

IN DEFENSE OF THE USE OF ITALIC FOR LATIN BINOMIAL PLANT NAMES¹

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Abstract. The author surveyed the instructions for authors in 110 botanical journals to assess how widely italic is used to represent the Latin binomial names of plants. Except for one journal that eliminated italic from the reference list, all of these journals published articles that used italic in the text and reference list for Latin binomial names of plants. However, in their instructions for authors only 48% of these journals explicitly requested the use of italic to denote the Latin binomial names of plants.

Key words: botanical nomenclature, IAPT, ICNCP, journal style standards, instructions for authors, latinization

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In botany, italic is generally used for the Latin binomial names of plants. To assess how widely and how systematically italic is used to represent the Latin binomial names of plants among botanical journals, first I contacted several experts on taxonomy to survey their opinions (see Acknowledgements). These experts included John McNeill and Nicholas J. Turland, the authors of the preface to the latest code for plant nomenclature established by the International Association for Plant Taxonomy (IAPT), the *International Code of Nomenclature for algae, fungi, and plants (Melbourne Code)* (McNeill *et al.* 2012). Then I surveyed 110 journals linked to botany to determine whether they employ italic in text, and whether their instructions for authors specifically require the use of italic for botanical names.

As pertains to the use of italic for Latin botanical names, the *Code* states: ‘As in all recent editions, scientific names under the jurisdiction of the *Code*, irrespective of rank, are consistently printed in italic type. The *Code* sets no binding standard in this respect, as typography is a matter of editorial style and tradition, not of nomenclature. Nevertheless, editors and authors, in the interest of international uniformity, may wish to consider adhering

to the practice exemplified by the *Code*, which has been well received in general and is followed in a number of botanical and mycological journals. To set off scientific names even better, the abandonment in the *Code* of italic for technical terms and other words in Latin, traditional but inconsistent in early editions, has been maintained.’

In October 2014 I obtained the following opinions through personal communication, quoted verbatim here:

Prof. Turland stated that the use of italic is voluntary: ‘I can confirm that the *International Code of Nomenclature for algae, fungi, and plants* does not rule on or even formally recommend the use of italic for scientific names of organisms. It does, however, consistently use italic for all scientific names at all ranks. See the comments in the Preface to the *Melbourne Code* (McNeill & Turland 2012). Here it is stated that the use of italic is a matter of editorial style and tradition, not of nomenclature. I would think it quite unorthodox if a journal never used italic for scientific names in any context. However, not using italic in the literature cited is perhaps another matter, as styles of citing references vary so much, e.g. with use or non-use of commas, full stops, spaces, capital letters, etc.’

Prof. Feliner reinforced this optional position regarding the use of italic: ‘I don’t think the

¹ Invited paper

procedure followed by the journal is wrong. Neither the *International Code of Nomenclature for algae, fungi, and plants* (McNeill *et al.* 2012) nor the previous editions impose a compulsory norm concerning typography of scientific names. But, what is more important, the scientific names within the main text are in italic (aren't they?) so that they can easily be identified as such. This is the main utility of using italic for scientific names. In a reference list, if all the items are scientific names, there is no need to use the italic throughout the list unless you want to distinguish, e.g., accepted names from synonyms and/or common names. Then there is a (perhaps unwritten) rule for typographers, that is, to keep italic to a minimum, and probably this is the reason why they remove them from the reference list.'

Prof. Simpson's opinion was aligned with those of the experts quoted above: 'Although it is common usage to put all taxa of species and below in italic, it is not required by the *International Code of Nomenclature* (ICN). (In fact, the ICN italicizes names of all ranks, which is not generally done in journals.) As in all recent editions, scientific names under the jurisdiction of the *Code*, irrespective of rank, are consistently printed in *italic type*. The *Code* sets no binding standard in this respect, as typography is a matter of editorial style and tradition, not of nomenclature. [This] varies with the journal and is not required by the ICN.' Dr. McNeill, Dr. Funk and Dr. Katinas recommended that the *Code* should be followed.

