Review of Literature
CHAPTER - II

REVIEW OF LITERATURE

2.1 ETHNOMEDICINE - AN INTRODUCTION

The history of ethnomedicine dates long back. Since very early days, the knowledge of ethnomedicine has been passed on from generation to generation among the tribals and it survived in certain restricted aboriginal habitations. Ethnomedicine deals with the study of plant derived galanical products and bioactive molecules used in primary health care based on the historical evidence of the value of such plants (Sharma and Sharma, 1999). The studies on ethnomedicine include location of the ethnic source, diseases for which plant part used, condition of plant part (fresh/dried) and mode of administration. The research of ethnomedicine started decades ago in many countries including India. More than 35,000 plant species are being used around the world for medicinal purpose both in, traditional and ethnomedicinal practices (Van Seters, 1997). The literature on ethnomedicine is widely scattered.

2.2 ETHNOMEDICINAL STUDIES-ABROAD

Weiner (1970) reported about the use of 20 medicinal plants practiced by the local inhabitants in Namosi village, Fiji. Turner and Bell (1971) studied 39 plants belonging to 36 genera and 28 families used as medicine by the coast Salish Indians of Vancouver Islands, Prance (1972) described the preparation of a contraceptive by name Beku made from Curarea tecumarum by the tribe Denis of Amazonian Brazil. Turner and Bell (1973) documented 69 medicinal plants belonging to 61 genera and 30 families used to cure various ailments by the Southeren Kwakiutl Indians of British Columbia. Uhe (1974) highlighted 154 medicinal plants used by the native people of
Samoan Islands. Singh et al. (1979) enumerated 75 medicinal plants used in Nepal. Wilson and Marian (1979) listed out 34 plant species used in native medicine to sure various diseases by the people living in Ethiopian Plateau.

Aldunate et al. (1983) reported about 37 plant species used to treat human ailments by the Pre-Altiplanic community in the Andes of Northern Chile. The Akhas tribe inhabiting the remote hills of Northern Thailand used 121 plants as medicine (Anderson, 1986 a). Anderson (1986b) drew attention to 68 plants used by the tribe Lahus of Northern Thailand. Lentz (1986) mentioned about 11 plants used by the Jicaque or Tol (an Amerindian group) people residing in the Jicaque of Honduras. Abulafatih (1987) described the use of 61 medicinal plants utilized by the local inhabitants of South-Western Saudi Arabia. Mahunnah (1987) studied the use of 31 medicinal plants practiced by the Hayas inhabiting North-Western Tanzania. Manandhar (1987) reported about 68 plant species used as medicine by the inhabitants of Manag Valley in Nepal. Verzar and Petri (1987) noted about 15 plant species used as medicine by the Mamakua Negros and Bants Nergros of Mozambique.

Giron et al. (1991) drew attention to 119 medicinal plants used in native medicine by the Carib population inhabiting Guatemala, a polytechnical country in the Herat of the Mesoamerican region. Manandhar (1991) enumerated about 95 medicinal plants belonging to 88 genera and 47 families commonly used in the treatment of various ailments by the Tamangs, a tribe of Nepal. Abbas et al. (1992) mentioned about 52 medicinal plants belonging to 49 genera and 20 families, which are being utilized in the traditional medicine in Bahrain. Bhattarai (1992) documented 62 plant species used in the traditional phytotherapy by the local inhabitants of Jumala, Muga and Kalikot districts of West Nepal. Ghazanfar and Al-Sabahi (1993) highlighted 35 native and
cultivated medicinal plants used to cure various diseases by the local people inhabiting Northern and Central Oman, Arabia. Githinji and Kokwaro (1993) described 28 indigenous species belonging to Lamiaceae, which are popular among Kenyan herbalists inhabiting the Rift valley and central parts of Kenya. Omino and Kokwaro (1993) mentioned about 25 species belonging to 16 genera of Apocynaceae, which are mostly used in curing skin diseases by the tribals of Kenya.

The tribe Hayas inhabiting the Kagera region in Tanzania used 31 herbals in traditional medicine (Chhabra and Mahunnah, 1994). Gill and Nyawuame (1994) reported about 103 leguminous plants used in ethnomedicinal practices of Nigeria. Johns et al., (1994) drew attention to 41 plant species used by the tribe Batemis of Tanzania to treat 58 ailments. Manadhar (1994) enumerated the ethnomedicinal use of 80 plant species belonging to 50 families by the local inhabitants of Kasaki district, Nepal. Manandhar (1995) listed out 60 plant species used in local phytotherapy by the inhabitants of Jajarkot, a remote district of Nepal. Bustos and Espinar (1996) highlighted the medicinal use of 30 plants by the San Juan people in Argentina. Arenas and Azorero (1997) documented 22 medicinal plants used by ten ethnically different groups as antifertility agents to avoid pregnancy. Dolores and Latorre (1997) described 101 plants (both flowering and non-flowering) used in native medicine by the Mexican Kickapoo Indians living in Mexico. Gill et al., (1997) mentioned about 39 plant species belonging to 20 dicot and 6 monocot families, which are used in the native phytotherapy by the Bini people of Nigeria. Gragson (1997) reported the use of 8 underground plant organs as medicine by the Pume Indians living in Venezuela. Novy (1997) mentioned the importance of 68 medicinal plants utilized by the Madagascan tribes Betsimisarakas and Tanalas inhabiting the Eastern Madagascar and South-Eastern Madagascar. Rahman (1999) made a mention of 52 medicinal plants used by
the tibals viz., the Chakmas, Marmas, Tripuras, Murongs, Pangkhoas, Khumis, Bhomes, Chacks, Lushais, Ohisuis and Shautas inhabiting Chittagong, Bangladesh. Siwakoti and Siwakoti (1999) highlighted 122 medicinal plants belonging to 114 genera and 57 families used in native phytotherapy by the tribe Satars of Nepal. Grierson and Afolayan (1999) hinted about 38 medicinal plants belonging to 26 families, which are used by the traditional healers, the Sangomas inhabiting the Eastern Cape Province of South Africa.


