CHAPTER -II

REVIEW OF LITERATURE
REVIEW OF LITERATURE (ETHNOBOTANY)

Since time immemorial, people have used various plant resources suitable for their purposes and are usually more so by the healers of the ethnic communities in particular. The ancient heritage of Vedic literature in India dates back to 2000 to 1000 B.C., which contain valuable information regarding medicinal plants. A total of about 248 plants have been recorded in *Atharva Veda* and *Rig Veda*. Singh and Chunekar (1972) have published a full glossary of medicinal plants included in the ancient classical work of *Charak Samhita* and *Sushruta Samhita*. In early periods many works like Heines (1910); Russel & Hiralal (1961); Nelson (1944); Gregson (1949) etc. reported about the ethnobotanical importance about the different tribes and communities. Brownring (1985) studied on homegardens in USA. Wester (1925) worked on food plants of Philippines. Bye (1986) also did a comparative study of medicinal plants of the Tarahumara and Mexicana markets.

Ethnobotanical research of Asian countries viz. India, China, Philippines, Myanmar, Nepal, Bangladesh, Cambodia, Laos, Vietnam, Thailand, Malaysia, Indonesia, Singapore, Sri Lanka, New Guinea, Japan and other Asian countries reported 9,500 plant species which are used in different ways by the tribal communities. They use various species of plants for food (3,900), medicine (7,500), fibre & cordage (525), fodder (400), pesticides (300), gums, resins & dyes (300), incense & perfumes (100) and other material & cultural requirements (700) (Maheshwari, 1996). Manandhar (1991) reported on the “Medicinal Plant-Lore of Tamang Tribe of Kabhrepalanchok District of Nepal”.

Rahman & Yusuf (1996) reported 46 Zingiberaceae plants used by the tribal and local people of Bangladesh. Choudhury *et al.*, (1996) also reported, 42 folk medicinal plants used for the treatment of dysentery and diarrhoea. Rahman (2000) reported 53 vascular plants used as remedies for different ailments in

2.1. Review of Literature of Ethnobotany in India

Since the colonial days of 1563, many books on ethno-medicine by different authors had been published. Some important books are “Colloquies on the simples and drugs of India” (1563) by the personal physician of the Portuguese Governor in India and this was of 12 volumes of work on the Medicinal plants of Kerala, ‘A catalogue of Indian medicinal plants and drugs’ (Fleming, 1810); ‘Materia Medica of Hindoostan’ (Ainslie, 1813) etc. Dr. E.K. Janaki Ammal initiated ethnobotanical study as an official programme in the Economic Botany section of Botanical Survey of India in 1954. She (1956) published a paper on subsistence economy of India. Jain (1963a, b, 1964a, b, c & 1965) started sporadic work among the tribal of Central India and published a good number of papers on ethnobotany. During the last few decades many ethnomedicinal works have been reported regarding the informations on medicinal plants from the different parts of the country (Jain & Mitra, 1997); Chopra et al., (1949) reported on the poisonous plants of India. Mhaskar & Caius (1931) published a list of plants used as antidote in their paper “Indian Plant Remedies in Snake Bite”.

Jain (1963a) intensively studied the Gond tribe of Madhya Pradesh, which represents about 54% of the total tribal population of the state. He described about the plants which were used as vegetables, medicine, fibers, fish-poisons, sticks, decorations etc. and as agricultural crops in shifting cultivation. He also described plants used in myths, beliefs and witchcrafts. He grouped 34 plants mentioned in magico-religious beliefs in several categories of uses. Again Jain
(1964a) recorded 88 wild edible plants under 10 groups used by the tribes of Bastar district of M.P. Among them 101 are medicinal plants divided into 35 groups of ailments with 8 methods employed in the preparation for different treatments.


Pal & Jain (1989 & 98) reported 22 food plants of Khonda and various plant species of Savaras of Orissa and Chonchu, Redhi, Gonds, Koya, Bagata and Valmiki of Andhra Pradesh. Manilal (1981) reported ethnobotanical account of the resemblance in shape of the dolmens to that of mushrooms in several localities of Kerala.


