ABSTRACT

Although, the practical knowledge of ethnobotany has been in existence since the beginning of human civilization when people relied more on plants as a way of survival. However, the study developed into a more specialized subject only during the 19th century when botanical exploration reached its peak. Prior to the introduction of the term ethnobotany, the study of traditional botanical knowledge focused almost entirely on the applications and economic potentials of plants used by native people. Initially the study was known as “Aboriginal botany”. It was John William Harsberger in 1895 who first coined the term ethnobotany and he defined it as “the study of plants used by primitive and aboriginal people”. He published the term under the heading “Some New Ideas” and suggested “ethnobotany” as a field which elucidates the “cultural position of the tribes who used the plants for food, shelter or clothing”. By the beginning of the 20th century, the field of ethnobotany experienced a shift from the raw compilation of data to a greater methodological and conceptual reorientation. This is also the beginning of academic ethnobotany. The founding father of this discipline is Richard Evan Schultes. Since then considerable attentions have been focused not only on how plants are used, but also on how they are perceived and managed, and on the reciprocal relationships between human societies and the plants on which they depend. The scope of the subject is now expanded and diversified to cover not only a utilitarian relationship, but also relationships that embrace the symbolic, ecological and cognitive as well as the human-plant relationship in a modern setting. It is now developed into a multidisciplinary ethnoscientific field of studies including ethnoecology, ethnomedicine, ethnotaxonomy, etc. as well as the anthropological and botanical study of material
culture and subsistence mode. It examines all aspects of the reciprocal relationship between plants and traditional peoples on biodiversity prospecting, conservation and vegetation management.

In India, the history of ethnobotanical study is about four centuries old when Garcia (1563) published his ‘Os coloquis’ giving an account of the indigenous medicinal plants in India, but without using the term ethnobotany. It was Janaki Ammal in 1954 who first initiated the ethnobotanical studies in the country. She studied subsistence food plants of certain tribal of South India. The famous ethnography work of Schultes, 1960 “Tapping our Heritage of Ethnobotanical Lore” provides a great sense of urgency for the studies and researches into folklore medicine. However, an organized ethnobotanical study in India was carried out by S. K. Jain and his colleagues. They conducted their studies on the tribal people of central India viz., Madhya Pradesh and Bihar in their natural habitats and recorded empirical knowledge about the uses of plants through field observations. In 1981, Jain edited the first book on Indian Ethnobotany “Glimpses of Indian Ethnobotany” which is a valuable compilation of the works of various eminent scholars from different phytogeographical areas of India. Another important book by Jain (1996) “Ethnobiology in Human Welfare” is based on proceedings of the IVth International Congress of Ethnobiology. In 2001, a review on the Indian ethnobotanical work of nearly two decades (1982-2000) was conducted by Jain and Srivastava and recorded 1250 publications with 30 books and 25 theses. Work also has been published on over 125 ethnic groups.

The state of Manipur located in the North eastern region of India is adorned with
rich flora and fauna. The floristic composition of the State is Indo-Malayan type ranging from tropical to sub-tropical and temperate deciduous forests with rich floral diversity as well as high degree of endemism including valuable medicinal plants. The richness of the plant diversity is also evident from the use of varieties of wild edible plants, fruits and medicinal plants by the hill tribal communities of the state. The Nagas and the Kukis are the two dominant tribal communities having distinct cultures and traditions. They possess rich valuable reservoirs of traditional knowledge on plants used largely due to the prevalence of rich diversity of vegetations as the study area falls in the Indo-Burma global biodiversity hotspot.