Gazzaneo et al., (2005) enumerated about 125 medicinal plants belonging to 61 families commonly used in the treatment of respiratory and digestive systems related problems by the local specialist in a region of Atlantic forests, Pernambuco, Northeastern Brazil. Kunwar et al., (2006) enumerated 84 medicinal plants belonging to 75 genera and 39 families used to cure various ailments by the local inhabitants of
Dolpa, Humla, Jumala and Mustang districts of Nepal. Cecilia de Fatima et al., (2006) reported the use of 187 plant species belonging to 128 genera and 64 families by the local inhabitants of Zingo region of Notheastern Brazil to treat common colds, bronchitis, cardiovascular problems, kidney problems, inflammations etc.

Hamayun (2006) enumerated 70 medicinal herbs used by the local people inhabiting Burner district, Pakistan to cure various diseases. Joshi and Joshi (2007) reported 116 plant species belonging to 66 families used by the local people inhabiting Likhu Sub-Watershed, Nuwkcot district, Nepal to treat various diseases, Yusuf et al., (2007) documented 53 plant species belonging to 33 families used by the tribe Chakma of Rangamati district, Bangladesh to treat various ailments.

Infections of the reproductive tract, complications after childbirth and reproductive problems continue to be a major health challenge worldwide. An impressive number of plant species is traditionally used to remedy such afflictions, and some have been investigated for their efficacy with positive results. A total of 105 plant species belonging to 91 genera and 62 families were documented and identified by Rainer and Ashley, (2010) as herbal remedies for reproductive problems in Northern Peru. Most species used were Asteraceae (9.52%), followed by Lamiaceae and Fabaceae (8.57% and 6.67%). The most important families are clearly represented very similarly to their overall importance in the local pharmacopoeia. The majority of herbal preparations for reproductive afflictions were prepared from the leaves of plants (22.72%), the whole plant (21.97%), and stems (21.21%), while other plant parts were used less frequently. More than 60% of the cases fresh plant material was used to prepare remedies. Over 70% of the remedies were applied orally, while the remaining
ones were applied topically. Many remedies were prepared as mixtures of multiple ingredients.

A qualitative ethnomedical survey was carried out among a local Orang Asli tribe to gather information on the use of medicinal plants in the region of Kampung Bawong, Perak of West Malaysia in order to evaluate the potential medicinal uses of local plants used in curing different diseases and illnesses. Sixteen informants ranging in age from 35 to 65 years were interviewed. A total of 62 species of plants used by Orang Asli are described in the study based on field surveys and direct face to face communication. These plants belonged to 36 families and are used to treat a wide range of discomforts and diseases. The results of the study showed that majority of the Orang Asli, of Kampung Bawong are still dependent on local plants as their primary source of medicine. (Anbu Jeba Sunilson John Samuel, et al., 2010).

A total of 53 plant species have been reported by Ana Ribeiro and Romeiras (2011) which were used to treat 50 different human health problems. More than half of the species were used for stomach and intestine related disturbances (including major diseases such as diarrhea and dysentery). The great majority of the identified species was also associated with beliefs and myths and/or used as food. In general, the community was conscientious and motivated about conservational issues and has adopted measures for the rational use of medicinal plants. Information about 168 wild edible plant species in 116 genera of 62 families was recorded and specimens were collected from Tibetans in Shangri-la region, Yunnan, China by Yan Ju et al., (2013). The WEPs (wild edible plants) are sources for local people, especially those living in remote rural areas, to obtain mineral elements and vitamins.
2.3 ETHNOMEDICIAL STUDIES-INDIA

Jain (1963) enumerated 27 medicinal plants utilized by the Gond tribe of Madhya Pradesh to treat various diseases. Jain and Tarafder (1970) reported about 377 medicinal plants used by the Santals, one of the largest tribes of India inhabiting chiefly the Santhal Pargana district of Bihar and neighbouring districts in Eastern India in their indigenous medicinal system. Shah and Joshi (1971) mentioned more than 75 plants used as medicine by the Khasia Rajputs in the sub-montane and Bhotias in the montane of the Kumaon region of India. Jain et al., (1973) listed 32 medicinal plants belonging to 29 genera and 21 families of angiosperms, which are used in the treatment of various human ailments by certain Adivasis viz., the Chenchus, Reddis, Valmikis and Gonds in Andhra Pradesh and Soras and Kondh tribes in Orissa. Malhotra and Moorthy (1973) gave a list of about 126 medicinal plants used by the local inhanitants of Chandrapur district, Maharashtra. Chaudhuri et al., (1975) documented 34 medicinal plants used by the tribals in Orissa. Saxena and Dutta (1975) enumerated 69 medicinal plants used to treat various diseases by the tribals namely the Kondhs, Gonds, Santals, Saoras, Munds, Kolhas, Shabars, Parojas, Gadabas and Kols inhabiting Orissa. Brothakur (1976) described the medicinal use of 43 plants by the tribe Mikirs inhabiting Karbi-Anglong district in Assam. Chaudhuri and Tribedi (1976) hinted about 39 plant species used in local medicines by the inhabitants of 24 Parganas district, West Bengal. Bedi (1978) reported about 51 plants used by the tribe Bhils of Ratan Mahal and surrounding hills in Gujarat to treat various human maladies. Janaki Ammal and William Jebadhas (1978) made a preliminary survey of economic plants used by the Kanikars of south India.
Jain and Dam (1979) made a mention of 16 medicinal plants for curing various ailments used by the local aboriginals viz., the Assameses, Abors, Arongs, Bengalis, Bhutias, Garos, Khasis, Miriis, Mikirs and Nagas inhabiting North-Eastern India. Kumar et al., (1980) documented 54 medicinal plants used to treat various diseases by the tribe Garos inhabiting Balphakram Sanctuary in Meghalaya. The tribals of Eastern Rajasthan used 123 species of medicinal plants belonging to 104 genera and 54 families (Singh and Pandey, 1980). The tribe Mikirs living in Karbi-Analong district in North-Eastern India used 18 medicinal plants to treat various diseases (Jain and Borthakur, 1980). The khasi and Garo tribes of Meghalaya uses 33 species of medicinal plants (Rao and Neogi, 1980). Goel and Bhattacharyya (1981), based on information gathered from a traditional source from the village Bilari in Moradabad district, Uttar Pradesh, hinted about a very cheap and effective crude drug combination containing the seeds of *Althaea rosea* (L). Cav., *Cichorium endivia* L., *Lallemantia Royleana* Benth., *Ocimum canum* Sims. and fruit of *Solanum nigrum* L. to treat jaundice. The Adiyans, Kurichans, Chingathans, Kadors, Karimpalans, Kattunayakans, Kudiyas, Malayars, Mullas, Kurumbasrs, Paniyas and Uralikurumbars are the important tribes inhabiting Cannanore district, Kerala. Ramachandran and Nair (1981) had undertaken extensive field trips in the tribal pockets of Cannannore district, Kerala and documented 36 medicinal plants. Bhalla et al., (1982) enumerated 98 medicinal plants used by the local inhabitants in Sagar district, Madhya Prasesh. Joshi (1982) made a mention about 34 plant species used by the tribe Bhils of Rajasthan to treat various diseases. Rao and Jamir (1982) highlighted the use of 51 medicinal plants by the tribe Aos in Nagaland. Yoganarasimhan et al., (1982) reported the use if 143 medicinal plant species by the local inhabitants in Tumkur district, Karnataka.
The tribe Onges of the Andaman and Nicobar Islands used 12 plant species as medicines (Bhargava, 1983). The tribals namely the Totos, Mechs, Modesias and Nepalese of West Bengal utilized about 56 plant species as medicine to treat various ailments (Das et al., 1983). Mergoneitso and Rao (1983) hinted about the use of 62 medicinal plants by the Angami sub-tribe of Nagas in the southern part of Nagaland. Hazaribagh and Ranchi districts in Bihar are inhabited by a large number of tribes namely the Santals, Oraons, Mundas, Birhers, Bedia Mohatos, and Kumi Mahatos. They used about 74 plant species belonging to 61 genera and 33 families as abortifacient for the termination of unwanted pregnancy (Tarafder, 1983).

