

SOURCES OF ETHNOBOTANICAL DATA

- Sources of information depicting past and present relationship of plants and human beings are the major tools of study of ETHNOBOTANY. The techniques employed for data collection were semi structured interviews, group discussion, guided field work and observation with participants. Schultes (1962) and Jain (1964) mentioned the sources are:
a. Archaeological; b. Literary; c. Herbarium; and d. Field resources.
 - **Some other methods suggested for the collection of Ethnobotanical Data are:**
 - a. Anthropological method,
 - b. Botanical method,
 - c. Ecological method,
 - d. Ethnopharmacological method,
 - e. Linguistic method.
 - For the ethnobotanical studies the sculptures on temples and also on other religious monuments are good source of information. The arts and paintings depict number of plant species known during those times.
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- Sources of information depicting past and present relationship of plants and human beings are the major tools of study of Ethnobotany.
- The different sources may vary and depending upon the interests, training and objective of investigator.

a. FOSSILS

Different kind of plant remains of the past seen to be the only major tool for the collection, identification and documentation of plants used by people of pre- and pro-historic periods. Such type of specialized studies are generally known as *PALEOETHNOBOTANICAL* studies.

TYPES OF PLANT FOSSILS

- Coprolites:

These are fossilized droppings of animals provide another tool: they are analyzed what feed were being consumed by animals in ancient times.

Birbal Sahni Institute Paleobotany, Lucknow is one of the best institute for such studies in India.

- Petrifications or Mineralized plants:

The original cell of the plant tissue is retained by means of some minerals like, silica etc. These minerals have infiltrated the tissues. Sometimes the material of original plant may be preserved e.g. Coal.

- Cast on incrustation:

In this type of plant fossil, the form of plant is preserved as a cast.

- Compression: In this type of plant fossil, the external form of plant modifies and leaves impressions on the sediment which over lie it.

- Compaction/ Mummified plants: The plant or their parts get compressed by vertical pressure against on another.

Mostly plant rudiments found in peat and coal as compaction. Coal or coal balls are the important sources of plant fossils.

❖ **Impressions:** In this type of fossils the roots, stems, leaves, fruits and seeds are preserved as impression in such a way that they seem to be the actual dried specimens laid on stone.

❖ **Amber:** Coniferous plants exudates resinous substance. Plant fragments get preserved in it and become fossilized .

b. ARCHAEOLOGICAL RESOURCES

- India has a rich resource of archaeological sculptures. Writings on the stones or on the stupas of different periods are also available.
- These sculptures and writings are sometimes having depictions of plants and provide indication of their uses in ancient times. An attempt has been made by Sitholey (1976) to describe some plants from archeological material of gateways of the Great Stupa of Sanchi (100 BC) and railing of Bharut stupa (200 B. C.).
- Archeological Survey of India can be the source for procuring such materials.
- These studies are helpful in identification and documentation of plants in past.

c. OBSOLETE LITERATURE AND TRAVELOGUES

- ❖ A number of published or handwritten documents lie in the holdings of libraries, museums and individuals and actually remains neglected for a long time. Such literature is sometimes called as **GREY LITERATURE**.
- ❖ Sometimes information in such documents is very vague. Mostly local names are mentioned, spellings are wrong and often lack phonetic indications.
- ❖ They provide valuable information as to how some plant species influenced the social and cultural lifestyle of tribes. If proper studies are initiated on ancient literature, vast data on plants and their different uses can be known.
- ❖ Travellers mentioned local uses of plants in their writings or travel accounts.
- ❖ Although travelogues don't use exhaustive list of plants, but they use sometimes names of dominant plants, medicinal plants species and other economically important species.

d. SANSKRIT LITERATURES

- Sanskrit literature can be said to present tradition of Indian culture through ages.
- Preliminary studies on some floras on Sanskrit literature have recently been made by some workers. They have listed more than 1000 plant names are mentioned in Ramayana, Rigveda, Mahabharata and various Puranas and Sastras etc.
- But the identification of various species is not easy because sometimes only names are given without mentioning even a single character.

e. SCULPTURES ON TEMPLES

- For the ethnobotanical studies the sculptures on temples and also on other religious monuments are good source of information. The arts and paintings depict number of plant species known during those times.
- Shakti Gupta (1986) of Delhi University conducted an extensive survey on the sculptures on temples of India and unfolded many interesting details on the relationship between the tribal and plants shown in sculptures.

f. ETHNOGRAPHIES

- Some ethnographers have extensively dealt with the plants used by tribals for various purposes and their ethnographies are useful for ethnobotanical studies.
- Advantage of ethnographies is that such works are written by qualified anthropologists and the relationship is usually dealt in an exhaustive and scientific manners.

g. GAZETTEERS

- ❖ Important plants of a particular region are usually highlighted sometimes comparison of the data in very old and the recent gazetteers provides interesting information on change in uses and occurrence of a plant.

h. HERBARIUM AND MUSEUM

- Herbarium is collection or preservation of pressed, labeled and dried plant specimens arranged specimens by a classification scheme.
- Museum is preservation of dead and decaying plant and animals.
- The plant collectors notes on labels of herbarium sheets and museum specimens are understood to be one of the best sources for collection of valuable ethnobotanical information.
- Both these sources contain plant collections from various parts of the world. These collections provide useful data on the place (locality) of collection along with date, Flowering & Fruiting time.
- This information has more value than from other sources. It is the first hand information, the data concerning locality, people and time are also noted along collectors notes on the herbarium sheets or museum specimens and the botanical identity of the plant is fixed.
- The biggest and oldest herbarium of India is Central National Herbarium of Botanical Survey of India.

i. REPORTS OF FOREST DEPARTMENTS

- Various units of forest departments usually prepare annual reports and working plants for the extraction of major and minor forest produce.
- Through these reports a number of useful information can be gathered by scrutiny of old and new reports.
- These reports contains botanical or well known commercial names which help much in identification of plant species.

j. FIELD STUDIES

- By field visits and field studies valuable data can be generated from tribal areas in ethnobotany.
- Through field visits one can observe the way they use various plants and plant products for different purposes and obtained data can be used for producing food, medicine, textiles etc.

Field observation comprises 2 stages:

1. Involvement of tribals who are well acquainted with use of that plant wealth of that area..
2. Collection of useful plants of a specific area that showing peculiar properties.

- ✓ **Market survey is a good and rich source ethnobotanical data, since they are sites at which medicinal, ornamental, edible and other useful resources are sold.**
- ✓ **One can use the information from a market survey to describe the economic value of useful plants, and recommend those which need prior conservation and mass production efforts.**

Ecological methods are **applied** in studying the **overall interaction of human beings with the natural environment.**

Linguistic methods

- **Interviews and questionnaires** should be prepared in **local languages.**
- Phonetician **analyze the proportion of each distinctive sound** unit, referred to as a **phoneme.**
- **Phonology** is the **study of the sounds** and the set of rules that determine **how words and sentences are pronounced.**

DATA COLLECTION

- EB data collection **depends** on the **concrete field situation; practical constraints, such as available time, financial and/or human resources willingness of informants** to collaborate,.....
- Scientist has to **decide before** start of fieldwork how data should be collected.

- **Quantitative analysis demands** that data are collected as **repeatable** and **systematic** as possible (e.g. minimum number of informants or household needed).
- Which plant sampling method to chose?

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