



Herbarium

Dr. Vinod D. Devarkar

Department of Botany

S C S College, Omerga

HERBARIUM

TECHNIQUES & FUNCTIONS



HERBARIUM

- A collection of dried pressed plant material arranged according to a classification system and available for study or reference is known as herbarium (plural herbaria).
- A name first applied by Linnaeus
- -These specimens may be whole plants or plant parts and these will usually be in a dried form, mounted on a sheet.



HERBARIUM

- ⑩ It is based on a scientific collection, in continuous expansion of plant specimens which are carefully dried, labelled and conveniently treated for its permanent preservation.
- ⑩ Its research work focuses on the **collection of plant specimens** which are catalogued and stored according to an orderly and systematic botanical classification.
- ⑩ They are also dried, preserved, identified, labelled and computerized.





THE PROJECT AIM

- To study on various plants
- To contribute to scientific studies
- To preserve the catalogues of seeds and dried herbarium plants
- To maintain plants on the edge of extinctions
- To inform the students and public about these plants
- To inform them the effect of global warming on ecological system



HOW TO MAKE HERBARIUM?

1. Collecting the plants
2. Pressing and Drying
3. Mounting



COLLECTING THE PLANTS

- Choose **good representatives of the plants species**
- Be careful that these plants must include root, stem, flower and fruit
- Take notes and record by taking photos in the field at the time of collection,
- Note these factors below:
“**Date, collection number, location, habitat, habit, special characteristics**”



COLLECTING THE PLANTS

- **Collect specimens in dry conditions**, a good time being mid-morning, after the dew has dried but before the heat of the day causes plants to wilt.
- If specimens are at all wet or you need to wash soil off the roots then dry them carefully before pressing.
- Use a pencil for these notes rather than a pen because any damp/wetness can cause ink to smudge and be unreadable

MATERIAL FOR PLANT COLLECTION

- Plant press
- Plastic bags or nylon bag
- Garden secateurs & trowel
- Small note book & pencil
- Jeweller's tags (*optional*)
- Camera (*optional*)
- GPS & altimeter (*optional*)



PRESSING AND DRYING





MATERIALS FOR PRESSING

- Plant press
- Newspaper
- Greaseproof or flimsy paper for delicate structures
- Blotting paper
- Corrugated card

PRESSING AND DRYING

- Plants must be clean before pressing
- They must also be put in a plastic bag or nylon bag, if it is hot they must be watered to be fresh
- Place your plant between folded-out sheets of newspaper, although flimsy or greaseproof paper is preferable for delicate material
- Arrange the plant carefully, trying to avoid overlapping.
- When you have finished arranging the specimens within the newspaper sheets (or whatever combination of papers you have chosen), you then need to intersperse them between **corrugated card sheets** to aid ventilation.
- Finally place everything in your press and tighten well.



PRESSING AND DRYING



- ⑩ For the first two to four days you will need to check daily and change the blotting paper and/or other surrounding papers, and retighten the press, but as the plants dry these checks can become less frequent.
- ⑩ Warmth may be used to improve the drying rate, An oven set at 50°C may be used but the heat must be no higher, otherwise the specimen will become very brittle and damaged.

MOUNTING

- **Cartridge paper** for mounting your specimens should preferably be **A3 size** and **acid-free**; the weight should be a **minimum 180g/m²**, and ideally with a **rough textured surface**
- **Using only one side of your thick A3 cartridge paper**, arrange your specimens carefully, making sure that they represent the way the plant grows naturally





MOUNTING AND STICHING

- The standard size of a herbarium sheet is **29 x42 cm**. They are usually made of durable card sheets. The dried specimens are glued on herbarium sheets and the stem/branches can be stitched/glued with cellophane tapes.
- It is advisable to **mount one specimen on each herbarium sheet**. Dissected & loose parts, such as flowers, fruits & seeds, are kept in paper packets & pasted to the mounted sheet.