The inhabitants of Sind Valley, Kashmir used as many as 57 plant species belonging to 34 families as medicine (Dar et al., 1984). Jain (1984) enumerated the use of 26 plants by the local inhabitants of Morni and Kalesar hills of Ambala district, Haryana. Maheshwari and Singh (1984) drew attention to the use of 41 plant species by the tribe Bhozes in uttar Pradesh to treat various ailments. Malhotra and Balodi (1984) stressed the use of 14 wild plant species by the tribe Joharis inhabiting Munsiari tehsil of Pithoragrah district (Kumaon). The Nayadis, one of the primitive hill tribes of Northern Kerala made use of 54 plant species to treat headache, fever, scabies, paralysis, rheumatism, cough and asthma (Prasad and Abraham, 1984). Pushpangadan and Atal (1984) by undertaking extensive field trips in the various pockets inhabited by the primitive tribes like the Cholanaikkens, Pathinaikkens, Paniyans, Kurumans, Irulars, Adiyans and Kurichans in the Western Ghats, Kerala have drawn attention to the medicinal use of 78 plant species. Pal (1984) documented 19 medicinal plants used by various ethnic groups viz., the Nishis, Apatanis, Hill-Miris and Adis inhabiting the hill regions of Sabansiri district, Arunachal Pradesh.

Various ethnic groups like the Bhotiyas, Joharees, Darnees, Chaudansees and Byansees inhabiting the Alpine regions of Kumaon used 55 plant species as medicine to cure various ailments (Rawat and Pangtey, 1987). Srivastava et al., (1987) reported the use of about 54 plants as medicine by the tribals of Sikkim. Thothathri and Pal (1987) made a note of 7 plants used as medicine by the tribes Apatanis and Nishis inhabiting lower Subansiri district, Arunachal Pradesh. War Jaintias, a district tribe inhabiting in and around Sohkha Village of Jaintia Hills in Meghalaya, utilized about 53 plant species as medicine (Kumar et al., 1987).

Balodi (1988) reported about the use of 5 medicinal plants by the tribe Bhotias inhabiting Gori Valley in Pithoragarh district of Kumaon division. Chakrabarty and Rao (1988) enumerated about 12 medicinal plants used by the tribe Mongoloid Shompens inhabiting the Great Nicobar Islands. Das and Misra (1988) enumerated the use of 27 medicinal plants by the tribe Kondhas living in Koraput district, Orissa. Rai (1988) made a note of 27 plant species used by the tribes Bharias and Gonds in
Chhindwara district, Madhaya Pradesh. Among the 27 plants reported, 21 plants are used to treat skin diseases and 6 plants to treat liver disorders.


Gangwar and Ramakrishnan (1990) documented about 120 medicinal plant species used by the four tribal communities viz., the Nishis, Hill Miris, Sulungs and Apatains inhabiting the Lower Subansiri district, Arunachal Pradesh. Paliwal and Badoni (1990) reported the use of 170 plant species in medicine by the tribes Garhwalis and Bhotias in Uttar Kashi. Rao and Jamir (1990) listed about 22 plant species used as medicine by two distinct Naga tribes viz., Aos and Angamis inhabiting Nagaland. Verma and Pandey (1990) enumerated 32 plant species used by the tribals Mundas and Oraons in Maidanpat and adjoining areas of Lohardaga district, Bihar to treat various diseases.
Amirthapala (*Janakia arayalpatra*, Joseph and Chandra-sekharan), a new drug used by the local “Kani” tribe as an effective remedy for peptic ulcer, cancer like affictions and as a tonic was reported by Pushpangdan *et al.*, (1990).

Aminuddin and Girach (1991) reported 29 plant species used by the tribe Bondos, one of the most primitive tribes of India inhabiting Koraput district, Orissa for curing various diseases. Awasthi (1991) reported about 20 plant species used by the tribe Great Andamanese of Negrito Islands for curing several diseases. Hembrom (1991) made a note of 24 medicinal plants used by the tribes in Chotanagpur and Santhal Parganas of Bihar for curing ailments like polio, asthma, tuberculosis, epilepsy, cancer and leprosy. Kapur (1991) documented 78 plant species belonging to 71 genera and 46 families used as medicine by the tribes Gujjars, Bhakarwals and Gaddhis inhabiting Dubu Valley, Jammu. Prakash and Mehrotra (1991) listed out 20 plant species commonly employed in medicine by the tribe Garos inhabiting Rongrengiri area and Garo hill district of Meghalaya. Rao and Haridasan (1991) mentioned the use of 81 medicinal plants by the tribes Khasis, Garos and Jaintias inhabiting Meghalaya, Aos and Angamis inhabiting Nagaland and Manipuris of Manipur in the treatment of different maladies. Sadhale *et al.*, (1991) reported 43 plant species used as medicine by the native tribals of Ajiwali village in Pune district, Maharashtra for curing various ailments.