Three professors defended the use of italic. Prof. Gradstein stated that 'putting scientific names of genera and all taxa below the genus level, including species, in italic is a standard editorial policy that is applied by all scientific impact journals (with IF) that I am familiar with.' Prof. Marhold argued that 'The typesetting of names of plant genera and species in italic is editorial convention. It is not introduced as a rule in the codes of nomenclature. Saying that, I have to say also that all botanical journals, as far as I am aware, are accepting this convention, both in the main text and in references. The same practice is kept in the codes of nomenclature.' Prof. Schmid fortifies this position: 'The use of italic for the so-called scientific names of organisms (genus, species, infraspecific taxa) is a practice of very long standing. I am not aware of any important contemporary biological journal that does not use italic for such cases. From my viewpoint and that of *Taxon: International Journal of Plant Taxonomy, Phylogeny and Evolution*, the use of italic for Latin names of organisms is essential for accuracy and clarity. Style manuals such as the *Chicago Manual of Style* (Editions 15, 16), which is the one many journals, including *Taxon*, use, also advocate the use of italic in such cases.' In the latter comment Prof. Schmid is referring to <http://www.chicagomanualofstyle.org/home.html>.

Analysis of the most prominent and accessible botanical journals from around the globe revealed the following (Table 1):

Table 1. Selected botanical journals¹, their use of italic, and any policies or guidelines regarding the use of italic for binomial nomenclature (see URLs in Supplementary file).

Journal	Use of italic in articles ²	Explicit statements on italic, if any, in instructions for authors ³
<i>Acta Botanica Brasílica</i>	Yes	None
<i>Acta Botanica Croatica</i>	Yes	None
<i>Acta Botanica Fennica</i>	Yes	'The following should always be italicised: 1. Scientific names at <i>genus level</i> and <i>below</i> . 2. In author citations, <i>ex</i> and <i>in</i> . 3. Latin words, such as <i>sensu</i> , <i>pro parte</i> , <i>non</i> , etc. 4. Entire Latin description. 5. In specimen citations, collector's name and collecting number (see examples below).'
<i>Acta Botanica Hungarica</i>	Yes	'Latin names of genera, species, infraspecific taxa and plant associations should be in italic (except in the list of references).'
<i>Acta Botanica Gallica: Botany Letters</i>	Yes	None

Table 1. Continued.

Journal	Use of italic in articles ²	Explicit statements on italic, if any, in instructions for authors ³
<i>Acta Botanica Mexicana</i>	Yes	None
<i>Acta Horticulturae</i>	Yes	'Scientific names are to be included for all plant species and are to be in italic font except for the abbreviations 'var.', 'subsp.', 'f.', etc. which indicate rank at infraspecific level'
<i>Alpine Botany</i>	Yes	None
<i>American Journal of Botany</i>	Yes	None
<i>Anales del Jardín Botánico de Madrid</i>	Yes	'En lo que respecta a los nombres científicos, sólo los de nivel genérico o inferior están en cursiva.'
<i>Annals of Botany</i>	Yes	None
<i>Annals of the Missouri Botanical Garden</i>	Yes	'Only taxon names at the rank of genus and below are italicized.'
<i>Aquatic Botany</i>	Yes	None
<i>Australian Journal of Botany</i>	Yes	None
<i>Australian Systematic Botany</i>	Yes	None
<i>Bangladesh Journal of Botany</i>	Yes	None
<i>Biologia (sect. Botany)</i>	Yes	None
<i>Biologia Plantarum</i>	Yes	None
<i>Biological Journal of the Linnean Society</i>	Yes	'Names of genera and species should be printed in italic or underlined to indicate italic'
<i>Biotechnología Vegetal</i>	Yes	None
<i>Biotropica</i>	Yes	None
<i>BMC Plant Biology</i>	Yes	None
<i>Boletín de la Sociedad Argentina de Botánica</i>	Yes	'The Latin names designating genera, species, subspecies and varieties should be written in italics'
<i>Botanica Lithuanica</i>	Yes	'All names of taxa and syntaxa should be printed in italic type.'
<i>Botanica Marina</i>	Yes	None
<i>Botanica Serbica</i>	Yes	None
<i>Botanical Journal of the Linnean Society</i>	Yes	'Names of genera and species should be printed in italic.'
<i>Botanical Review (The)</i>	Yes	None
<i>Botanical Studies</i>	Yes	None
<i>Botany</i>	Yes	None
<i>Brazilian Journal of Botany</i>	Yes	None
<i>Bryonora</i>	Yes	Unclear (in Czech)
<i>Candollea</i>	Yes	Unclear
<i>Caryologia</i>	Yes	None
<i>Central European Journal of Biology</i> ⁴	Yes ⁵	'All Latin names should be italicized, including species names and common structures.'
<i>Chloris Chilensis</i>	Yes	None. No Instructions for authors.
<i>Collectanea Botanica</i>	Yes	None
<i>Cryptogamie</i>	Yes	None
<i>Economic Botany</i>	Yes	None
<i>Edinburgh Journal of Botany</i>	Yes	'Genus and species names should be italicised'
<i>Ethnobotany Research and Applications</i>	Yes	'any genus/species names italicized'
<i>European Journal of Horticultural Science</i>	Yes	'Species should be written in italics, e.g. <i>Malus domestica</i> Borkh.'
<i>Folia Geobotanica</i>	Yes	'Genus and species names should be in italics.'
<i>Folia Horticulturae</i>	Yes	'Latin names should be in italic.'
<i>Frontiers in Plant Science</i>	Yes	None
<i>Gayana Botanica</i>	Yes	'Use <i>italics</i> for scientific names'
<i>Grana</i>	Yes	'Scientific names of genera and taxa of lower rank must be in <i>italics</i> .'

