

BOTANICAL NOMENCLATURE

species plantarum

Linnaeus 1753

Genera plantarum

ed 5

= Binomial P

started by

Botanical nomenclature in its modern concept is the application of certain scientific names to taxa, singular taxon, in accordance with a group of international rules.

"Solanum nigrum"

Botanical nomenclature started as early as man began to recognize the plants around him. Every group of people, independently of each other, gave certain names to the plants known to them which we call vernacular names. These names could not be used for any scientific purposes for the following reasons:

1. They are not universal.
2. In any language, a few species only possess common or vernacular names.
3. Common names are applied to genera, species or varieties.
4. Two or more unrelated plants may be known by the same name, or a single plant may have two or more names.

This led to the need of a standard scientific plant nomenclature. However, the application of scientific names is not simple, and some confusion may exist in scientific as well as popular naming. There are more scientific names than plants, i.e. for one and the same species there is usually more than one name. Only one of these names is valid and the others are to be considered synonyms. Confusion then started to take place between botanists and the need of a universal code governed with rules was necessary.

The Paris Code of 1867 was made, of which the following rules are the most important:

1. One plant may not have more than one name.
2. No two plants may have the same name.
3. If more than one name has been applied to a plant, the valid one is the earliest, but priority begins with the year 1753 (Linnaeus Species Plantarum).
4. Author's name or names should be cited with each scientific name to avoid any confusion in referring to duplicated names.

How to select the valid name?



Solanum nigrum
Solanum nigrum Miller

Many congresses came after Paris Congress of 1867, the last were held in Leningrad 1975, Sydney 1981 and West Berlin 1987.

The following constitute a simplified exposition of the main principles and articles of the International Code of Botanical Nomenclature.

Principles

1. Botanical nomenclature is independent of Zoological Nomenclature.
2. The application of taxonomic groups is determined by means of nomenclatural types.
3. The naming of taxonomic groups is based on priority of publication.
4. Each taxonomic group can bear only one correct name, the earliest in accordance with the rules.
5. Scientific names of plants are Latin or are treated as Latin, regardless of their derivation.

← genus
↓
specimens
↓
typ
↓
specimens

Ranks of Taxa

A taxon is a taxonomic group or unit. Each plant belongs to a series of taxa of consecutive rank. The basic botanical taxa are: Division, Class, Order, Family, Genus, Species. The list may be increased by the addition of subordinate categories usually with the prefix sub-, e.g. subfamily, subgenus, subspecies.

Names of Taxa

The name of an order is taken from that of its type family and has the ending -ales, e.g. Ranales, Geraniales, etc.

The name of a family is taken by adding the suffix -aceae to the stem of the name of its type genus, e.g. Liliaceae, Malvaceae, Polygonaceae, etc. Some exceptions are: Palmae, Gramineae, Labiatae, Cruciferae, Leguminosae, Umbelliferae, Compositae, Guttiferae. However, new names for these families in accordance to the rules are as follows:

- Palmae = Arecaceae, type: Areca.
- Gramineae = Poaceae, type: Poa.
- Labiatae = Lamiaceae, type: Lamium.
- Cruciferae = Brassicaceae, type: Brassica.
- Leguminosae = Fabaceae, type: Faba.

← These alternative not
syn

Cathar. roses
phylla nodiflora
Lippia

Vinca

Umbelliferae = Apiaceae, type Apium.
Compositae = Asteraceae, type: Aster.
Guttiferae = Clusiaceae, type: Clusia.

Aa

The name of a genus may be taken from any source whatever, and may even be composed in an absolutely arbitrary manner. However, botanists who are naming genera should comply with the following suggestions:

Aa

1. To use Latin terminations.
2. To avoid names not used in Latin.
3. Not to make names by combining words from different languages.
4. Not to make long names or names difficult to pronounce.
5. Not to dedicate genera to persons unconnected with Botany or at least to Natural Sciences.

recomendation

The name of species is a binary combination consisting of the name of the genus followed by a single specific epithet (an epithet is a descriptive word used to characterize the species, e.g. alba, or a noun in the possessive form, e.g. smithii or the adjectival form, e.g. arabica). The specific epithet must be either a single word or less commonly a compound joined by a hyphen, e.g. Trigonella foenum-graecum. It must not consist of two or more separate words.

Solanum nigrum
Trigonella
Binomial

The name of infraspecific taxa: the subspecies, variety and forma are the common categories below the rank of species.

52K(753)

old name
Solanum lycopersicum L.
Lycopersicum esculentum

The Author's Name

The name of at least one author follows the name of a plant. This is to avoid confusion in referring to duplicated names as was previously mentioned. The author's name constitutes a brief reference to the original publication which offers a means of determining the type specimen. When two personal names follow the plant name, the first (in parentheses) refers to the publication of the earliest use of the epithet. The author of this publication supplied the basic name, or basionym, and a reference to the type specimen upon which the currently accepted name combination is based. The author's name following parentheses is used for reference to publication of the accepted combination of names. For example: Retama raetam (Forssk.) Webb & Berth. was originally named Genista raetam Forssk. Thus Genista raetam is the basionym and the type specimen is based upon that originally named plant. The combination Retama raetam

Solanum nigrum L. Sp. Pl.
Synonym
Solanum nigrum Miller

G

is the generally accepted name with the first author (Forssk.) between parentheses and the authors who made the combination after.