Tarfadar (1983 a, b, c & d) reported plants used as medicine by the tribals of Hazaribag and Ranchi district of Bihar for treatment of anti-fertility and 40 plant species for treatment of stomach complaints. Brownring (1985) described about the plants grown in the home gardens as a supplementary food production system. Gangwar & Ramakrishnan (1990) reported 171 medicinal plant species used by the Nishis and Sulung tribes of Arunachal Pradesh.
All over the world, there is an increasing interest in scientific study of man-plant interaction in natural environment which is clearly visible among various indigenous people, commonly designated as tribes (Gupta 1995). It has been estimated that Ayurveda, Siddha and Unani together use 1100 medicinal plants for treating a variety of ailments. Various researchers worked on the ethnobotanical field in many places of the world like Morie (1985); Saxena (1986); Khana et al., (1996); Kumar (1996a & b); Kumar et al., (1996); Kumar & Nanda (1996); Kumar & Singh (1996); Kumar & Srivastava (1996); Reddy (1996); Singh & Singh (1996); Mahato & Chaudhary (2005); Yonzone et al., (2011) etc. WHO reports about 40-50% population of non-industrialized countries still utilize traditional system of healthcare (Syiem et al., 2000).


Singh (2000) claimed out of 1000 species of pteridophytes, 200 species are used by the tribal people of India in different states. In India various researches have been carried out in many ethnobotanical studies and published different plant species used for different purposes by many authors viz., Rana et al., (2000) reported 28 plants used in diabetes; Viswanathan (2000) reports 33 folk medicinal plants; Kirn et al., (2000), report 8 gymnospermic medicinal

2.2. **Review of Literature of Ethnobotany from North-Eastern Region of India**

The North-East region of India abounds in natural resource including numerous plant species of medicinal, fibre yielding, edible, dyes, aromatic and other economic values. Floras of North-East region of India are gradually facing danger for its existence even without having received a scientific scrutiny. But there has been resurgence of interest in the study of medicinal plants and some regional accounts of medicinal plants have been published by many authors. Clarke (1889) extended his ethnobotanical work upto Kohima and Manipur. Some of the earlier significant ethnobotanical works were done viz., Arora & Mehra (1977); Singh (1977); Jamir (1977 & 1999); Singh & Arora (1978); Singh & Krishna (1983); Dam & Hajra (1981); Rao & Jamir (1982 & 1991); Rao (1989 & 1990); Nayer *et al.*, (1989 & 1994); Arora (1995); Rawat & Choudhury (1998) etc. Deb (1981) worked on the economic and medicinal plants of Tripura. Chopra *et al.*, (1956) in his “Glossary of medicinal Plants”. Singh & Arora (1978) published the Edible Plants of India. Choudhuri *et al.*, (1982) studied on the traditional medicinal plants used by some tribes of Jalpaiguri.

Rao (1990) studied on the Ethnobotany of Northeast India with special reference to naga tribes and reported 28 medicinal plants, 57 wild edible plants and 36 plants of miscellaneous uses. Borthakur (1981a & b) reported on the folklore and folk-life and masticatory plants used by the *Karbis* of Assam. Some authors documented various ethnobotanical works Viz, Arora (1981) reported on the medicinal plants used by the Khasi and Jaintia tribes of Meghalaya and Monpas of Kameng district. Hajra & Baishya (1981) reported on the conservation in *Khasi* folk beliefs and taboos. Rao (1989) reported an account of plants used by *Garos* of Meghalaya.

Maheshwari (1983) described that rice species having 30,000 varieties at the beginning of the century in India. Hajra (1981) investigated about the plants
related to Folk Beliefs and Taboos of Khasi. Rao (1981) studied in Meghalaya on the medicinal plants used by Khasi and Garo tribes.

Arvind & Jain (1989) reported 60 ethnomedicinal plants from North-Eastern India. Rao (1990) studied ethnobotanically important plants and reported many varieties of medicinal plants, wild edible plants and other miscellaneous plants from northeastern India. John (2000) reported 55 medicinal plants of Meghalaya, Jamir (2000) reported 115 medicinal plants used by the naga tribes of Nagaland, Syiem et al., (2000) published 11 plants used as herbal medicine in Meghalaya. Majumder (1991) has surveyed the medicinal Flora of North-Eastern region of India and has noted some of the threatened medicinal plants.

