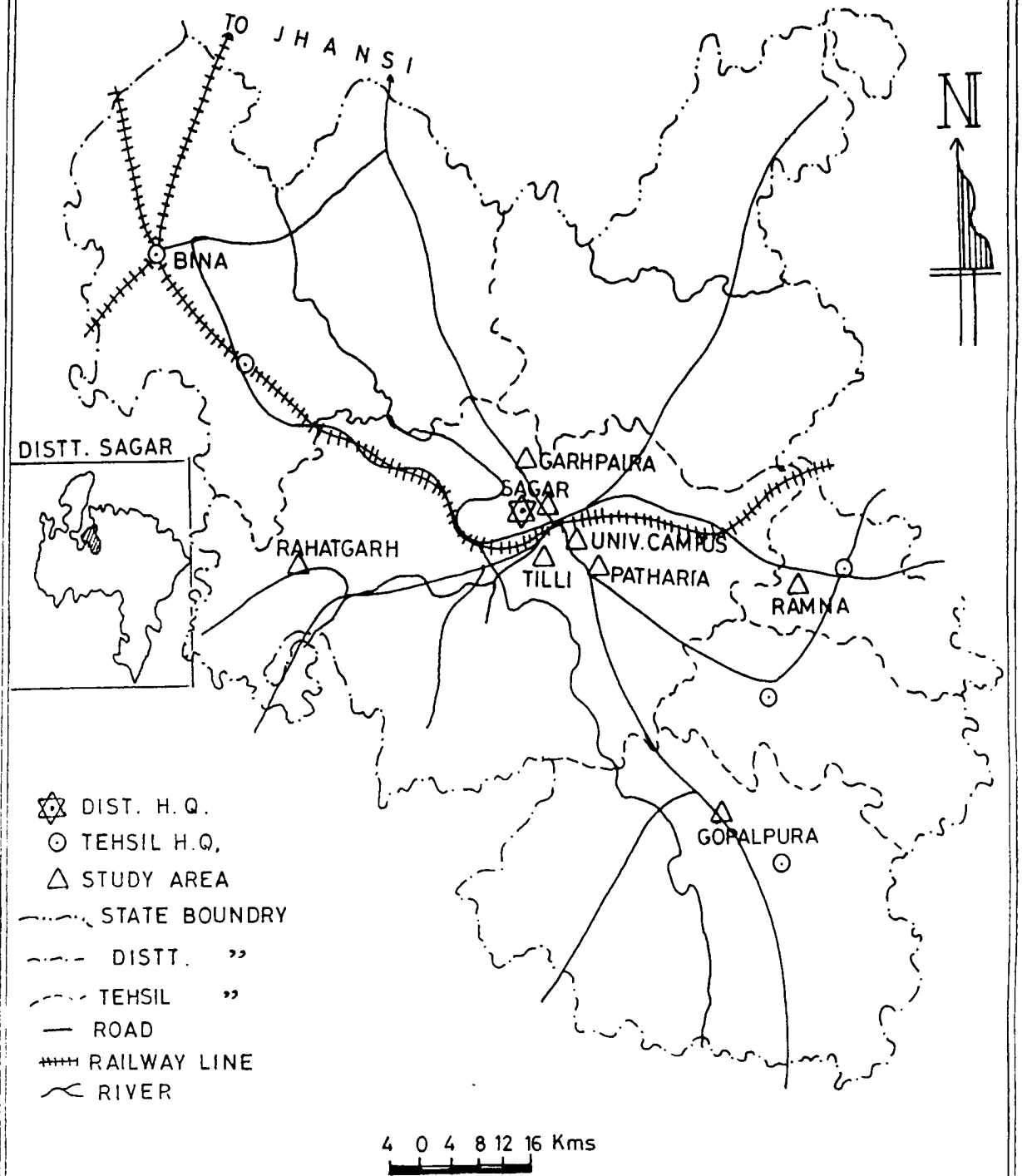


CHAPTER-3

MATERIAL AND METHODS

MAP OF STUDY SITES FOR ETHNOBOTANICAL SURVEY.