Senapati district is located in the northern part of the State Manipur in between 24°37” and 25° 25” N latitudes and 93° 45” and 94° 29” E longitudes. The present study covered 14 different villages including 9 Nagas and 5 Kukis villages. The data on ethnobotanical uses of plants were collected following the methods like focus group discussion, key informants, structured and semi-structured interviews. A pre-designed formats and field note book were also used to record the data. Prior informed consent was also sought and obtained from the concern village Chief or Chairman as well as the concerned individual practitioners by briefing clearly about the objectives of the study to them. Wherever possible the informants were asked to collect and bring the plant samples which they used as medicine or as edible for easy identification and also to prepare for herbarium specimens. The collected plants were identified by consulting various states and regional floras including Flora of British India, Flora of Assam, Flora of Jowai, Forest Flora of Meghalaya, Flora of Manipur, species of the families Zingiberaceae and Costaceae of South India, already identified herbarium specimens from BSI herbarium, Eastern Circle, Shillong and
from NEHU herbarium. The identified voucher specimens were deposited at the NEHU herbarium. For data analysis on ethnomedicinal plants collected, informant consensus factor (IFC) and relative importance of plants used were employed to identify the agreement of the informants on the reported cures for the group of ailments.

The study revealed a rich heritage of ethnomedicinal knowledge and high diversity of ethnobotanical plants used by both the Nagas and Kukis communities from the district. During the survey, a total of 188 ethnobotanical plants belonging to 161 genera and 91 families were documented. The ethnobotanical plants particularly edible wild plants are collected by the local people not only for household use but a good amount of the collections are available for selling in the local markets for household income generation. About 100 edible wild plants (63 edible plants and 37 edible fruits) belonging to 60 taxonomic families and 83 genera are documented. 29 species (46.03%) of the edible plants and 14 species (37.83%) of edible fruits recorded in the present study are hitherto unreported from the state and are new records from the area. Market surveys were also conducted in four locations (Mao Gate, Senapati (district HQ), Kangpokpi and Motbung). Data like local name, place of collection, rate per unit in Rs./kg, varieties of edible species collected, local availability status according to informant’s perception, age and sex of the collectors or vendors, etc. were collected from plant collectors and vendors during weekly market days. Photographs were also taken. Market data (particularly prices of the vegetable items) was supplemented through interviews with a number of key informants. Thirty-two common wild edible plants were recorded to be available for selling in the local markets.
Also, a case study on the assessment and evaluation of local dependency on selected wild edible plants and fruits revealed that there is a high dependency of local community on the wild resources. Analysis of the number of household percent involved in collection on few selected edible plants and fruits revealed that the dependencies varies significantly from species to species in the three localities under study and ranges from 29.36% (*Lentinula lateritia* (Berk.) Pegler) to 100% household (*Musa* sps. and *Oenanthe stolonifera* Wall.) in case of wild edible plants. Similarly, in the case of wild edible fruits the value ranges from 9.52% to 57.14% for *Juglan regia* Linn. and *Prunus persica* (Linn.) Batsch respectively.

Further, a total of 120 different species of medicinal plants belonging to 56 families and 109 genera were recorded during field survey. These plants are reported to have been used for treating 53 different diseases or ailments of both human and animals. The uses of ethnomedicinal plants documented in this study were also compared with previously published literatures from other workers in the state and elsewhere and were observed and recorded. Calculation of the value of informant consensus factor on the use of these ethnomedicinal plants showed that it ranges from 0.62-1.0 indicating that there is a well defined selection criterion of the plant used and also exchanged of informations among the different informants in the study area. Moreover, preliminary phytochemical screening for the presence of alkaloids, flavonoids, saponins and tannins was conducted for few selected locally used lesser known ethnomedicinal plants. Different plant parts such as leaf, roots, rhizome, bark, fruits and flowers were screened and observed that from a total of 23 different species, alkaloids were detected in 6 different species, flavonoids and tannins in 18 species each and saponins in 11 different species. A large number of *in vivo*, *in vitro*
as well as clinical studies carried out by various workers are available in literatures and reported that these types of phytochemicals exhibits a wide range of pharmacological activities thereby validating its uses in traditional or folklore medicine. Further, phytochemical analysis of alkaloids from *M. manipurensis* Takeda stem bark extract resulted in the separation and isolation of two compounds marked as FR-II and FR-III. A comparison of both chromatographic fingerprints of TLC and HPLC as well as with the spectroscopic data of UV and MS spectra of the two fractions with the standards Berberine chloride and Palmatine chloride hydrate showed that the values of these two fractions are very closely match with the two standards indicating that the two fractions isolated in this study are most probably to be of these two compounds.