Many reports of ethnomedicinal plants were published by the different authors from N.E. India viz., Kumar et al., (2000); Archana (2000); Awasthi & Goel (2000); Chaudhury & Neogi (2000); Dutta & Nath (2000); Sharma (2000); Lalramnghinglova (2000); Syiem et al., (2000) Singh & Viswanathan (1996); Ahamed (2001); Baishya (2001); Borah et al., (2001); Borthakur (2001); Bhuyan et al., (2001); Chauhan (2001); Saha & Dutta (2001); Doley & Mukherjee (2001); Dutta & Dutta (2001); Gogoi (2001); Handique (2001); Haridasan (2001); Sarmah et al., (2001); Jain & Sumita (2001); Sinha (2001); John (2001); Lalramnghinglova (2001); Majumdar et al., (2001); Rao (2001); Sarma et al., (2001); Sharma & Sapeota (2001); Anupam et al., (2001); Hajra (2007); Nath & Sarma (2007); Partiri & Borah (2007); Galav et al., 2007; Singh et al., 2007 etc.

Sharma et al., (2002) reported the predominant flora of Barak Valley. Some reports are also available on the status of plant Bio-diversity of Cachar District. Samati (2004) claimed 55 kitchen garden plants used by the Pnar tribe in Jaintia Hills District, Meghalaya. Tangjang et al., (2004) reported 13 medicinal plants used to cure different ailments by the various communities of Northeast India. Dutta & Dutta (2005) reported the potentials of ethnomedicinal studies with a particular reference to biodiversity conservation of the important
medicinal/crop plants in North Eastern region of India viz., Ler, Mikir, Karbis, Miris, Khasi and Jaintai, Garo, Monpas, Nishi, Apatani, Reangs, etc.

Some works are reported on the Home Gardens of Barak Valley. Its importance has been highlighted by different workers like Glissmen (1989) and Das et al., (2006). Das (2006) reported on the medicinal plants used by the different communities of Cachar District, Assam and reported 245 medicinal plants. Out of these, 13 belonging to pteridophyte and 232 angiospermic plants.

“Tribal Knowledge of Wild Edible Plants of Meghalaya, North-East India” was documented by Kayang (2007). He recorded 110 wild edible plants which are consumed by the local people. Singh et al., (2007) published different types of traditional food of Monpa tribe of West Kameng (Arunachal Pradesh). These are used in various social gathering, cultural occasions and in daily life. Mao & Odyuo (2007) described the various traditional fermented foods of Naga tribes of Northeastern India. Barua et al., (2007) reported 38 wild edible plants used in the Majuli Island and Darang district of Assam.

Kar & Borthakur (2008) published 44 dye yielding plant species for dyeing handloom textile products of different communities of Assam like Bodo, Karbi, Dimasa, Mishing, Rabha Deori, Garo, Khasi, Jaintia, Tiwa, Kuki, Hmar, Zeme Nagas, Rengma Nagas, etc. Das et al., (2008) reported 70 wild edible plants belonging to 45 families of flowering and non-flowering plants used by different communities of Barak valley, Assam.

Many tribal areas and tribal communities in the North-East India are either unexplored or under explored with regard to their floral wealth along with their ethnobotanical knowledge (Rethy et al., 2010). Chakraborty et al., (2010) reviewed the ethnobotanical studies in Barak valley. Das et al., (2010) published a book about the medicinal plants used by the tribal people of southern Assam. Srivastava (2010) worked on the traditional knowledge of plants of Nyishi (Daffla) Tribe of Arunachal Pradesh. Dutta et al., (2010) reported 26 antipyretic
plants used by the Manipuri community of Barak Valley. Basak et al., (2010) reported 34 Zingiberaceous medicinal plants of Northeast India especially of Arunachal Pradesh.


Boro et al., (2011) reported 80 wild edible plant species used by the Boro tribe in Udalguri district of Assam and Baruah et al., (2011) documented 42 ethno-medicinal plants used to treat 18 different diseases by the Kuki tribe of Cachar district of Assam, India. Yonzone et al., (2011) reported 74 different species of orchids used for medicinal purposes in Himalayan region. Paul et al., (2011) published 15 medicinal plant species found in Subankhata reserve forest of Assam.