M A P NO. 2.

1. PROFORMA FOR TAXONOMICAL AND ETHNOBOTANICAL STUDIES

Date :

Place :

Site :

Physical feature of place :

Local name of plant :

Botanical name of plant :

Family of plant :

Nature of plant :

Leafing period :

Flowering period :

Flower colour :

Fruiting period :

Fruit type :

Plant height :

Seed :

Informer's name : Age :

Tribe : Sex :

A. Native medicinal use :

B. Mode of application :

C. Remark :

MATERIAL AND METHODS

The field work forms an important tool in these studies. The ethnobotanical studies were carried out on different selected sites around Sagar from 1995 to 1997. Sagar district is situated in the central part of Madhya Pradesh, in the Bundelkhand region. During ethnobotanical surveys, regular and frequent field trips of selected sites Fig.(1) were made in all seasons of the year. The standard methods of field study have been followed as suggested by various workers (Jones, 1941; Faulk, 1958; Schulters, 1962; Alkorn, 1985; Jain, 1987 and Rao, 1989). The source of information is the main important point of this study. Locating proper knowledgeable local informant is not easy task.

In most of the tribal and rural areas normally, there is one or two elders, who are familiar with medicinal properties of plants. These 'Medicinemen' are called as 'Patel', 'Vaidya' and some time 'Kaviraj' or by various other names in different tribal areas. e.g. 'Gaita' among the Gonds of Central India. Valuable information about the medicinal uses of plants or plant parts for the treatment of various ailments were recorded by taking interviews from rural or tribal communities, vaidyas, ojhas, cowherds, herbalists and old experienced villagers of the area under study or by consulting the literature, important and valuable data have been collected. M.P. is one of the state of India, where rural and tribal communities forms a large part of population and these people have been found to possess a good deal of information about the traditional medicines/remedies and their prescriptions.

In the present work of ethnobotanical studies following aspects are taken into consideration :

1. Collection of plants
2. Collection of information
3. Herbaria
4. Presentation of data

Methods of procuring information :

The present work is mainly based on extensive and intensive field surveys of different selected localities, especially the remote or interior tribal villages.

There are two main tools or basis for ethnobotanical studies : (1) By Direct approach (2) By Indirect approach

(1) By direct approach, intensive field work is very necessary, which is carried out by the direct contact with the tribals, for the accumulation of ethnobotanical knowledge about the plants.

By this approach, the ethnobotanical information about the plants were collected in two ways :

- (i) The experienced knowledgeable informant or old aged rural or tribal person (e.g. medicineman) as a guide was taken to the selected sites of study and various uses of plant as given by them were noted down in the relevant data, in the field note-book along with the collection of plant for voucher specimen.
- (ii) When at times informant or old experienced villager was not able to go in the field, in that condition, plant as a specimen was collected from selected sites and

brought back to the village, to show them to informant, who was not able to go to the selected sites and important information were recorded. After careful observations on relevant questions, all the collected data about ethnomedicinal study have been presented in the tabular form. The field work and the periodic collection of plants was conducted by following method as suggested by Schulter (1962) and Jain (1988) :

1. During the field study and collection of plants the following necessary equipments were used i.e. field note-book, pencil, thread, digger, knief, blotting sheets, field paper press, vasculum and camera etc.
2. To collect complete specimen, including flowering and fruiting stages frequent seasonal trips to the selected sites were made.
3. Each specimen was identified in three stages, first in field, second in laboratory in unmounted stage and third after proper herbarium preparation.
4. Each specimen was collected from well matured plants.
5. Proper field notes for each species were recorded by giving botanical name, local name, family, locality, date, site of collection and medicinal uses against different ailments.