Chauhan and Bhattacharya (1992) drew attention to the use of 19 plant species as medicine by the inhabitants of Pokhari Block, Chamoli district in Garhwal Himalaya. Dwivedi and Pandey (1992) enumerated 30 herbaceous plant species as medicine to treat various diseases by the tribals and backward class people of Vindhaya Plateau, Madhya Pradesh. Girach (1992) described 51 plant species used to treat 13
different diseases including gynaecological and sexual disorders, skin diseases, gastrointestinal disorders, insomnia, paralysis, hydrocele, insanity, rheumatism/inflammation and bone fracture by the tribe Kondhas inhabiting Phulbani district, Orissa. Mishra et al., (1992) documented 19 plant species used by the Adivasis and local people inhabiting Ajmer Forest Division of Rajasthan for treating their ailments. Ravisankar and Henry (1992) made a mention about the use of 23 plant species in medicine by five different tribals viz., the Gonds, Kolams, Lambadis, Naikpods and Pardhans inhabiting Adilabad district in the northern most part of Andhra Pradesh. Sikarwar and Kaushik (1992) highlighted 15 tree species used to cure various disorders by the tribe Sahariyas inhabiting Morena district, Madhya Pradesh. Singh and Maheshwari (1992) enumerated new or less known medicinal uses of 30 plant species by the tribe Tharus in Gorakhpur district, Uttar Pradesh. Thakur et al., (1992) mentioned about 32 medicinally important plants utilized by the local people inhabiting different villages of Madhubani district, Bihar for treating some common ailments like cold, cough, fever, diarrhoea, dysentery, vomiting, cholera, jaundice, malaria, snake-bite, leprosy, gential disorders etc.

The tribe Korku inhabiting Melghat region in Amaravathi district, Maharashtra used 11 plant species as medicine (Badhe and Pandle, 1993). Borthakur (1993) described the medicinal use of 34 plant species by the ethics groups namely the Bodos, Rabhas, Mishings, Karbis, Tai Ahoms and Dimasus of Assam to treat various diseases of children (13 plant species) and women (21 plant species). Gaur and Singh (1993) enumerated as many as 60 plant species used by the tribes Gujjars and Gaddies in Mandi district, Himachal Pradesh to treat various disorders. Hosagoudar and Henry (1993) reported 13 angiosperms and 2 pteridophytes used by the tribe Soligas settled in the southern part of Karnataka, to treat reproductive ailments and for birth control.
Kumar et al., (1993) documented 15 medicinal plants used by the tribes Gujjars and Bakarwals inhabiting Jammu region. Medicinal plants and their uses in Kolundram Hill (Cheran Mahadevi Hill) and the surrounding area have been reported by Karuthapandi et al., (1993).

Shankar et al., (1993) gave a list of 35 plant species used as medicine by the tribals Idu Mishmis, Digora Mishmis and Padams inhabiting Dibang Valley, Arunachal Pradesh. Siddiqui and Husain (1993) drew attention to 36 plant species belonging to 31 genera and 27 families of angiosperms used in the treatment of gonorrhoea by the herbalists and old villagers inhabiting the Central Uttar Pradesh. Singh and Prakash (1994) enumerated 38 ethnomedicinal plants traditionally used by the tribe Gonds living in Sonbhodra district, Uttar Pradesh for treating various diseases. The tribe Kadars in Anamalai Hills, Coimbatore district, Tamil Nadu used 31 plant species for treating various diseases (Rajendran and Henry, 1994).

All India Co-ordinated Research Project on Ethno-biology (AICRPE), a multi-institutional, multidisciplinary action oriented research programme extended over a period of 12 years generated a huge database on ethno-biology. The database revealed that over 10,000 wild plant species are being used by tribes for meeting various requirements: Medicine (8,000 species), Edible (3,500 species), Fibre (550 species), Gums, Resins and Dyes (425 species), Pesticides (325 species) and 1,000 species for other purposes (Pushpangadan, 1994).

Bhandary et al., (1995) described 98 medicinal preparations involving 69 plant species used by the tribe Siddis settled in four North-Eastern taluks of Uttara Kannada district in the Western Ghats, Karnataka. Chandra (1995) made a mention about 34 plant species used by the tribe Oraons in Palamau district, Bihar to treat diabetes,
leucorrhoea, rheumatism, syphilis, tonsilitis, dismenorrhoea and as antifertility agents. Girach and Aminuddin (1995) highlighted new or less known medicinal uses of 46 plant species by the tribe Hos in the Singbhum district, Bihar.

Jain (1995) reported about the diverse medicinal use of 31 species belonging to 8 genera of the family Zingiberaceae by various tribal groups in India. The tribe Tharus inhabiting Nainital district, Uttat Pradesh used 179 plant species as medicine (Pant and Pandey, 1995). Rawat et al., (1995) enumerated 50 plant species used as medicine by the tribal communities like Adis, Apatanis, Hill Miris, Idu Mishmis, Monpas, Nishis and Noctes settled in Arunachal Pradesh to treat a number of ailments viz., fever, malaria, pneumonia, hypertension, cough, urinary complaints, venereal diseases, syphilis, labour pain, stomach disorders, worm infestation, dysentery, diarrhoea and skin diseases. Sahoo and Mudgal (1995) gave importance to less known uses of 23 plant species belonging to 21 families practiced by the various tribals inhabiting Phulbani district, Orissa in the treatment of amenorrhoea, dysmenorrhoea, dysuria, gonorrhoea, leucorrhoea and spermatorrhoea. Tiwari (1995) documented 25 plants used as ethnomedicine by the tribe Halbis inhabiting the Chandrapur and Gadchiroli districts, Maharashtra for treating various diseases.