2.3. Review of Literature of Ethnobotany in Manipur

Singh (1982) reported 15 species used in ‘Ironba’ (a traditional dish) and 9 species used in ‘Chenghi’ (after wash water of rice used as hair lotion) in Manipur. Singh (1982) reported *Euryale ferox* as an indigenous food plant and its threat for extinction in Manipur. Singh & Singh (1985) surveyed on the wild edible plants found in the various markets of Manipur. Singh *et al.*, (1992) reported 52 medicinal plants of Manipur used in various ailments. Indigenous biofolklore practices and its biodiversity conservation in Manipur have been discussed by Singh & Singh (1996).

Many authors have worked on the ethnobotanical studies of the state of Manipur. Some of them are Ward (1948 & 1952); Kaith (1932 & 1936); Singh & Singh (1983); Singh (1996); Singh (1997); Singh (1994 a & b); Singh *et al.*, (1998), Sinhg (1997); Singh & Singh (1995 a & b); Sukla & Baishya (1982); Singh (1983); Singh & Singh (1983); Singh (1882); Sinha (1987 & 1990); Singh *et al.*, (2001); Singh *et al.*, (2003); Devi (2008) and Devi (2010).


published a book entitled ‘Edible wild plants of Manipur’. Ethnobotanical study of Kabui tribe at Imphal City was done by Jain (2004).

Sharma et al., (2005) described 34 plant species belonging to 30 families used in the extraction of dyes by the ‘Meitei’ community of Manipur along with the method of extraction and their uses. Another 19 plant species under 14 families used as dye mordents for dyeing of their handloom products was also reported by them. Khan (2005) also studied on the ethnobotanical aspect in Thoubal District, Manipur. Ashalata et al., (2005) published 120 medicinal plants used in skin disorder, ulcer, rheumatism and bronchitis. Meitei and Singh (2007) reported 160 medicinal plants under 151 genera and 82 families found in the Thoubal District of Manipur. Banaraj (2007) reported 41 plant species used as spices and condiments by the people of valley district of Manipur.

Sandhyarani et al., (2009) described 63 species of edible flowers pertaining to 51 genera and 34 families found in the valley districts of Manipur. Among these plants, 34 are available in the market and 29 species are non-marketable. Sumitra et al., (2009) published a total of 57 traditional medicinal plants used by the ‘Tangkhul’ Naga tribe in Ukhrul District of Manipur used for the treatment of various diseases and ailments.

Sandhyarani (2010) reported 52 species of Lamiaceae under 23 genera out of 104 species under 40 genera distributed all over state. Among these 52 plants 29 species are reported to be ethnobotanically important. Romila et al., (2010) reported 15 plant species used as remedy for treatment of diabetes by the people of Manipur. Drymaria cordata is reported as a medicinal by Victor (2011). Devi et al., (2011a) reported 74 medicinal plants used by the Kabui Naga tribe of Manipur and 65 vegetable plants used by the Monsang Naga tribe of Manipur (Devi et al., 2011b). In Tamenglong District, 14 species of Zingiber are used as spices or medicine (Daimei & Kumar, 2011). Kitchen gardens of Tangkhul tribe of Ukhrul district of Manipur was studied by Sumitra et al., (2011) and they reported 55 plant species having different kinds of uses.
Many authors have reported various ethnobotanical works in different fields in Manipur. Pinokiyo et al., (2012) published 250 species of lichen found in Manipur. Majority of them could be utilized to yield various colours of dye. Reshma et al., (2012) reported 50 plant species used by the Kom Tribes of Manipur as fish-poison (3), socio-religious (8), medicine (17), food (10) and others. Sumitra et al., (2012) claimed that 25 species are used by the Tangkhul Tribe of Manipur for the treatment of cuts and wounds. Devi et al., (2012) reported 52 indigenous edible fruit plants used by the Kabui Naga Tribe of Manipur. While Ranjana et al., (2012) presented 40 plant species used in cultural practices of Chiru Tribe of Manipur. Padmabati et al., (2012) highlighted different varieties of Calamus spp. Used in handmade handicraft products.