Freshly collected, chopped raw material of plant has high moisture content, therefore, it has been subjected to drying. Drying prevents the enzymatic action, micro-organisms infestation and chemical changes. It fixes the constituent and facilitates grinding and milling as well as converting the raw material or drug in to a more convenient form for handling (Malaiya, M. 1997).

After collection of plant material, all information about the plant was recorded in the proforma to avoid confusion (Proforma-1). The information was recorded in the proforma in the following sequence i.e. botanical name, local name, family, collection site, plant parts used, diseases or medicinal uses etc. or various other related information about plants, given by villagers or tribal people of the studied localities. All this help greatly in assessing the authenticity of information.

The plant species were identified and systematically arranged in herbarium as per Benthum and Hooker's system of classification after making extensive surveys.

The various therapeutic terms and ailments with their meanings and systems were compiled from the work of Nadkarni (1954), Dorlands and Hanks (1989) and Jain (1991).

Various factors came in to light during ethnobotanical surveys such as :

1. For ethnobotanical information of plants intensive field work in tribal areas is necessary and important.
2. Tribals by nature tend to be conservative do not like to divulge the knowledge with others. They are found to be suspicious and secretive about giving information. It is their general view that the herbal remedy is a 'God- gift'.
3. It is not an easy task to extract information from them. They maintain their secrecy due to the fear of competition in their medicinal practice or may be due to some God fear and traditional restrictions. In this condition, they were tackled by an intelligent psychological treatment.

4. During the field work, it is necessary to convince them about the main purpose of work. They should not feel us outsiders or strangers. Sometimes they have a feeling that person other than tribal will get a profit i.e. in terms of money by selling or submitting the records of plants to some authority and they will exploit their natural wealth.
5. For taking information one should take part in their social gatherings or ceremonies etc. and one should stay with them by indulging himself in their whole day to day activities to win their confidence.
6. It is noted that informants i.e., 'Medicine-men' were not professional mostly as they are engaged in other jobs.
7. It is very necessary for researchers to be very frank in their relationship with tribals. They should bear a dress in such a simple way that the tribal should not feel the presence of outsiders.
8. It is often observed that tribals have a natural curiosity about the investigator's camera, binocular and their equipments for ethnomedicinal survey. One can easily please them by giving these equipments to them to see. Then a psychology develops in their mind that investigator is nothing unique (Bhattacharya, P. 1991).
9. Tribals have their own local name for every plant they recognise. The recording of local name is very necessary. With the help of the local name, one can easily collect all the information regarding the plant by consulting literature or by consulting various other persons to verify these ethnomedicinal information.
10. Collection of plant is also very useful for their identification and detecting them medicinally and for herbarium preparation.

By Indirect Approach :

In this approach, the field work is not necessary and information can be obtained by scrutinizing herbaria, museums, ancient literature, folk lores and scriptures. Herbarium, which is a 'Data Bank' of plants can also yield very valuable information if the data on labels are systematically scrutinized. Preparation of herbarium specimen is very important and essential for an ethnobotanist in ethnobotanical studies. According to Schultes (1963), "Herbarium reports have several advantages, unlike much of the literature they are, in great part, first hand; they are attached to an actual plant specimen and therefore no problem concerning the proper identification of the plant; the ethnobotanical data are anchored down through the information on the special label, to a definite locality and often to specific people who employ the plants". According to Subramanyam (1996) "Herbarium is defined as a collection of plants that usually have been dried, pressed and preserved on the sheet and arranged in accordance with any accepted system of classification for future reference and study". 'Herbarium' is an aid to ethnobotanical study with the help of a herbarium mainly two kinds of studies could be undertaken :

- (1) To record the use of plants in a particular locality or among a particular tribe
- (2) To assess the use of a particular plant or group of plant among several tribes

(Altschul, 1968, 1973). Like herbarium museum is also an important source of information.

