CHAPTER-VI

SUMMARY
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According to the World Health Organization (WHO), as much as 80% of the world’s population relies on traditional medicine. Primarily, the population of developing countries is using herbal medicines for primary health care. They have stood the test of time for their safety, efficacy, cultural acceptability and lesser side effects.

The health problems that plague modern society are well known in the medical world, but the rapid strides being made in current pharmacology are barely able to keep pace with them, and even the vast range of drugs available is often far from satisfactory. Underlying the praises heaped upon such products for their efficacy is a more cautious note of warning. This propaganda, voiced in a low key, invites the consumer to turn to more natural alternative medicines, many of which were once widely used, but have long since been abandoned in favour of progress. As a result of this new trend, a large number of people who are perhaps septical or apprehensive about conventional drugs have now turned to alternative treatments, and in particular treatments that make use of medicinal plants.

The earliest recorded evidence of use of herbs use in Indian, Chinese, Greek, Roman and Syrian texts dates back to about 5000 years. The classical Indian texts include Rig Veda, Atharva Veda, Charaka Samhita and Sushruta Samhita. The herbal medicines/traditional medicines have therefore, been derived from rich traditions or ancient civilizations and scientific heritage and had come to the present generations through oral traditions. Greek medicine, Egyptian medicine, Babylonians medicine, Chinese medicine, Arabian medicine are well known medicinal system in the world. In India Ayurveda, Unani and Siddha are well-recognized medicine system.
There is no comprehensive work on herbal medicine on any of the areas of northeastern India in general. This is also true for West Kameng and Tawang districts and only sporadic works have been carried out on these two districts and almost no work have been carried out on East Kameng district of Arunachal Pradesh.

The present work on “Medicinal flora of erstwhile Kameng district of Arunachal Pradesh - their value addition and ethnomedicine” was undertaken during 2002 to 2005 and it includes six Chapters, References and one Appendix.

The study area, erstwhile Kameng district, now comprises of East Kameng, West Kameng and Tawang districts. The three districts are located in between 26°54' and 28°01' N latitudes and 90°45' E and 93°24' E longitudes. The main rivers of Tawang district are Tawang-chu and Nyamjang-chu. The other small rivers of the districts are Khouchu, Seruchu and Shyrochu rivers. The water of the Tawang valley flows into Bhutan. In West Kameng district the main tributaries of Kameng River are Dirang-chu, Tenga and Kalaktang rivers. In East Kameng district important tributaries of Kameng River are Para, Pachi, Pachok, Pakoti, Keya, Bichom, Pacha, Pakke, Papu, Passa, Narmorah and Dikalmukh. Kameng the main river of East Kameng and West Kameng district receives the water of easterly flowing Tenga and Bichom rivers. It also receives the water of westerly flowing the Papu and the Pasar rivers. It is flowing in the northeastern corner of West Kameng district. The soils in erstwhile Kameng contain humus with high degree of nitrogen on account of extensive vegetal coverage. In general, soils have rich layer of organic matter due to the rotting of the jungle leaves. The climatic condition of the erstwhile Kameng district varies largely with topography and altitude. The elevation plays a vital role in determining the type of forest. Keeping this in mind, the vegetation in erstwhile Kameng district may be divided into (i) Tropical evergreen (ii) Tropical semi evergreen
(iii) Subtropical broad leaved forest (iv) Subtropical pine forest (v) Temperate broad leaved forest (vi) Temperate coniferous forest (vii) Alpine vegetation and in Secondary forest (i) Degraded forests and (ii) Bamboo forests.

Erstwhile Kameng district is mainly inhabited by Nishi, Akas, Monpas. Sershudpens and Mijia. The tribes of erstwhile Kameng district are follower of Hereditary Shamanism and Buddhism. The diet of erstwhile Kameng tribe is simple, it consists chiefly cereals, fish, wild vegetables and bear brewed from maize and millets. Buddhist influence has, however, created certain food taboos among Monpas and Sershudpens.

The present work is based on carefully planned intensive survey and field studies conducted during 2002-2005 in the areas inhabited by the Aka, Monpa, Nishi, Miji and Sershudpens of erstwhile Kameng of Arunachal Pradesh. While planning the field works various techniques suggested by different investigators Jain 1967, 1981, 1987; Jain & Rao 1967; Jain et al 1984; Rao RR 1984; Tribhuvan 1998; Rozario et al 1999 were taken into consideration. Several weeks, sometimes even one/two months together, were spent among the local people in each visit in a particular area and a close study of the uses and names of plants was made in the field.