Dagar and Dagar (1996) highlighted the medicinal use of 44 plant species belonging to 41 genera and 29 families by the Nicobarese aboriginals, inhabiting Car Nicobar Island. Mohanty et al., (1996) documented 49 plant species used as medicine to treat diarrhoea by the tribals Saonas and Kondhs in Phubani and Ganjam districts, Orissa. Radhakrishnan et al., (1996) listed out the ethnomedicinal use of 17 less known plants by the various tribal sects of Kerala. Rao et al., (1996) mentioned the use of 27 plant species practiced in dental care by the tribes viz., the Yanadis, Nakkalas,
Yerukalas, Koyas and Kattunayakas inhabiting the Tirumala hills, Andhra Pradesh. Rawat et al., (1996) stressed the medicinal use of 24 plant species by the tribe Idu-Mishmis inhabiting Dibang Valley district, Arunachal Pradesh for treating various ailments like fever, malaria, skin diseases, cough, headache, constipation, healing of wound, tooth and chest pain, back-ache and as appetizers. Rawat et al., (1996) dealt with 24 medicinal plants used by the tribe Adis inhabiting the East and West Siang districts of Arunachal Pradesh.

Arshad et al., (1997) documented 51 plant species belonging to 29 families from the Cholistan desert lying in the south of Punjab used by the local inhabitants in their native medicine. Das (1997) enumerated 89 plant species used to treat various ailments by the tribes Minas, Bhils, Sahariyas or Sehrias inhabiting Karauli and Sawai Madhopur districts, Rajasthan. Tribals namely the Bhumijs, Kols, Mundas and Santals in Bhadrak district, Orissa used 23 plant species as medicine for treating various ailments (Girach et al., 1997). Singh et al., (1997) gave a list of 30 plant species belonging to 29 genera and 18 families used by the Tripuri tribes namely the Debbarmans, Reangs, Jamatias and Naotias in Tripura for treating piles, cough, cold, cut/wound and injury, dysentery, fever, gastric problem, hypertension, intestinal troubles, menstrual disorder, mental disorder, muscular pain, skin diseases, stomachache, swelling, toothache etc. Sen and Batra (1997) dealt with the use of 65 medicinal plants belonging to 40 families in 46 household remedies by the Bramhabhattas and Hurjar communities in Rajasthan. Rawat et al., (1997) reported about 29 medicinal plants used by the tribe Monpas inhabiting wang district, Arunachal Pradesh.
The tribe Onges of Little Andaman Island used 11 plant species as medicine to cure various diseases (Awasthi and Goel, 1999). Arya and Prakash (1999) enumerated 22 plant species used as medicine by the mixed tribal population of Bhutias known as the Bhimas, Harkotyas, Martolias and Khalijhunias in Bageshwar district, Uttar Pradesh. Alagesaboopathi and Balu (1999) described the unreported medicinal uses of 10 species of *Andrographis* by the tribes viz., the Kadars, Malayalis, Iurlars, Todas, Kotas, Gowdas, Badgas and Kurumbas of Tamil Nadu. Alagesaboopathi et al., (1999) reported about 23 plant species used for treating various ailments by the tribe Malayalis in the Shevaroy hills in Salem district of Eastern Ghats, Tamil Nadu. Balu et al., (1999) stressed the medicinal importance of 30 plant species used in the treatment of diabetes by the tribals and non-tribals inhabiting the Cauvery delta of Tamil Nadu. Banerjee (1999) made a mention about 32 tree species used as medicine by the tribe Santals inhabiting twenty villages in Birbhum, West Bengal. Bhatt et al., (1999) listed about 54 plant species used as medicine by the tribes Bharwards, Rabaris, Kolls and Harijans inhabiting the Shetrunjava hill in Bhavnagar district, Gujarat. Bora (1999) enumerated new or less known medicinal use of 34 plant species by the tribe Bodos in Sonitpur district, Assam. Dagar and Dagar (1999) described the medicinal use of four species of pteridophytes, one species of gymnosperm, 53 species of dicots and nine species of monocots, which have been used to treat gynaecological, urino-genital and other related problems by the aborigines of Andaman and Nicobar Islands.

Dash and Misra (1999) highlighted the medicinal use of 65 plant species in the treatment of 22 diseases by the tribes Baidas and Majhis in the Narayanapatna hills of Koraput district, Orissa. Tribes namely the Bathuris, Bhumijis, Kols, Mundas and Sandals in Bhadark district, Orissa used 38 plant species as medicine to treat various skin diseases (Girach et al., 1999). Jadeja (1999) reported 38 plant species used as
medicine by the tribe Rabaris of Barda hills, Gujarat. Kothari and Rao (1999) enumerated 45 plant species used to treat various human maladies by the tribe Warlis in Thane district, Maharashtra. Kumar and Goel (1999) drew attention to 10 ethnomedicinal plants frequently used by the various tribal communities viz., the Santals, Paharias, Mandas, Oraons, Kols, Kharwars, Asurs and Baigas inhabiting Bihar for treating 30 different human ailments. Nayagam and Pushparaj (1999) described various medicinal uses of *Mimosa pudica* L. by the different tribals viz., the Badagas, Kotas, Todas, Irulars, Kattunayakas, Kurumbas and Paniyas inhabiting the Nilgiri Pateau, Tamil Nadu. Singh (1999) enumerated 82 plant species used as medicine to cure various ailments by the tribe Tharus inhabiting the Sub-Himalayan region of Eastern Uttar Pradesh.

Garg (2000) dealt with more than 100 plants belonging to 36 families used as antidote for snake-bite by the rural and tribal people of different parts of India. Khanna and Kumar (2000) gave a list of about 50 plants known to cure various human ailments practiced by the tribe Gujjars in Saharanpur district, Uttar Pradesh. Kshirsagar and Singh (2000 a) mentioned about 33 plants used for curing 24 different types of ailments by the tribe Malekudiyas in Coorg district, Karnataka. The tribe Jenukurubas inhabiting Mysore district, Karnataka used 25 plants as medicine to treat different ailments (Kshirsagar and Singh, 2000 b). The tribals namely the Mikirs, Miris, Abors etc., and some non-tribals living in North-East India employed about 119 plant species as medicine for treating various disorders (Islam, 2000). Maiti and Manna (2000) studied the ethnomedicinal use of some herbal medicines to control fertility, by the tribe Santals inhabiting Puruliya district, West Bengal. Maiti and Mishra (2000) laid stress on 13 plant species possessing anti-venom property among the tribal communities, the Mundas, Savas, Santals and Lodhas in West Bengal. Mukherjee *et al.*, (2000)
documented 44 plant species used to treat 23 common diseases like dysentery, fever, stomachache, snake-bite, rheumatism etc., by more than 10 ethnic communities inhabiting Bankura district, West Bengal. Silori and Rana (2000) made a report of about 34 medicinal plants used in curing various diseases by the local inhabitants of Narayan Sarovar Sanctuary in the arid district Kachchh in Gujarat. Upadhyay and Chauhan (2000) reported about 28 plant species used by the tribe Koyas in Andhra Pradesh for treating different ailments.

