HERBARIA

A herbarium is defined as a collection of plants that usually have been dried, pressed, preserved on sheets and arranged in accordance with any accepted system of classification for future reference and study.

Luca Ghini started the art of herbarium making. He and his students pressed and sewed plant specimens on sheets of paper and then bound them in book volumes. Linnaeus mounted plants on single sheets and stored them horizontally, instead of making books, this practice is followed even today.

THE IMPORTANCE OF HERBARIA

Herbaria, dried pressed plant specimens and their associated collections data and library materials, are remarkable and irreplaceable sources of information about plants and the world they inhabit. They provide the comparative material that is essential for studies in taxonomy, systematics, ecology, anatomy, morphology, conservation biology, biodiversity, ethnobotany, and paleobiology, as well as being used for teaching.

The major functions of Herbaria are:

Repository of plant specimens: Primary role of the herbarium is to store dried plant specimens, safeguard these against loss and destruction, and make them available for study. It serves as a repository of new collections.

Secure repository of type specimens: Type specimens are the principle proof of the existence of a species or an infraspecific taxon. These are kept in safe custody in herbaria often in rooms with restricted access.

Compilation of Floras, Manuals and Monographs: Herbaria specimens document the concepts of the specialists who have studied the specimens in the past; provide locality data; provide data for floristic studies; provide data for revisions and monographs.

Training in herbarium methods: Many herbaria provide infrastructure for training graduates and undergraduates in herbarium practices, organizing field trips and even expeditions to remote areas.

Identification of specimens: Herbaria have wide ranging collection of specimens. These can be used by researchers for comparison with and identification of their own specimens. Herbaria can be used to discover or confirm the identity of a plant or determine that it is new to science, verify plant Latin names.

Information on geographical distribution: Herbaria are repositories of collections from different
parts of the world. They also facilitate and promote the exchange of new material among 
institutions, provide information about past expeditions and collections of explorers. Study or 
herbaria materials thus can provide information regarding past and present distribution of a 
taxon.

Preservation of voucher specimens: Voucher specimens preserved in various herbaria provide 
an index of specimens on which any specialized study (cytological, phytochemical, 
ultrastructural etc.) has been carried out. In case of contradictory report, the voucher 
specimens can be re-examined.

Important herbaria of the World and of India. Learn at least two names, their location and year 
of establishment from Hait Vol II

VIRTUAL HERBARIA

A virtual herbarium is a herbarium in digitized form. It is a collection of digital images of 
preserved of plants and plant parts.

Clear photographs of a plant are very useful in plant identification. However, photographs often 
misrepresent scale, may not display all of a plant’s identifying features, moreover live plants 
may not be available for photography. Herbarium specimens are two-dimensional material, 
which makes creating digital images relatively easy. Virtual Herbaria are good resources not 
just for botanists, but for teachers and students as well. They can serve as virtual museums of 
plants and as libraries of information about plants. Moreover digital herbaria have database 
formats and can provide facilities to store and retrieve massive amounts of data. Herbarium 
databases are also used for preparing labels for new accessions, determination slips, preparing 
summary of collections for internet publications and are useful for research collaborations and 
research projects like floras and monographs. Herbarium collections are closely guarded, with 
access limited to only researchers in the field because of their fragility and value. Digital 
herbaria are helpful for loan management authors can review virtual specimens before or even 
instead of requesting for actual loans. This is a major reason why collections are being 
digitized—so the sheets and the information on them can be accessed without damage to the 
originals. However this is a massive undertaking and data on labels are more often digitized 
than images of specimens.

Some examples of virtual herbaria are:

Linnaean Herbarium at Swedish Museum of Natural History

Kew Herbarium Catalogue is the digital version of the Kew Herbarium which has more than 7 
million specimens.
**RPJC Digital Herbarium** – Regional Plants Resource Centre.

**Digital Herbarium of Angiospermic Plants of Western Ghat Regions of Maharashtra** covers prominent trees of 10 districts of Maharashtra located in Western Ghats. It has currently images of 350 parts of plants and their description.

**eFlora**

Flora is the primary data source about the plants of an area and contains keys and descriptions, also information on the distribution and ecology of these plants. It is a basic tool for identification of plants. Traditional floras may not be easy to use, there have been attempts to modernize them using multi-access keys, computer aided identification, multimedia formats etc. Digital floras of both online and offline formats provide the research tool for botanists with the opportunities to work on floristics treatments dynamically, and enable users to browse and search these treatments. The centralized, relational database structure of digital floras presents opportunities to create dynamic links to online taxonomic databases. A potentially unlimited number of images and other information can be linked to each taxon name. The standard word based keys using descriptive couplets are enhanced with colour images. The taxon in one flora are automatically linked to the other treatments and objects in other flora. Digital flora is one of the resources aimed to provide comprehensive information on our common and wild plant species for use in education, conservation and research.

E-flora (Electronic flora) is one of the computational methods, where the available data from phytodiversity survey is stored and made available to users at ease. It is a computer-based program including digital images and searchable descriptions based floral information in the organized format. Through, a web interface to the data, users can also browse floristic data by family, genus, species, common name and related information. With the use of web forms, editors and authors with permissions can correct and update the data. Most of the digital floras contain interactive keys for identification of plants. Interactive keys provide multi-access entry points, thereby eliminating the requirement to answer questions to key couplets along a pre-defined path. Multi-access entry points allow the user to choose any of the plant characters available on hand to identify the specimen thus making identification of unknown plants much easier.

Examples:

Flora Europaean (rbg-web2.rbge.org.uk)

Catalogue of Vascular Plants of Madagascar (www.tropicos.org)