Table 1. Continued.

Journal	Use of italic in articles ²	Explicit statements on italic, if any, in instructions for authors ³
<i>Guineana</i>	Yes	None
<i>Harvard Papers in Botany</i>	Yes	None
<i>Horticulture Journal (The)</i>	Yes	'The scientific name of the genus, species, and subspecies should be given in italics'
<i>International Journal of Plant Sciences</i>	Yes	None
<i>In Vitro Cellular and Developmental Biology - Plant</i>	Yes	None
<i>Journal of Applied Botany and Food Quality</i>	Yes	'Generally, scientific names of plants and animals should be printed in italics.'
<i>Journal of Experimental Botany (The)</i>	Yes	None
<i>Journal of Integrative Plant Biology</i>	Yes	None
<i>Journal of Japanese Botany (The)</i>	Yes	'Scientific names are indicated with italic font.'
<i>Journal of the Adelaide Botanic Gardens</i>	Yes	' <i>Italicise</i> in the text the following: scientific names'
<i>Journal of the American Society for Horticultural Science</i>	Yes	'Use italics for the following: The scientific name of a genus, species, or subspecies'
<i>Journal of the Botanical Research Institute of Texas</i>	Yes	None
<i>Journal of the Torrey Botanical Society (The)</i>	Yes	'Binomials should be formatted in italics.'
<i>Kew Bulletin</i>	Yes	'Italics are used for the following: plant names at genus level and below'
<i>Lagasalia</i>	Yes	None
<i>Lankesteriana</i>	Yes	'Italicize all scientific names at the generic level or below.'
<i>Lazaroa</i>	Yes	'Texts should be written in normal type letters using cursive only for scientific nomenclature.'
<i>Lichenologist (The)</i>	Yes	None
<i>Lindbergia</i>	Yes	None
<i>Madroño</i>	Yes	None
<i>Maydica</i>	Yes	'Italicize names of organisms only when the species is indicated: <i>Neurospora</i> , but <i>Neurospora crassa</i> or <i>N. crassa</i> .'
<i>Mycologia</i>	Yes	'Italicize only generic, infrageneric (subgenus, section), specific and infraspecific taxa.'
<i>Mycorrhiza</i>	Yes	'Genus and species names should be in italics.'
<i>Nature Plants</i>	Yes	None
<i>New Journal of Botany</i>	Yes	' <i>Italics</i> : use for formally recognised plant associations; in plant names where appropriate, e.g. <i>Carex recta</i> Boott (Cyperaceae); and for Latin phrases and abbreviations (such as <i>c. [circa]</i> , <i>et al.</i> , <i>et seq.</i>), should be in italics.'
<i>New Phytologist</i>	Yes	None
<i>New Zealand Journal of Botany</i>	Yes	'Generic and specific names should be in italics.'
<i>New Zealand Journal of Crop and Horticultural Science</i>	Yes	'...generic and species names should be in italics.'
<i>Nordic Journal of Botany</i>	Yes	'Only scientific plant names ... in Latin should be italicized [sic]'
<i>Novon</i>	Yes	'Only taxon names at the rank of genus and below are italicized.'
<i>Nuytsia</i>	Yes	'Italics are used for all ... standard Latin abbreviations when attached to a formal scientific name'
<i>Pakistan Journal of Botany</i>	Yes	None
<i>Phytokeys</i>	Yes	'Scientific names of taxa of species and genera... should be italicized.'
<i>Phytologia</i>	Yes	None