HERBARIUM SHEET LABEL

Scientific name : Ranunculaceae,

Ranunculus ficaria (family, genus and species)

Vernacular name(s): Lesser Celandine, Pilewort

Collector's name and specimen number: Lawrence 1

Date of collection: 20th March 2003

Locality: Orleans House Gardens, Twickenham, England

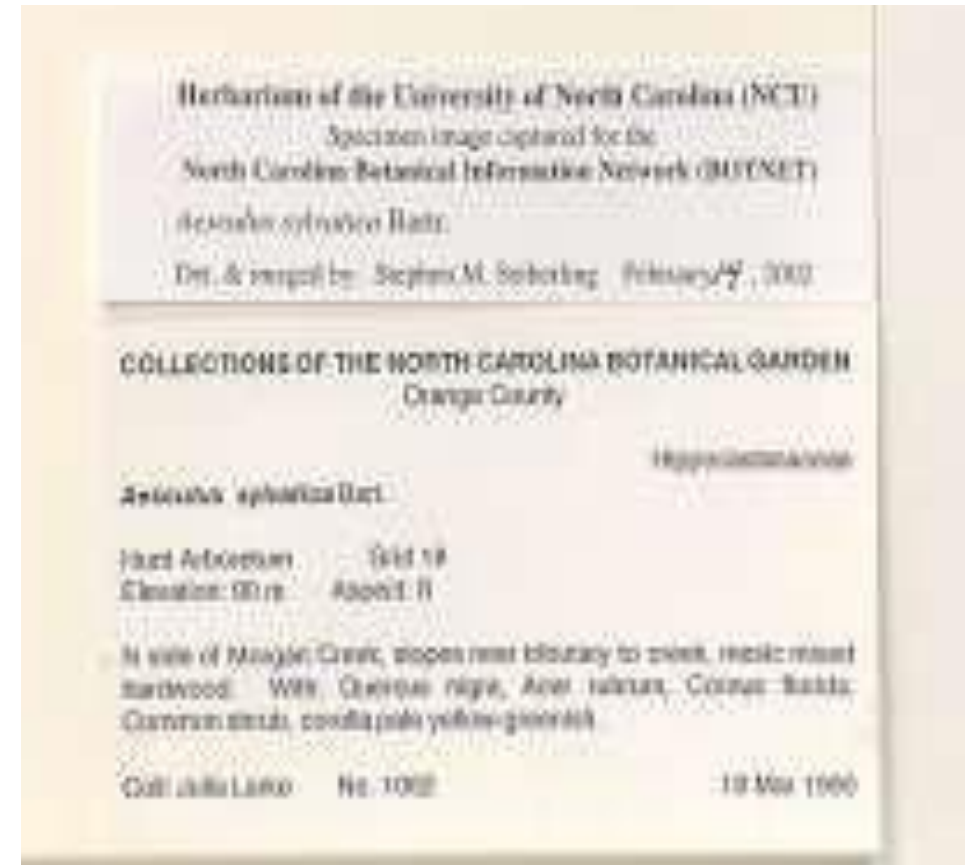
Habitat: damp, clay soil, 20 yards from riverbank, growing in dappled shade on the edge of deciduous woodland; nearby plant is Dock (*Rumex obtusifolius*).

Habit: perennial herb, up to 20 cm tall, with stems creeping and rooting

Characteristics: leaves hairless glossy green, flowers bright glossy yellow, turning white with age

LABELLING

- Name of organization with which specimen plant originated.
- Name of the family
- Botanical name of the plant
- Local name
- Locality of collection
- Date of collection
- Habitat of the plant
- Field notes & collection no.
- Name of collector





FILLING AND STORING

- Plant specimens, which have been properly mounted & identified, are filled systematically in special wooden / steel cabinets.
- The herbarium sheets loaded with specimens are filed inside folders which are of various colour schemes indicating species, genus, family, geographical area, etc.
- Plants are arranged & stored following Bentham & Hooker's / Engler & Prantl's system of classification.
- A periodical fumigation with chemicals & re-poisoning them by brushing with solution of HgCl_2 & using insect repellents would save the herbarium from damage & check the loss of valuable plants.

HERBARIUM ALMIRAH





ROLE OF HERBARIUM

- To act as a repository of dried plant specimens, safeguard them against loss & destruction by fungi, insects, etc. & make them available for study.
- Several herbaria of repute, keep Type Specimens-the principal proof of the existence of a species, in safe custody, often in rooms with restricted access.
- As original documents upon which knowledge of taxonomic characters rests, herbarium specimens greatly help in developing floras, manuals & monographs.
- Those engaged in taxonomic studies, can personally identify their engaged collection by comparison with already identified herbarium specimens.
- Voucher specimens preserved in various herbaria, provide an index of specimens on which studies on chromosomes, phytochemistry, ultrastructure micro-morphology, etc. have been undertaken.
- Most herbaria have specimens collected from different parts of the world & thus their scrutiny can provide information on the geographical distribution of taxa.