Girach (2001) documented 27 medicinally important plants used by the tribe Saoras inhabiting Mahendragiri hills (Eastern Ghats) in Gajapathi district, Orissa. Gogoi and Borthakur (2001) mentioned about 69 herbal recipes for 27 ailments such as arthritis, pain, fractured bone, cholera, conjunctivities, common cold, cough, diarrhoea, dry cough, dysentery, eczema, fever, gastric, disorder, jaundice etc., involving 68 plant species used by the tribe Bodos inhabiting Goreswar, Rangia and Jajikona development blocks in Kamrup district, Assam. Jain and Patole (2001) listed out 38 plant species used for treating various maladies by the tribals, Korkus, Gonds, Bharias and Mabasis inhabiting Pachmarhi forest in Madhya Pradesh. Rao and Pullaiyah (2001) drew attention to 50 selected species of wild plants, which are used as medicine by the tribals viz., Chenchus, Yerkulas, Yanadis and Sugalis inhabiting the forest in Guntur district, Andhra Pradesh. Sharma et al., (2001) reported 27 plant species used against various diseases by the tribe Bodos of Nalbari district, Assam. Ethno-botanical studies on the Kanis in Mundanthurai Reserve Forest were reported (Viswanathan et al., 2001). Folk-medicine among Nilgiri Irulas was reported by Rajan et al., (2001).

Arya (2002) highlighted the traditional use of 19 medicinal plants by the local inhabitants of Dronagiri, a mythic hill in Almora district, Uttarakhal. Rajendran et al.,
(2002) dealt with the medicinal use of 36 plant species belonging to 24 families of flowering plants by the tribe Valayas inhabiting Seithur hills of Virudhunagar district, Tamil Nadu. The indigenous communities inhabiting Mirzaguda village in Renga Reddy district, Andhra Pradesh used 59 plant species belonging to 37 families in their primary health care (Ramachandra Reddy and Rao, 2002). Sashikumar and Janardhanan (2002) gave a list of 24 species belonging to 16 families, which are used in womenfolk’s health care by the tribals viz., Irulars, Kurumbars and Paniyans inhabiting the Nilgiri Biosphere Reserve, Western Ghats. Uniyal et al., (2002) reported 85 medicinal plants used by the local inhabitants in the upper catchment of river Bhagirathi, Garhwal Himalayas. Conservation of medicinal plants can be accomplished by the Ex-situ means (i.e) outside natural habitat by cultivation and maintaining plants in botanic gardens, parks, other suitable sites and through long term preservation of plant propagules in gene banks (Phartyal et al., 2002).

The tribe Nishis of Arunachal Pradesh used 27 plants as medicine (Bhuyan, 2003). Baragali et al., (2003) documented 22 medicinal plants used to treat some common ailments by the local inhabitants of Jagdapur district in Chhattisgarh. Das and Sharma (2003) mentioned about 47 vascular plants used to cure diseases such as fever, jaundice, dysentery, diarrhoea, toothache, cancer, sore, wounds, skin diseases etc., by the Manipuri and Barman communities inhabiting Cachar district, Assam. Ganesan and Kesavan (2003) enumerated the medicinal use of 84 angiospermic plant species belonging to 82 genera and 40 families by the ethnic group, the Valayans inhabiting Vallimalai hills, Tamil Nadu in their phytotheraphy to treat various ailments like wounds, cuts, stomach pain, diabetes, fever, eczema, dandruff, cold, body heat, poisonous bites etc. Gogoi et al., (2003) mentioned the use of 74 plant species belonging to 67 genera and 42 families in the herbal medicine by the local people in
Cahndrapur area of Kamrup district, Assam. Islam and Jha (2003) documented 83 plant species belonging to 77 genera and 41 families used to treat 57 common diseases by the tribes viz., Oraons, Mundas, Karmalis, Mahalis, Birhors, Kondhs, Bedia and Asurs inhabiting Ranchi district, Jharkhand. The tribals Mundas and Asurs inhabiting Neterhat Plateau, Chhotanagar and Singhbhum districts in Jharkhand employed 19 plant species in phytotherapy (Jain, 2003).

Studies on Ethno-botany of *Abrus precatorius*, *Apama siliquosa*, *Moringa cancanesis* and *Sarcaostemma acidum*, *Moringa concanensis* and *Tefairia oxidentalis* were reported by various authors (Apparanantham and Chelladurai, 1986; Akorod, 1990; Rakesh sinha, 1990 and Arinathan et al., 2003b).

Subramanian et al., (2003) reported 19 medicinal plant species belonging to 13 families used by Valaiyam tribals of Madurai district, Tamil Nadu to treat various ailments like diabetes, rheumatism, leucorrhoea, lumbago etc. Ethno – medico - botanical survey among Palliyar tribals in different pockets of the Srivilliputhur Grizzled Giant Squirrel Wild life Sanctuary were carried out by Arinathan et al., (2003). They reported that 30 plant species belongs to 20 families were used for treating 37 ailments.

Jain et al., (2003) documented 39 plant species used by the tribes viz., Kumars, Oraons and Gonds inhabiting Raipur district, Chhattisgarh for treating various common ailments. Karthikeyani and Janardhanan (2003) mentioned about 27 plant species employed in the treatment of snake, scorpion and insect bites/stings by the tribe Irulars inhabiting the Siruvani hills, a part of Western Ghars in Coimbatore district, Tamil Nadu. Kemp (2003) reported 9 plant species used as the herbal medicine by the tribe Rengas of Dimapur district, Nagaland. The tribes Lepchas and Bepales inhabiting
North Sikkim employed 21 flowering plants as native medicine (Amity et al., 2003). Nonhare et al., (2003) reported the ethnomedicinal properties of 56 plant species used by the tribes Gonds and Halbis of Bastar district in Chhattisgarh. Sahoo and Bahali (2003) hinted about 24 plant species used by the tribes Kondhs, Gonds, Kutiakondhs and Sauras inhabiting Phulbani district in Orissa for treating several ailments. The tribe Reangs of North Tribura used 34 medicinal plants belonging to 27 families to cure various ailments (Shil and Sharma, 2003). Singh et al., (2003) listed 74 medicinal plants used by the tribes viz., Mikirs, Nagas, Manipuris, Apatanis and Garos inhabiting the North-Eastern states for treating some common diseases like malaria, diarrhoea, dysentery, skin diseases, jaundice, arthritis, venereal diseases etc.

