

Topic: Botanical Nomenclature

B.Sc. Botany Sub. II

Group: A

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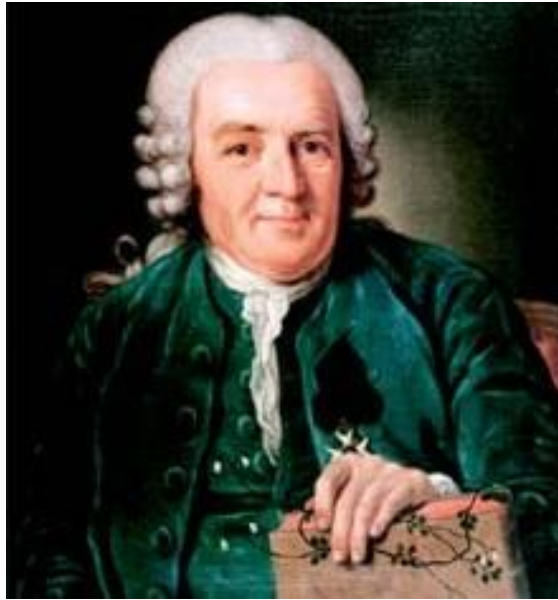
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Botanical nomenclature

The system currently used in applying names to plants, known as nomenclature, had its beginning with Carolus Linnaeus. Species names have three components: (1) the genus name; (2) the specific epithet; and (3) the authority or individual(s) responsible for the name. Components 1 and 2 are either italicized or underlined. An example is *Quercus alba* L. *Quercus* is the genus name for the group of plants commonly known as oaks. The specific epithet is *alba*, Latin for *white*, and is descriptive of the bark and wood of the plant commonly known as white oak. The authority is L., an abbreviation for Linnaeus, who first coined a formal name for this plant.

Since the time of Linnaeus, the system of nomenclature has become more formalized and codified. The International Code of Botanical Nomenclature (ICBN) has been established to provide a uniform set of rules to be followed in applying names to plants. The rules contained in the ICBN are revised during the International Botanical Congresses, which are held every six years.



Carolus Linneaus

The core of the ICBN is composed of six principles-

1. "Botanical nomenclature is **independent** of zoological nomenclature." The rules of the ICBN do not apply to animals and bacteria. Therefore botanists do not have to be concerned with the names or rules associated with animals and bacteria.
2. "The application of names of taxonomic groups is determined by means of nomenclatural **types**." Each plant has a physical (type) specimen associated with it.

A plant taxonomist doing research has to study type specimens in order to ensure that names associated with plants are correct. The most important specimen is the holotype. The holotype designated by the researcher is the specimen to which a name is permanently attached. There can be only one holotype. Isotypes are duplicates of the holotypes, i.e., specimens collected by the same person at the same time and location as the holotype. The holotype is deposited in a herbarium of the author's choosing and isotypes are usually distributed to major botanical institutions, such as the New York Botanical Garden, Missouri Botanical Garden, and the Smithsonian Institution.

This insures that there will be additional specimens available in case the holotype is lost or destroyed. Unfortunately, the rules that require the designation of holotypes and isotypes for species descriptions are relatively recent. Therefore, there are many names that do not have holotypes or isotypes associated with them. When a holotype is not available, either due to its lack of designation or its destruction, other kinds of types must be designated. Syntypes are specimens cited by the author when a holotype was not designated

or has been lost.

A lectotype is a specimen designated by a later investigator when no holotype is available. It is selected from the isotypes or syntypes. If all the material that can be identified as being studied by the original author (holotypes, isotypes, syntypes) has been destroyed, a neotype is designated as the nomenclatural type.

3. "The nomenclature of a taxonomic group is based upon the **priority of publication.**" The rule of priority means that the earliest applicable, properly published name is the correct one. Priority extends back to 1 May 1753 for most plants, the publication date for Linnaeus' *Species Plantarum*.

4. "Each taxonomic group with a particular circumscription, position, and rank can bear **only one correct name**, the earliest that is in accordance with the rules, except in specified cases." The names that can be considered as the correct names are those that are published effectively and validly. Effective publications requires "distribution of printed matter (through sale, exchange, or gift) to the general public or at least to botanical institutions with libraries

accessible to botanists generally." Valid publication requires effective publication of a name in the form specified by the ICBN.

A description and Latin diagnosis (short description) of the new taxon are required. It often occurs that there is more than one effectively and validly published name for a taxon. In that case, the oldest applicable name is the correct name and the other, more recent names are synonyms. If the same name has been used for two different taxa, the taxon first named is the one correctly associated with the name. The later use of the name is illegitimate and the name is referred to as a later homonym. All of the names associated with a particular taxon are usually included in formal treatments.

5. "Scientific names of taxonomic groups are treated as **Latin** regardless of their derivation."

The ICBN provides instructions on the use of proper Latin grammar for taxonomic names.

6. "The rules of nomenclature are **retroactive** unless expressly limited." This means that the rules apply to work done before the acceptance of these rules.