
Kakovost vode - Zahteve za poimenovanje pri zapisovanju podatkov o biološki raznovrstnosti, taksonomskih preglednicah in ključih

Water quality - Nomenclatural requirements for the recording of biodiversity data, taxonomic checklists and keys

Wasserbeschaffenheit - Anforderungen an die Nomenklatur für Aufzeichnungen über Biodiversitätsdaten, taxonomische Checklisten und Bestimmungsschlüssel

Qualité de l'eau - Exigences nomenclaturales pour les données de relevé de biodiversité, les référentiels taxonomiques et les clés de détermination

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13.060.70	Preiskava bioloških lastnosti vode	Examination of biological properties of water

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EUROPEAN STANDARD

EN 16493

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English Version

Water quality - Nomenclatural requirements for the recording of biodiversity data, taxonomic checklists and keys

Qualité de l'eau - Exigences nomenclaturales pour l'enregistrement des données de biodiversité, les référentiels et les clés taxonomiques

Wasserbeschaffenheit - Anforderungen an die Nomenklatur für Aufzeichnungen über Biodiversitätsdaten, taxonomische Checklisten und Bestimmungsschlüssel

This European Standard was approved by CEN on 18 July 2014.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 16493:2014) has been prepared by Technical Committee CEN/TC 230 "Water analysis", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2015, and conflicting national standards shall be withdrawn at the latest by February 2015.

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Introduction

Assessments of ecological quality of aquatic systems are generally based on the taxonomic composition of the available, most relevant communities like macro-invertebrates, phytobenthos and phytoplankton. Consequently, the recording of taxonomic names is a major activity in hydrobiological studies. Scientific names of animals and plants should be unambiguous and unique to ensure effective communication. To achieve this goal internationally accepted rules have been established in nomenclatural codes, the most important of which is the International Code of Botanical Nomenclature (ICBN [1], from 2012 renamed ICN: International Code of Nomenclature for algae, fungi, and plants [2]) and the International Code of Zoological Nomenclature (ICZN [3]). Various editions of each of these codes exist; a new edition of the Botanical Code is published every 6 years. The unfamiliarity of most technicians and ecologists with these codes is a major cause of the abundance of problems in ecological assessments and data storage. Unambiguous exchange of data between biological databases is often impossible and recorded names are often meaningless due to inaccurate application or the complete disregard for nomenclatural rules.

This European standard, therefore, aims at providing guidance to both technicians and ecologists on the proper writing, use and interpretation of taxonomic names to allow effective scientific communication at all levels.

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1 Scope

This European Standard describes the most relevant rules of the Botanical and Zoological Codes necessary for unequivocal recording of biodiversity in the aquatic environment. Furthermore, guidance is given on how to deal with taxonomic changes in relation to recorded taxonomic names.

NOTE A Code only affects taxonomic changes carried out in the period covered by that particular edition of the Code.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

taxonomy

scientific discipline of identifying and naming species, and arranging them into a classification

2.2

taxon

taxa, pl

taxonomic entity (unit of determination) at any rank

2.3

taxonomic rank

relative position of a taxon in the taxonomic hierarchy

2.4

taxonomic entity

group or unit belonging to a certain taxonomic rank

2.5

epithet

part of the scientific name of a taxon at the level of Genus or lower

2.6

type

nomenclatural type is that element to which the name of a taxon is permanently attached

2.7

basionym

previously published legitimate epithet-bringing name from which a new combination is formed

2.8

homonym

name, spelled exactly like another name, published for a taxon of the same rank based on a different type

2.9

nominate variety

variety automatically generated when other varieties of a given species are described

2.10

homotypic synonym

nomenclatural synonym

objective synonym

<botany, zoology> synonym based on the same type as that of another name in the same rank

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EN 16493:2014 (E)**2.11****heterotypic synonym**

taxonomic synonym

subjective synonym

<botany, zoology> synonym based on a type different from that of the accepted name

2.12**hybrid**

offspring resulting from the interbreeding of two different taxa at the level of Genus or lower

3 Taxonomic names**3.1 General**

Taxonomic names are scientific names of taxonomic entities. The most important entities (ranks) are written from low to high in the taxonomic hierarchy (in Latin, with common name given in brackets):

- Forma (form);
- Varietas (variety);
- Subspecies (subspecies);
- Species (species);
- Genus (genus);
- Familia (family);
- Ordo (order);
- Classis (class);
- Phylum (phylum, sometimes indicated as Divisio or division);
- Regnum (kingdom).