Effective Publication of Names

Publication of names is effected only by distribution (sale, exchange or gift) of printed matter. No other kind of communication is accepted as effective. In order to be validly published, a name of a new taxon of recent plants, published on or after 1.1.1935 must be accompanied by a Latin Diagnosis or by a reference to a previously and effectively published Latin diagnosis. Names published before 1935 with diagnoses in modern languages are accepted.

Rejection of Names

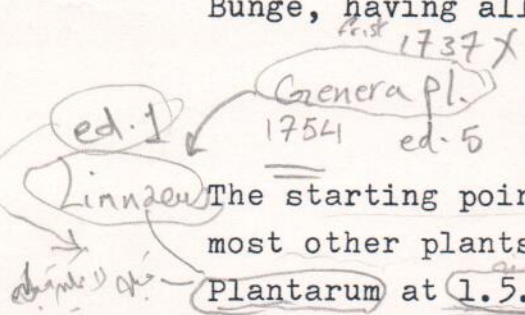
A name or epithet must not be rejected, changed or modified, merely because it is inappropriate or disagreeable; because another is preferable or better known, or because the earlier name has lost its original meaning. As an example: Polycnemum oppositifolium Pall. must not be rejected because the species has leaves only partly opposite and partly alternate, although there is another closely related species P. brachiata (Pall.) Bunge, having all its leaves opposite.

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redit. no Sp. h. v. l. s.
no. 11/1/1935

Priority of Names

The starting point for Spermatophytes and Pteridophytes and most other plants is the first edition of Linnaeus's Species Plantarum at 1.5.1753. For Fungi, certain groups of Algae, most Mosses and Fossil Plants, which were not well understood in the time of Linnaeus, the starting points are with later authors or later dates.

The rule of priority holds in all cases except for certain generic names which are conserved in spite of the rules, these are called Nomina Conservanda. Occasionally these names have priority over well-known names.



leafy
opul
Janus

family comes after Linnaeus
J. 2/SP. 1

seed plant
ferns

الرجوع
against the law

1786
unit to one
no difference
sch



Modification, Division and Union of Groups

When a genus is divided into two or more genera, the generic name must be retained for one of them. When a species (or a taxon of lower rank) is divided into two or more species (or taxon of lower rank), the specific (or other) epithet must be retained for the species (or other taxon) including the type specimen.

Lectotype = select the type
Neo-type =

The Type Method

1. 1. 1958

stop.
holotype = one spec
effective
Valid: Type sp.
isotype = other type

Each species or variety is based upon a type specimen designated by the author at the time of publication. The type is the specimen with which the epithet denoting a species or a taxon of lower rank is associated permanently, and it affords a means of determining exactly which plant the author was naming.

The name of each genus is based upon a type species, and actually upon its type specimen. Each family name is based upon a type genus and indirectly, therefore, upon the type specimen of the type species of the type genus.

1958

11-1958

Unfortunately, the type method is a recent development, and types were not designated by the authors in the earlier botanical literature. However, in most cases a particular specimen was cited which could be considered as the 'type'.

New type
if the original type is destroyed

typical for the sp.
original ju

The nomenclatural type is not necessarily the most typical or representative element of a taxon; it is that element with which the name is permanently associated.

A holotype is the one specimen or other element used by the author or designated by him as the nomenclatural type. As long as a holotype is extant, it automatically fixes the application of the name concerned.

If no holotype was indicated by the author who described a taxon, or when the holotype has been lost or destroyed, a lectotype or neotype as a substitute for it may be designated.

An isotype is any duplicate (part of a single gathering made by a collector at one time) of the holotype; it is always a specimen.

Holotype KTUH
Isotypes K
Isotype Paris
Isotype Copenhagen

Union of Groups

When two or more taxa of the same rank are united, the oldest (earliest) legitimate name or the oldest (earliest) legitimate epithet is retained.

Change of Rank

When a tribe becomes a family, when a subgenus becomes a genus, when a subdivision of a species becomes a species, or when the reverse of these changes takes place, and in general when a rank is changed, the earliest legitimate name or epithet given to the group in its new rank is valid. *Correct*

LABIATAE: NEW CLASSIFICATION

THE LABIATAE includes such economically and medicinally important plants as *Mentha* (mint), *Ocimum* (basil) and *Salvia* (sage). Following from the first international conference to be held on the Labiatae (hosted by Kew in April 1991), a new classification for the family has been produced. Several genera, formally placed in the closely related family Verbenaceae, have been moved into the Labiatae. These include tropical timber trees such as *Tectona* (teak) and horticulturally useful plants like *Clerodendrum*. Details of the changes will appear in the proceedings to the conference, 'Advances in Labiate Science' (edited by Dr. Ray Harley and Tom Reynolds), which will be published shortly by Kew. As well as taxonomic papers, the proceedings will also cover many aspects of the chemistry of the family (including insect antifeedant compounds) and ethnobotanical uses.

→ mit Verbenaceae

العائلة النباتية = (اللباتية)

In order to consolidate research links generated during the conference, a newsletter is to be launched to provide a forum for discussion for scientists of all disciplines. A directory of researchers and projects is also being compiled.

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