Plant used as medicine by the irulars in Palakkad, Kerala was reported by Binu et al., (2003). Leech repellents of plant origin used by the tribal communities of Kerala was reported by Nazarudeen (2003). Some folk-lore medicinal plants of Kolli hills were reported by Subramoni and Goraya (2003). Nandankunjidam (2003) reported the ethnobotanical observations from Attappadi Hills of Western Ghats.

Muthukumarasamy et al., (2003a) reported the uses of 21 medicinal plants (19 angiosperms and 2 pteridophytes) belonging to 20 families and 20 genera by the Palliyar tribals of the Western Ghats, Tamil Nadu to get relief from gastro-intestinal disorders. Muthukumarasamy et al., (2003b) enumerated 22 medicinal plants (21 angiosperms and 1 pteridophyte used by the Palliyars of Grizzled Giant Squirrel Wildlife Sanctuary, the Western Ghats, Srivilliputhur, Tamil Nadu to treat poisonous bites. Muthukumarasamy et al., (2004) reported 28 medicinal plants belonging to 22 families used by the Palliyar tribe of Srivilliputhur, Tamil Nadu in antenatal and postnatal care of mother and child.
Chhetri (2004) stressed the medicinal importance of 37 plant species belonging to 29 families used as antipyretic agents by the traditional healers of Darjeeling Himalayas. Ganesan et al., (2004) documented 34 plant species used to cure various ailments like rheumatism, headache, wounds, eczema, boils, cracks ob heals, mouth ulcer, fever, dysentery, menstrual complaints, venereal diseases etc., by the tribes inhabiting the lower Palni hills, Tamil Nadu in their native medicine. Gupta et al., (2004) drew attention to 11 plant species of angiosperms practiced in traditional medicine by the tribe Nicobaris inhabiting Car Nicobar Island. Misra (2004) described the therapeutic use of seeds of 33 plant species employed by the tribals viz., the Mundas, Kondhs, Gonds, Binjals, Mirdhas, Bhumias and Sauras inhabiting the Gandhamardha hill range in Orissa.

Arunvijayan et al., (2004) reported that the use of 50 angiospermic plant species belonging to 31 families and 49 genera and 2 Pteridophytes in the treatment of 64 ailments by the Kanis of Kottoor Reserve Forest, Agasthyavanam, Kerala State. Chelladurai and Padma Sorna Subramonian, (2004) reported that out of 450 taxa found in Kuthiraimozhi Theri, Thoothukudi District 180 taxa are used for curing various ailments by local peoples.

An intensive survey conduct as part of AICRPE (All India Co-ordinated Research Project on Ethno-biology) in Kerala and Lekshadweep during the period of 1987 to 1992 documented ethno biological data from different tribal communities and local healers. It includes 500 single drug remedies and more than 200 simple formulations. Apart from this is materials used for housing, fishing, poisoning, pesticides, food, fibre, dyes etc were also collected and documented in the form of a database. During year the 2001-2002 TBGRI documented indigenous knowledge on the use of 82 single drug and 15 combinations from the Kani and Malampandaram tribes of Kerala (Rajasekharan et al., 2005).

The state level medicinal plant check list was prepared on the basis of the FRLHT nomenclatural database resulted in the establishment of 1864 wild medicinal species in Kerala State (Ravikumar et al., 2005). Nearly 95% of the medicinal plants are harvested from the wild. The growing population, urbanization, shrinking forests, over harvesting introduced (especially weedy species) and related factors have brought several medicinal plants to the very brink of extinction (Natesh and Mohan Ram, 1999 and Rawat and Uniyal, 2003 and Ravindran and Indira Balachandran, 2005).

The tribe Tharu inhabiting Devipatan division, Teraibelt of Uttar Pradesh used 31 plant species as medicine (Kumar et al., 2006). Kanwar et al., (2006) reported 31 plant species used by the local people of inhabiting different villages of Kangra district, Himachal Pradesh for treating various ailments. Kumar and Vidyasagar (2006) gave a list of 30 plant species used as medicine by the tribals of Halakki, Kadukurba and Lambani of Bidar district, Karnataka. The Bhil tribe inhabiting to 57 genera of 40 families for different diseases (Jadhav, 2006 a). Jadhav (2006b) described the medicinal use of 22 plant species by the local people inhabiting of Ujjain district, Madhya Pradesh to treat various diseases.

Ballabh and Chaurasia (2006) enumerated 98 plant species used by the Boto tribe in Ladakh region of Jammu & Kashmir, to treat various ailments. Punjani (2006) reported 35 plant species used by Kathodi tribe of Sabarkantha district, Gujarat for the treatment of skin diseases, colic complaints, headache, fever, piles, asthma, jaundice, diarrhoea, dysentery, wounds etc., Rao et al., (2006) described the medicinal use of 11 plant species by the ethnic group the Khonds of Visakhapatnam district, Andhra Pradesh for treating various diseases. Das et al., (2006) enumerated 52 plants species used as medicine by the tribes of Nicobarese, Shompen, Jarawas, Sentinels, Ongese and Great Andamanese of Andaman and Nicobar Islands. A total of 60 ethnomedicinal plant species distributed in 32 families are documented in paliyars tribal areas in Madurai district, Tamil Nadu. Generally, fresh part of the plant was used for the preparation of medicine and observed that the documented ethnomedicinal plants were mostly used to cure skin diseases, poison bites, stomachache and nervous disorders. (Ignacimuthu, et al., 2006).

Ragupathy et al., (2008) reported 95 plant species belonging to 50 families were used by the Malasars of Velliangiri Holy Hills, Western Ghats, Tamil Nadu. Ethnomedico botanical survey among Palliyar tribals in different pockets of the Saduragiri Hills, Western Ghats, Tamil Nadu were carried out by Amish Abragam et al., (2008). They reported 180 plant species belongs to 146 genera and 69 families are used in 53 ailments.