I have chosen the present ethnobotanical study of the Kabui and the Monsang Naga tribes because, these two tribes have their own distinct culture, costume, language, rituals etc. And moreover these particular tribes have not been studied ethnobotacically. The Kabui is one of the larger tribal groups of the state of Manipur and the Monsang is one of the smallest tribe as far as their population is concerned. However, most people of these tribes are inhabited in forest and rural areas. They depend mainly on forest products for their livelihood. These two tribal communities have more or less similar life style but differ in religion, culture and some others aspects. They have no written documents about ethnobotany. No ethnobotanical study has been done on these two tribes so far. Therefore these two tribes were taken up for study.

2.4. Review of Literature of Phytochemical Analysis

Phytochemical analysis of several medicinal plants have been carried out by many scientists in our country. Chemical constituents present in different plant species were examined initially by Martin (1995); Kapoor et al., (1969, 1971, 1972 & 1975); Saxena & Dutta (1975); Behari & Andiwal, (1976); Cox (1990 & 1994); Davyt et al., (1991); Rao & Brahman (1985); George et al., (1985); Suresh et al., (1995); Amarsingham et al., (1964); Harty (1973); Tackie et al., (1974); Sultanbawa et al., (1978) etc. Tanashashi et al., (2000); Chen et al,
(2001), Zhang et al., (2001) and Zhang et al., (2004) carried out some phytocheical works. However, qualitative and quantitative variations of such phytoconstituents depend upon the geographical variations of the phytoconstituents in different plant parts (Arnold et al., 1977; Tetanyi, 1978; Ishinguro & Okult 1997 etc.). Reddy (1996) studied on Achyranthus aspera L. which is used by Bengali, Manipuris to treat different diseases like skin diseases, skin eruption, urinary trouble and child birth, stomachache, piles, boils, dysentery and diarrhoea in Assam. Biochemical studies of different plant parts yielded eleven (11) different bio-active components like flavonoids, coumarins, derivatives, carotinoides, anthocyanins, triterpenoids, saponins etc. (Reddy, 1996). Work on the biocheminal screening of plants and prospects of new drugs from higher plants have been carried out by some workers (Farnswarth & Bingel., 1977 & Zhang et al., 2004).

In, North-east states of the country, the screening of biochemical substances has been left out in this regard except some minute work from Manipur state and Assam (Singh et al., 1991). But qualitative phytochemical screening of some medicinal plants of Cachar district was carried out in Assam (Das, 2006). In 2010, Sandhyarani studied on the biochemical aspects of some selected plant species of Lamiaceae family in Manipur.

In the present investigation, phytochemical analysis (qualitative) of a few selected medicinal plants which are used by the Kabui and the Monsang Naga tribes of Manipur have been taken up. These plants are consumed by them as and when required as medicine and they are found easily in their surroundings. They also take these plants as vegetable in their day-to-day life.

As per the findings by Sathiskumar et al., (2009) secondary metabolites of medicinally important bio-active compounds viz., alkaloids, flavonoids, saponins and tannins are present in the medicinal plants as antibacterial and anticarcinogenic. So, these plants are taken up for study to ascertain whether the above mentioned bio-active compounds present or not as the plants are believed to be having medicinal properties.
2.5. Review of Literature of Antimicrobial Activity

Many researchers studied the antibacterial activities of different folklore medicinal plants against pathogens of various diseases of human beings and plants. Some of them are Madsen & Plate (1952); Ahmed et al., (1999); Rahman et al., (1998); Khan & Omoloso (2002); Islam et al., (2008); Panthi & Chaudhary (2006); Das (2006); Mathur et al., (2010); Thambiraj & Paulsamy (2010), Gami & Parobia (2011); etc. Many plant extracta are reported to possess antimicrobial activities by many authors like Sehgal (1961); Seegal & Holden (1945); Sporston et al.(1948); Madsen & Pates (1952); Abdullaeva (1966); Bhakuni et al. (1983); Jain & Pathak (1970); Bambode & Shukla (1973); Dixit & Tripathi (1974); Misra & Dixit (1977); Nanduri et al. (1995); Vijoy Kumar et al. (1995) etc. Some of them reported many plants having antibacterial properties against human pathogens.