As in many societies, the knowledge of medicinal herbs and treatment among the tribes of erstwhile Kameng is often rather specialized, limited to a few members of the community, which are recognized as medicinemen or Mugou, Adua in Aka; Manpo, Chobje in Monpa; Nube in Nishi; Jijis in Sershudpens and Nyabo in Miji. These persons are generally the most respected and rather indispensable members of the society. Generally medicinemen treat all kinds of illness rather than being specialized in some specific illness. Some practitioners, on the other hand, are highly specialized and treat only some specific illness. Few plants are grown especially for their medicinal value. Most of the medicinal plants are obtained from the forests. However, some medicinal herbs, which generally do not grow in an area, are
usually procured from other places. The folk medicine among the tribes of erstwhile Kameng is an art practiced mainly by the old people. However, the author in the course of the present study has come across several young men prescribing herbal medicines.

The Akas, Monpas, Nishis, Sherdukpons and Mijis maintain a relative secrecy about the use of their herbal medicines. This is because of the fact that they believe, the medicines will loose their 'healing power', if too many people know about them. One cannot work long among the erstwhile Kameng tribes without participating in their feasts, festivals and ceremonial occasions. It brings a friendly atmosphere and they slowly become less secretive.

Sometimes the author recount a story associated with the plant to a possible informer and ask whether the informer knows the story. In many occasions the informer gives some other story associated with the same plant or other plants. This method was employed to extract information regarding the socio-cultural practices or regarding folklores. In many instance the informant was to busy or too infirm to accompany the author and it was necessary to deviate from the usual procedure. Under such circumstances, the described plants were collected under the guidance of a direct relative or trusted friend of the informant familiar with plants and later showed to him for confirmation. During the stay in the field, festivals and other ceremonies were attended and observed, where plants were often used.

In no case information was accepted without verification by actual plants. The accompanying voucher specimens were taken either to the Kanjilal Herbarium (ASSAM), Botanical Survey of India, Eastern Circle, Shillong or to the Central National Herbarium, Sibpur, Kolkata, Botanical Survey of India and to the Herbarium of Botany Department, Gauhati University for proper identification.

A relevant question may be asked to what extent the authenticity of the statements of the informants can be relied upon. Extra effort was made in this
direction, and the same plant specimens were made the subject of discussion with different informants on different days at different places or villages. This helps greatly, because the membership of the gathering changed, and there was also scope for new information or even for contradiction of some old notes. This resulted in confirmation of notes and statements.

The present account is not a work on the flora from the taxonomic point of view, but attention has been given to plants considered to be useful by the Akas, Monpas, Nishis, Sherdukpen, Mijis of erstwhile Kameng. Both wild and cultivated plants are included. The plants have been arranged in alphabetical order according to their scientific names.

In the present investigation studies were conducted at the Department of Botany, Gauhati University and the results are summarized below.

- Total 217 medicinal plant species have been recorded from five plant groups; these are algae with 1 species, lichen with 1 species, pteridophytes with 6 species, gymnosperms with three species and angiosperm with 206 species; monocotyledonous represent with 34 species and dicotyledonous represent with 172 species.

- The medicinal plants spread in 97 families. Algae with 1 family Lichen with 1 family Pteridophytes with 6 families; Gymnosperm with 3 families The Angiosperm medicinal plants spread in 86 families, monocotyledonous represent with 12 families and dicotyledonous represent with 74 families.

- The plant were collected from different habitat like riverbanks, roadsides, grass field, marshy places, hilly slopes, bridle path
etc. The collected plants belonging to Tropical, Temperate, Alpine, Aquatic and sandy habit.

- 217 medicinal plants of the study area are regenerate by 17 methods

- 204 plants are used against 84 diseases by the tribes of erstwhile Kameng.

- The tribes of erstwhile Kameng with cold water, warm water, honey, yak milk etc take usually herbal drugs. These are called vehicles. Vehicles facilitate the action of medicine. The tribes take or prepare herbal medicine in 18 forms, for 84 ailments.

- Out of 217 medicinal plants, 137 plants have other ethno botanical uses. These plants are used in 29 categories.

- Out of 217 medicinal plants, 78 plants are used in Ayurveda, 58 plants in Unani, and 21 plants in Siddha medicine system.

- Out of 217 medicinal plants, 57 plants have local market value, 78 plants have national market value, and 71 plants have international market value.

Although the study area is very rich in medicinal plants, ironically this rich potential is yet to be fully harnessed for the economic benefit of the area. Even with the availability of the favourable agro-climatic conditions there has not yet been any serious efforts in government as well as non-governmental...
sector for raising commercial plantations or scientific management of medicinal plants. There is no industry even to make crude drugs in the area.