Prusti et al., (2008) reported preliminary phytochemical study and in vitro antibacterial activity of the ethanolic extracts of three plants having ethnomedicinal uses collected from tribal belt of Orissa, India, viz. Litsea glutinosa L.: Lauraceae, Vitex peduncularis: Verbenaceae, Elephantopus scaber L.: Asteraceae. A study on the native uses of ethnobotanical species was carried out by Chandra Prakash Kala, (2009) in the south Surguja district of Chhattisgarh state in India with the major objective of identifying different food and medicinal plant species and also to understand their ongoing management and conservation. Totally 73 ethnobotanical species used by tribal and nontribal communities were documented, of these 36 species were used in curing different types of diseases and 22 were used as edible food plants.
Sumathi and Parvathi, (2010) reported the antimicrobial activity of the extracts of *Andrographis paniculata* Nees; *Phyllanthus niruri* Linn., *Terminalia bellerica* Roxb.; *Terminalia chebula* Retz.; and *Vitex negundo* Linn., was studied against fourgram negative and one gram positive bacteria. The results showed that the Minimum Inhibitory Concentration (MIC) of *Phyllanthus niruri* leaf extract was 50 μg/ml against *Salmonella typhi* and *Staphylococcus aureus*, whereas, the MICs of *Terminalia bellerica* fruit extract against *Escherichia coli* and *S. aureus* were 50 and 200 μg/ml respectively.

The antimicrobial activities of leaf extracts of *Calycoperis floribunda* in three different solvents such as diethyl ether-methanol, aqueous 90% methanol extract and petroleum ether-butanol extract were tested against *Bacillus cereus*, *Bacillus subtilis* and *Staphylococcus aureus* by Rama Bhat et al., (2011). The diethyl ether-methanol extract of the leaves and its petroleum ether-butanol fraction showed significant antibacterial activity. The antioxidant property was maximum in petroleum ether-butanol extract and was minimum in diethyl ether-methanol extract.

Pachaimalai, an unique hill of Tiruchirappalli district is situated in the Southern parts of the Eastern Ghats in Tamil Nadu, India. It is endowed with rich medicinal flora. The Malayali Gounder Tribes are the inhabitants of the hills who inherited rich traditional knowledge about curing properties of the hill flora. Rekha and Parvathi (2012) carried out the evaluation of phytochemical constituents and antioxidant activity of the leaves and fruits of *Naravelia zeylanica*, (L.) DC., *Cardiospermum canescens*, Wall. and *Mallotus philippinensis*, Muell. Arg. that are used by these tribes to cure wounds, herpes, viral and bacterial diseases. The antioxidant activity of methanolic
extracts evaluated by Diphenyl Picryl Hydrazyl (DPPH) free radical scavenging activity revealed rich amount of antioxidant activity in the selected plants.

Sen Sunil Kumar et al., (2012) carried out ethnobotanical studies in Bargarh, one of the ten districts of Western part of Odisha. This study reveals that 20 plant species (belonging to 20 genera and 16 families) are used by them for temporary or permanent birth control either as contraceptive or abortifacient.

An ethno-botanical survey, particularly the plants used other than medicinal purposes were carried out among the Malayali tribals in Thiruvannamalai district of Tamil Nadu, India by Subbaiah Muruganandam et al., (2012). A total of 24 plant species belonging to 20 genera were recorded as non-medicinal and food plants in the study. These plants were used for food, religious purposes, rituals, decorative purposes, as insect repellents, biofertilizers, construction purposes, making household implements and hedge and fuel. The study showed a high degree of ethno-botanical novelty and the use of plants among the Malayali tribals.

The investigation of Irshad Ahmad Baba et al., (2012) provides an ethno-botanical data of the medicinal plants used by the people of district Ganderbal, Jammu & Kashmir to cure various ailments. The twenty five mentioned plant species belong to eighteen families. Plants and their extracts have immense potential for the management and treatment of various diseases. There is no conservation programme for the valuable source of medicinal flora. Efforts need to be made to conserve the endangered plants and need to pay attention to aware the people for the potential of medicinal plants to cure various diseases and to protect them to become endangered or extinct.
Bargali et al., (2013) describes the plants used in indigenous medicine and healthcare in Kotabag block of Nainital district, Uttarakhand. A total of 25 plants belonging to 23 genera and 16 families were described. Different plant parts were used to cure various ailments.

Survey on the ethno medicinal plants carried out by Ramesh Kumar et al., (2013) in local inhabitants of Mandapam coastal regions, Tamilnadu. In the study 57 species belonging to 34 families under 53 genera of ethno medicinally important plant species were noticed with their medicinal properties to cure more than 40 diseases like asthma, anaemia, bronchitis, cough, cold, diabetes, diarrhea, skin diseases, respiratory problems etc.

An ethnobotanical study has been carried out by Ballabha et al., (2013) in the Lohba range of the Kedarnath Forest Division, Garhwal Himalaya to document the diversity, ethno-medicinal uses and availability status of medicinal plants. A total of 140 species belonging to 126 genera and 64 families were recorded from the study area. Out of the documented species 69 were herbs, 37 shrubs, 23 trees and the rest 11 were climbers. Plant parts are used to cure cold, cough, fever, stomach disorders, joints pain, eye diseases, healing of cuts and wounds, toothache, etc. This study has helped to develop a comprehensive data base on the medicinal plant resources to strengthen the health care system in the area and in conserving the traditional knowledge for the prosperity of the remote village areas.

A survey was conducted by Das Moushumi et al., (2013) on the use of traditional medicine by the Adi tribe of East Siang district of Arunachal Pradesh, a state of eastern Indian Himalayan Mountain range. Thirty three plant species were identified as being used for Traditional Medicine preparation by the Adi people. Eighty one
percent of these plants were used for human, while 19% were used for animal diseases. Traditional medicines were used for treatment of Jaundice, typhoid and malaria (9%), eye infection (6%) burn injuries (6%), skin disease and repellant (6%), diarrhea (9%), toothache (9%), wound healing and infection (15%), bone fracture (15%) and fertility control (24%).

Rawat Dhiraj and Kharwal Anjna, (2013) carried out ethnobotanical study of local communities and rural populace of Jaisinghpur, District Kangra, Himachal Pradesh. This study reported that 21 plants (15 dicots and 6 monocots) belonging to 16 families were used as herbal remedies for child-care, while 2 plant spp. are used along with other plant resources in herbal preparations.