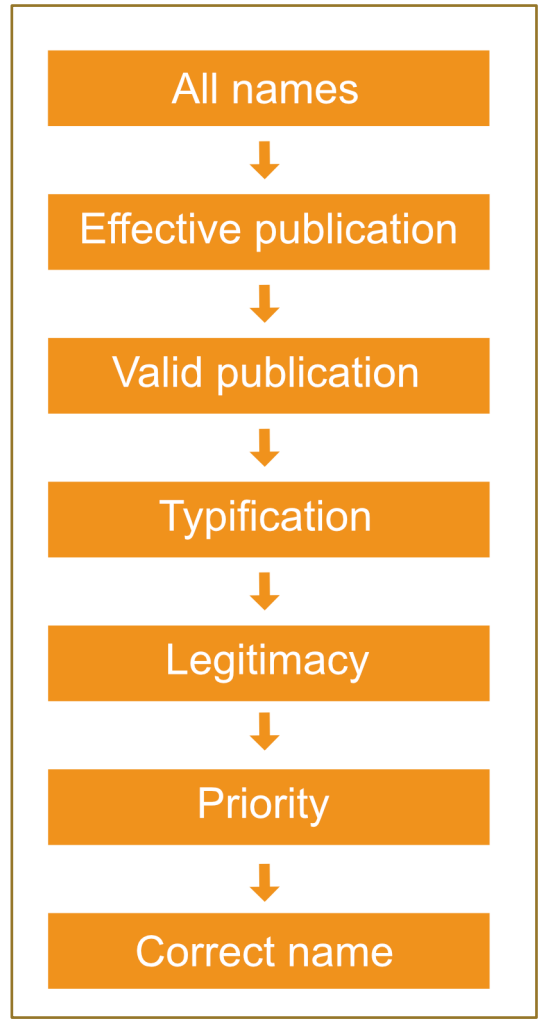

Fig. 1. The steps in the nomenclatural filter, illustrating the various stages to be passed through to arrive at a correct name for a taxon. The author is indebted to Mounes Bakhshi for preparing this graphic.

References

Nicolson, D. H. (1991) A History of Botanical Nomenclature. *Annals of the Missouri Botanical Garden*, 78(1): 33–56.

Turland NJ (2019) *The Code Decoded: a user's guide to the International Code of Nomenclature for algae, fungi, and plants*. 2nd edn. Sofia: Pensoft Publishers.

Turland NJ (2025) From the *Shenzhen Code* to the *Madrid Code*: new rules and recommendations for naming algae, fungi, and plants. *American Journal of Botany* 112: e70026.