

## **CHAPTER -VI**

### **SUMMARY**

The present study entitled “Traditional Knowledge and Technology of Natural Dyes Practiced by the Meitei communities of Manipur” elucidate a fragment of the enormous endless use of natural dyes and incorporate with the critical inputs of research findings conducted during 2009-2013 and divided into five chapters. This present study deals with the enumeration of NDYPs, mordants, their distribution and the traditional knowledge and technology of *kum* dyeing.

The main objective of the study includes the study the of natural distribution of the NDYPs throughout the state, collection of NDYPs and the mordants, identification and categorization, preparation of Herbarium etc., the study of the components responsible for dyeing and the study of scientific basis of the traditional knowledge system, traditional technology and traditional methods of preparing plant based natural dyes.

The first chapter gives a brief introduction of the research work and the objective of my study. In the present study, the climate, temperature, rainfall, soil, forest, natural vegetation, population of the study site has been studied. Manipur has been divided into nine districts Bishnupur, Imphal East, Imphal West, Thoubal and five of them form the hill districts viz., Chandel, Churachandpur, Tamenglong, Senapati and Ukhrul. The Meitei communities dwell in the four valley districts of Manipur.

The second chapter incorporates the review of literature pertaining to the present work. It includes certain contribution made in the field of natural dyes in international level, national context and also a few in local context of Manipur. Literatures on the bacterial isolation and identification of dye reducing organisms were also highlighted.

In the third chapter, the methods of plant collection and documentation. Intensive field survey and identification of plant taxa and preparation of herbarium specimens were highlighted. The methodology of biochemical analysis of ten selected NDYPs and two mordants plants were given. Isolation, identification and characterization of isolated *kum* reducing bacterium were also incorporated in this chapter.

Herbarium of the collected specimens was prepared based on the methodology laid down by Jain and Rao (1977). Arrangement of the species of plants enumerated has been alphabetical and correct nomenclature with citation of references of original publication has been provided. This was followed by family, vernacular name, distribution and habitat, flowering and fruiting period, part used and specimen examined.

The colour fastness properties of dyed cotton, silk and wool fabrics were determined in both traditional technique using natural plant source mordant and metallic salt as mordant. The tensile strength and elongation % of dyed cotton, silk and wool fabrics with traditional technique using natural mordant and metallic salt as mordant were also determined.

Chapter four highlighted the results of the present study. It gives the enumeration of the 37 plants belonging to 29 families which were reported to be used as NDYPs, 14 plant species belonging to 10 families as alkaline mordant and 8 plant species belonging to 6 families in alphabetical order. General citation along with scientific name, family, vernacular name, part used, description of the plants, distribution, flowering and fruiting periods were also given in this chapter. Except for some plant species, most of the reported plant species were evenly distributed throughout the state both in valley and hill regions.

Biochemical test for the colouring pigments in ten selected NDYPs viz., *Clerodendrum philippinum* Schauer, *Curcuma domestica* Val., *Datura metel* L., *Parkia timoriana* (A.DC.) Merr., *Pasania pachyphylla* Schot., *Punica granatum* L., *Solanum nigrum* L., *Strobilanthes cusia* (Nees) Kuntze and *Terminalia citrina* Roxb. was done. Two mordant plants *Achyranthes aspera* L. (alkaline mordant) and *Garcinia pedunculata* Roxb. (acidic mordant) were taken for estimation of minerals.

*Strobilanthes cusia* (Nees) Kuntze was used in dyeing *kum phanek*, prepared in loin loom, a traditional dress used by Meitei women. Distributions of *S. cusia* (Nees) Kuntze were studied. It was observed that this very important plant of dyeing occurs only in few localities in the entire nine districts. This plant species was found to be disturbed in their natural habitat i.e. they were almost extinct in wild. Now it will be high time to conserve the plant and the age old traditional technique and technology of *kum* dyeing.

The present study was the first of its kind to study the scientific basis of the *kum* dyeing process and documentation of the NDYPs and mordant plants. One of the microorganisms responsible for reducing the fermented *kum* dye was isolated for the first time and identified as a bacterium, *Lysinibacillus fusiformis*.

The fifth chapter was on general discussion on the findings of the present investigation by comparing with earlier findings of different workers.

The sixth chapter gives a brief summary of the present investigation.

The last concluding chapter gives conclusion of the present work and the concluding remarks were also given in this chapter.