CHAPTER IV
MATERIALS AND METHODS

Intensive field studies have been undertaken in and around the villages of Lalung (Tiwa) habitation and adjoining forests in Morigaon district of Assam. Plants belonging to Angiosperms and Ferns have been collected practically from almost all parts of Morigaon district during the period between 1993 and 1997, covering all seasons of the year. A total of 570 field number of plants have been collected. Out of these 150 species have been identified belonging to 250 field numbers useful in Ethnomedicine. Botanical collection and Herbarium techniques have been followed in accordance with that of Jain & Rao (1977). While collecting information on Ethno-Medico-Botanical aspects methodologies and approaches have been made as suggested by Schultes (1960, 1962); Jain (1964a, 1967a, 1987, 1989); Ford (1978); Rao & Hajra (1987) and Rawat & Chowdhury (1998).

Before starting the investigation the Investigator rented a house in a Lalung village, Markangkuchi in 1990 so as to make personal contact with the maximum number of villagers. Their customs and tradition, food habits etc. were enquired and observed. The Investigator gained confidence of villagers before going to the field of investigation for collection of data of usage of plants in Ethnomedicine. Recording of data became easier when it was found that some of the Lalungs (Tiwas) could speak Assamese.

Collection of 3-5 specimens or even more of interesting ones, rarely with 1 or 2 have been made against each field number. Most of the plant materials collected are in their flowering and fruiting stages from natural habitat. Plants collected in their vegetative condition
have been transferred for cultivation and reared in the departmental Botanical Garden of Jagiroad College for their flowers for completing morphological studies and voucher specimens have been made after studying them.

While collecting plants the Investigator has taken help of forest dwellers, the medicinemen, Gaon Burahs (Headmen) and local inhabitants of Lalung (Tiwa) community residing near the forests who have the knowledge on uses of plant(s) parts used, quantity, methods of preparation, approximate doses and administration including vernacular names of the plants in Tiwa or in Assamese or both and diseases and ailments. As far as possible all information have been recorded on the spot of collection and these have been tagged with field numbers. These information have been verified on repeated queries with the elderly people in the age group between 45-90 years. For further verification medicinemen and practitioners and the patients in different villages have been contacted. Personal observation has been made on the application of various dosage forms.

Individual plants or combination of different plant species with quantity for application of the treatment of particular disease(s) were verified and atleast five patients were studied with satisfactory prognosis, the data was then incorporated in the field book. Satisfactory results have been obtained when knowledgeable persons were taken to the field for collection rather than the specimens collected and showed to gather information of usage in Ethnomedicine.

The delicate plant specimens were pressed in the field itself and the rest brought to camp in plastic bags and put in press for
drying. Rainy season collections were pressed by spraying 10% formaldehyde on drying paper or sprinkled with Para-Dichlorobenzene (PDB). Succulent plants and bulbous, rhizomatous and cormous were boiled in water till the plants turned yellow and then kept under pressure. Utmost care has been taken for drying the specimens and then poisoned with saturated solution of Mercuric Chloride (HgCl₂) dissolved in Absolute Alcohol and mounted on standard Herbarium Sheets (42 x 28 cm) with the help of just warmed glue. The printed label is affixed at right hand corner of the bottom of the sheet before mounting of specimen and later transferred field data with collection number, date of collection, locality, distribution, short description as recorded in the field as also characters of dissected flowers made in the laboratory particularly for specimens brought under cultivation and flowered here. Also incorporated vernacular names and uses along with photographic notes and collector's name and made the Herbarium Sheets ready for identification.

Identification

Critical morphological studies have been made of the collected plant specimens. The specimens have been studied by making dissection of a number of flowers both live and preserved. For authentical identification, a number of Flora and Monographs have been consulted especially of Flora Of British India, vol.1-7 (Hooker 1872-1897), Flora of Assam, vol. 1-4 (Kanjilal et al, 1934-1940) and vol. 5 (Bor, 1940), Flora of India, vol. 1-3 (1993) along with neighbouring floras viz., Flora of Jowai, vol. 1 & 2 (Balakrishnan, 1981 & 1983), Flora of Nongpoh (Joseph, 1982), Flora of Tripura State, vol.1 & 2 (Deb, 1981 & 1983), Forest Flora of Meghalaya, vol. 1 & 2 (Haridasan & Rao, 1985 & 1987)
etc. and finally confirmed the identification by consulting Herbaria viz., Gauhati University Herbarium and Kanjilal Herbarium of Botanical Survey of India, Shillong, Meghalaya (ASSAM).

Enumeration of species with their Utilisation in Ethnomedicine:

The species of plants enumerated here belong to single species of Pteridophyta and Angiosperms (149); Dicotyledons (128) and Monocotyledons (21). Information regarding utilisation in Ethnomedicine has been gathered during the field trips in Morigaon district of Assam from several informants viz., Medicinemen and Women and Headmen of the respective villages of Lalung (Tiwa) Tribe.

Alphabetical arrangement of all the medicinal plants has been made providing correct nomenclature with references of publications followed by the names of the families given in parentheses and vernacular names indicated with the abbreviation (T) for the Tribe Lalung (Tiwa) and Assamese (A).

A brief description for easy identification of each plant species along with Ecological adaptation with the nature of distribution and also the field number shown against the collector Anil Kumar Bora has been provided. This is followed by the detailed usage in Ethnomedicine of the plant/plant part(s), methods of preparation of drugs and doses applied for curing diseases and ailments by the aborigines along with providing established reports of utilisation. Any other information like taxonomical, new or additional new uses if any, etc. has also been appended in a 'Note' given at the end.
The established reports of utilisation in Ethnomedicine have been compiled from a number of accounts published viz., Carter & Carter (1921); Nadkarni (1927); Chopra (1933); Kirtikar & Basu (1935); C.S.I.R. publication (1948-1976); Dastur (1951); Dhar et al (1951); Biswas (1956); Chopra et al (1956, 1969); Rastogi et al (1960); Lahiri & Pradhan (1964); Jain (1968); Dey (1980); De (1984); Anderson (1986); Dwyer, J. (1986); Nayar et al (1989, 1994); Chattarjee & Prakash (1991); Asolkar et al (1992); C.S.I.R. Publication (1992); Warrier et al (1993, 1994, 1995, 1996); Mahanti (1994); Singh (1995) and Rawat & Chowdhury (1998).
16. A Medicine woman with the Headman of Na-Khola village

17. The investigator engaged in collecting information from the medicineman and woman of Charangkuchi village
18. The investigator in conversation with the Tiwa Medicine woman about Ethnomedicine at Na-Khola village

19. A 82 years old Tiwa Medicine woman Smti. Juluki Lalung showing an important Ethnomedicinal plant used in the treatment of piles
20. Medicineman of Tetelia village engaged in diagnosis of stomachic in a patient

21. A Medicineman giving a dose to a Jaundice patient
22. A medicine woman preparing a recipe for the treatment of gastric pain

23. A Medicine woman feeding an Ethnomedicinal dose to a gastric patient