Literature survey can be a very useful tool in ethnobotanical researches. The information on various aspects of plants is often available in religious books,

archeological remains and old monuments. Ancient or unnoticed published or unpublished literature have also been consulted and it has been found that these literature have proved to be a very good source of ethnobotanical data particularly on medicinal plants. Several of these uses are again not known to modern world and it is very important to bring them to light. In India, with its heritage of ancient cultures and scriptures, published or unpublished work can be used as valuable ethnobotanical resource (Jain and Tarafder, 1970).

Plants found at archaeological sites often reveal information about the uses of plants by man in ancient time. The remains of plants e.g. hard coated seeds, twigs, timber etc. have been buried along with man made structure of these sites, can help in searching the exact time of their domestication and can also reveal certain information on new source of medicine, food, fibres etc. (Vishnu Mittre, 1981).

India is a country of temples where almost every religion had flourished at one time or other. Therefore, the sculptures and paintings on these temples, churches are potential source of valuable information about the use of plants of those times. Several folk lores especially songs, proverbs and tales which are passed on from one generation to other, have references to certain interesting properties or aspects of plants. Careful study and analysis of these folklores in different cultures and literature can provide much information about plants.

Enumeration of ethnobotanical observations on both the species i.e., *Calotropis procera* and *Calotropis gigantea*.

Calotropis gigantea (Linn.) ex. Ait. R.Br. Madar or Safed Ak, Asclepiadaceae.

All parts of the plant are used medicinally for the treatment of various ailments such as leprosy, leucoderma, ulcers, tumors, ailments of abdomen, rheumatism, asthma, diseases of spleen and liver, piles, cold, cough, syphilis, dysentery, swellings, wounds etc. The root, leaves, bark, flowers and juice of this plant are used in various medicine preparations for their emetic, diaphoretic, alterative, purgative, alexipharmic, anthelmintic, analgesic, astringent, expectorant and depilatory in action. The root and stem bark and dried milky sap cures asthma and certain cutaneous affections such as leprosy and syphilis etc. by acting as diaphoretic. Flowers cure tumor, diseases of abdomen, catarrh, asthma and act as good tonic (Ayurveda). When all dried parts of the plant taken with milk, they act as a good tonic, expectorant and anthelmintic. The leaves are applied to painful joints, swellings, wounds and paralysed part. The latex is useful in scabies, piles, eruption on body, ringworm of the scalp and leprosy etc. (Yunani).

The powder of the dried leaves is dusted upon wounds to destroy excessive granulation. Three to five grains of the powdered root promotes gastric secretions. It act as mild stimulant and may be given with carminatives in dyspepsia.

It is also given as febrifuge. The tincture form of leaves was given in cases of intermittent fevers. The powdered root bark in doses of five grains cured dysentery (Kirtikar K.R., Basu B.D., Indian Medicinal Plants).

C. procera (Ait) R.Br. Ak, Akaua, Madar, Asclepiadaceae : The medicinal properties of the plant are similar to those of *C. gigantea*. Leaves are applied hot to the abdomen to cure muscular pain due to injury. The flowers cure piles and asthma. This plant is

acting as anthelmintic, appetiser, expectorant, tonic, laxative, antisialagogue etc. The ashes act as expectorant (Ayurveda).

In Las Bela and Gambia : The milky guice is used as a blistering agent and fresh root is used as a tooth-brush. Leaves are applied to cure sprain, headache migraine, and used as poultice.

In Punjab fresh milk is used for the purpose of infanticide. In Hausas and Northern Territories people use this plant greatly in medicine. The leaves are used to cure headache. The plant is also used in treating eye troubles. The leaves and fruits are boiled together and are used in the extraction of guinea worm, by the immersion of the infected limb, either for several hours or one to three consecutive days. It is used as an enema.

In the Gold Coast, the leaves cure inflammation or swelling of legs and wounds caused by rusty nail. The leaves are said to cure catarrh, being warmed first of all then the juice is dropped into the nose. This causes the patient to sneeze, which relieves the accumulation of mucus material. This treatment takes place in the early morning and in the evening. (Kirtikar, K.R., Basu, B.D. Indian Medicinal plants).