Table 1. *Continued.*

Journal	Use of italic in articles ²	Explicit statements on italic, if any, in instructions for authors ³
<i>Phytologia Balcanica</i>	Yes	'Scientific plant names, irrespective of rank, should be given in <i>italics</i> .'
<i>Phyton</i>	Yes	None
<i>Phytopathology</i>	Yes	None
<i>Phytotaxa</i>	Yes	'Generic names and all ranks below are italicised.'
<i>Plant Biology</i>	Yes	'Latin names should be underlined or typed in <i>italics</i> .'
<i>Plant Biosystems</i>	Yes	None
<i>Plant Ecology and Evolution</i>	Yes	'Only names at genus level and below are put in italics.'
<i>Plant Science</i>	Yes	None
<i>Plant Systematics and Evolution</i>	Yes	'Generic and infrageneric names should be in italics'
<i>Planta</i>	Yes	'Genus and species names should be in italics.'
<i>Polibotánica</i>	Yes	None
<i>Polish Botanical Journal</i>	Yes	'For Latin names of genera and taxa of lower rank use italics.'
<i>Preslia</i>	Yes	None
<i>Review of Palaeobotany and Palynology</i>	Yes	'Genera and species names are to be written in italics, whereas higher taxonomical units are written in normal font.'
<i>Rhodora</i>	Yes	'Names at the rank of genus and below should be italicized.'
<i>Rodriguésia</i>	Yes	'Latin must appear in italic type-face (incl. genus and species names).'
<i>South African Journal of Botany</i>	Yes	None
<i>Steciana</i>	Yes	Unclear (in Polish).
<i>Studia Botanica Hungarica</i>	Yes	'Names of genera, species, subspecies, varieties and forms should be italicised'
<i>Svensk Botanisk Tidskrift</i>	Yes	Unclear (in Swedish)
<i>Systematic Botany</i>	Yes	None
<i>Systematics and Biodiversity</i>	Yes	None
<i>Taxon</i>	Yes	None
<i>Telopea</i>	Yes	None
<i>Thaiszia Journal of Botany</i>	Yes	Unclear
<i>Tuexenia</i>	Yes	'All Scientific names of plants and plant communities are to be written in italics, e. g. <i>Viola tricolor subsp. alpestris</i> '
<i>Turkish Journal of Botany</i>	Yes	'All scientific names cited in the running text, irrespective of rank, must be italicised.'
<i>Webbia</i>	Yes	None
<i>Willdenowia</i>	Yes	None

¹ Journals were screened from 1255 journals listed at <http://web.archive.org/web/20150214092343/http://www.e-journals.org/botany/>. The comparative table includes only journals that were still actively publishing at the time of writing and are directly related to botany, or more general plant science journals requiring botanical nomenclature and for which a web-site existed with a visible/accessible archive and clear instructions for authors. Journals related to agronomy, agriculture, biotechnology, breeding, ecology, forestry, physiology or soil science were excluded, but selected horticultural journals are included. Also, journals or publishers listed at www.scholarlyoa.com were excluded.

² To determine this criterion at least three full text articles from 2014/2015 were accessed.

³ Even if an example using italic was given in the instructions for authors, the IFA must specifically use the word 'italic(s)'.

⁴ The publisher and journal name (*Open Life Sciences*) changed in January, 2015: <http://www.degruyter.com/view/j/biol>.

⁵ Italic is used in the text but is removed from the reference list by the publisher.

– except for one journal (*Central European Journal of Biology*) which eliminated italic from the reference list, all of the 110 examined journals published articles employing italic for Latin binomial names of plants in the text and reference list;

– the instructions for authors of 53 of the journals (48%) clearly request the use of italic to denote the Latin binomial names of plants.

The *ICN* (McNeill *et al.* 2012) does not explicitly forbid the lack of italic for the Latin botanical names of plants, but it encourages the use of italic. This also appears to be the position held by the majority of expert botanists and plant taxonomists whose opinions I sought. Though fewer than half of the botanical journals examined had an explicit requirement for the use of italic for botanical names in their instructions for authors, the general sense is that italic should be used for such instances uniformly in the text and reference list. The next version of the IAPT should revise the *ICN* to make the use of italic compulsory, simply because, as for other clauses of the *Code*, it is based on a rich tradition and historical use.

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