

Herbarium:

The word herbarium (plural herbaria) was however, first applied by Pitton de Tournefort, in the book “**Elemens**”.

A **herbarium** (plural: **herbaria**) is a collection of preserved plant specimens and associated data used for scientific study.

The specimens in a herbarium are often used as reference material in describing plant [taxa](#); some specimens may be types.

Functions of Herbarium:

Important functions of herbaria are as follows:

- i. A herbarium serves as an invaluable conservatory of plant material of flora, Collected from different parts of the world. Thus, it is the basic material for study of flora and vegetation of different places or regions.
- ii. The specimens in the herbarium carry valuable data on their labels. These include data on habitat, habit, local names, colour of flowers or other characters of the plant, native uses of the plant, abundance or frequency of the species, associated plants, etc.
- iii. The herbarium serves as an aid in teaching botany to students in institutions where a herbarium is present, as it helps a teacher to show his students a plant specimen which may not be available fresh at the time of giving the course.
- iv. Preserved specimens of herbaria are used in almost all types of taxonomic research.
- v. The specimens in the herbaria are very often used as a source of material for anatomical, palynological and chemo-taxonomical studies.
- vi. The herbaria provide important data on actual places of occurrence, time of flowering and fruiting, associated species and other data for researches in embryology, cytology and ecology.
- vii. The herbaria have proved to be very valuable source of information for ethno-botanical researches as many native uses of plants are recorded on the herbarium sheets.

Some Herbarium:

- Royal Botanic Gardens (K) (Kew, England, UK)
- Acharya Jagadish Chandra Bose Indian Botanic Garden (Central National Herbarium (CAL), Howrah, India)
- New York Botanical Garden (NY) (Bronx, New York, USA)

❖ **Virtual Herbarium:**

In botany, when a herbarium is prepared in a digitized form is known as Virtual Herbarium. That is, it concerns with the digital images of preserved plants or plant parts. Virtual herbaria often are established to enhance the availability of specimens to a wider audience.

However, sometimes digital herbaria are not suitable for internet access, because of the high resolution of scans and resulting large file sizes (several hundred megabytes per file). Additional information about each specimen, such as the location, the collector, and the botanical name are attached to every specimen. Frequently, further details such as related species and growth requirements are mentioned.

❖ **E-flora:**

E-Flora is a digitalized form of GIS-based biogeographic atlas of the vascular plants, bryophytes, fungi and lichens. It compiles scientific information on wild species but also incorporates volunteered geographic information (VGI) through a significant citizen science component--a citizen-contributed photo gallery of species. In order to ensure that citizen-contributed data has high validity and accuracy. In e-flora all photo contributions are vetted for identification accuracy by botanical experts.

❖ **Monograph:**

Monograph is a comprehensive systematic study of a particular taxonomic group. Always taxon-based, not geography-based.

Monographs try to review all the facts about a taxonomic group.

Monographs include:

Taxonomic history, Morphology, Chromosome numbers, Pollination, Reproductive biology, Species concepts, Phylogeny, Hybridization, Generic relationships, Taxonomy, Generic descriptions, Synonymy, Keys to species, Species descriptions (includes morphology, phenology, ethnobotany, distribution, specimens cited, common names, etymology, etc.).

❖ **Flora:**

An account of the plants occurring in a particular area, including keys, descriptions, and illustrations.

Floras include: Keys, Descriptions, Some synonymy, Phenology, Distribution, Checklist. A checklist is a list of species occurring in a particular area, with brief information and cited vouchers.

❖ **Single-access key**

The classical key in biology is a single-access key (also called a “branching key”). In this key the sequence and structure of identification steps is fixed by the author of the key. At each point in the decision process, multiple alternatives are offered, each leading to a result or a further choice. The alternatives are commonly called "leads", the set of leads at a given point a "couplet". If the entire key consists of exactly two choices at each branching point, the key is called dichotomous, otherwise it is described as polytomous. The majority of single-access keys are dichotomous.

❖ **Multi-access keys**

A multi-access key allows the user to adapt the key to the particular organism that is being identified and to the circumstances of identification (e.g. field or laboratory). This is very useful as those characters which are necessary for identification are often not all obtainable at a given time for every taxon in a key (especially in keys for identifying plants).