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Taxonomic names shall meet the requirements set by the Codes, concerning correct (Latin or Latinized) spelling, gender, the use of punctuation marks, etc. (compare also Stearn 2004 [4]). In principle, only validly published and legitimate names should be used. Occasionally the only available name for a taxon does not meet the rules of the respective Code, but is still widely used. Where this is the case, the only available taxon should be used.

3.2 Taxon name

A distinction should be made between names at the level of genus and higher, species names and the names of infra-specific taxa. Scientific names of genera and higher taxa (family, order, class, etc.) are single (but occasionally compound) names, written with an initial capital letter. A genus may be subdivided. The name of such a subdivision is a combination of a generic name and an infra-generic name also written with an initial capital letter. A connecting term (subgenus, section, etc.) is used to denote the rank. When it is appropriate to indicate the name of a subdivision of the genus in question, the infra-generic name should be placed in parentheses between the two. For the subdivision of other taxonomic ranks, the respective Codes should be consulted.

The scientific name of a species is a combination of a generic name and a specific epithet (a "binomial"), the latter without an initial capital letter. Scientific names of infra-specific taxa (all taxa below the level of species,

such as subspecies, varieties, etc.) are combinations of three name parts (in zoology a trinomen and in botany a ternary name): a generic name and two epithets.

In infra-specific zoological taxon names the three component names are placed in succession, indicating that a subspecies is being referred to. In infra-specific botanical taxon names, an indication of the taxonomic level should be given between the second and third name by abbreviated linking terms as, e.g. "subsp." for subspecies; "var." for variety; or "f." for forma. Epithets might be of very different origin; an important rule is that the gender of the genus name prescribes that of the epithets.

Names of taxa at the level of genus and lower should be written in italics. Names of higher taxa and terms of taxonomic rank should be written in Roman type. When a species name or different species names belonging to the same genus are repeatedly mentioned in the text of a publication, the genus name should be written in full the first time it is mentioned, but may be abbreviated elsewhere to its initial and followed by a dot.

Abbreviations of the genus name as mentioned above shall not be used when transferring data to databases.

3.3 Author citation

Since taxonomic names might have different interpretations, for publication and data storage, a name shall always (at least at its first record) be accompanied by the citation of the author(s), including initials, and year of publication of its original, valid description, both written in Roman type.

Unfortunately, the rules of correct citation in the prevailing codes are divergent. Unlike the Botanical Code, the Zoological Code requires that the year of publication is separated by a comma from the author's name.

When citing a botanical name including its author, the author's name is often abbreviated. To encourage consistency the Botanical Code recommends the use of Brummitt and Powell (1992) [5], where each author of a botanical name has been assigned a unique abbreviation. Their work is continued in the International Plant Names Index [6]. For absolute clarity, the author's name(s) and year of publication should be written in full. The impact of a typing error in abbreviations is larger than in the full name.

When an author decides to change the classification (and hence the name) of a taxon described previously by another author, the name of the original describing author (or combination of authors) should appear between brackets in the final combination. In botanical taxa this is followed by the name of the revising author(s) and year of publication. Both taxon names are now considered synonyms; the original name-bringing synonym is generally called basionym.

In general, the name (or combination of names) of the author(s) of a new taxon is the same as that of the paper in which the new name was published. In these cases, the original publication can easily be traced. However, sometimes an author has published a new taxon in the work of a different author, in which case the names of both the describing and the publishing author should be given, connected by the word "in".

Due to inadequacies in the original description of a taxon, authors may give their own interpretation of previously published names. To clearly indicate which interpretation is meant, and which is not, a whole series of terms may be used (see Annex A; see also Granzow 2000 [7]).

In the exceptional case, that the same name was given to very different taxa (so-called homonyms), these names can only be distinguished by their publishing authors. When homonyms belong to different regna (plants and animals), and hence fall under different Codes, they are permitted; if not, the later homonym should be given a new name.

EXAMPLE

a) Two interpretations of the same species name (a freshwater diatom):

- 1) *Cymbella helvetica* F.T. Kützing 1844 *sensu stricto*;