Chapter 3

MATERIALS AND METHODS

3.1. DEVELOPMENT OF PRINCIPLES

The aim of the present study is the qualitative and quantitative (as far as possible) evaluation and assessment of the trends in the practice of (i) preservation of medicinal plant species (ii) cultivation of medicinal plant species.

3.1.1. PRELIMINARY STUDY

Since the medicinal plant users and growers happen to fall in an unorganised sector the availability of data regarding medicinal plants is really a problem Therefore a preliminary survey was designed to identify the various user groups of medicinal plants and collect the data on the utilisation of medicinal plants/plant products by them. The proposed study involved samples starting from poorly studied and inadequately estimated petlt Ayurvedic pharmacies to industrial giants. Selected species of medicinal plants were considered in terms of requirement /supply. It is hoped that the gravity of non/reduced availability of medicinal plants could be readily
appreciated from this preparatory study.

3.1.2. THE RESEARCH DESIGN

The major investigation on the topic comprises various aspects to understand the trends in:

I. Conservation of medicinal plants

(a) *in situ* conservation of medicinal plants.

(b) *ex situ* conservation of medicinal plants.

II. Cultivation of medicinal plants.

Agencies actively and directly engaged in conservation of medicinal plants were surveyed. Different models of conservation were also identified as well as variables regarding principles and practices.

Similarly, cultivational practices of medicinal plants adopted by various agencies also were studied separately. The impacts of cultivation on the conservation scene will also be taken into account while analyzing the data.

Thus, a comprehensive picture of the trends in preservation and cultivation of medicinal plants could be collected during the investigation within the stipulated time frame. The scientific methods followed in the collection of information are discussed forthwith.

3.2. SCOPE AND LIMITATIONS

The present study covers the entire State of Kerala. Systematic investigations
into the trends in the practice of preservation and cultivation of medicinal plants were attempted. The scope of the investigation was extended to all agencies namely, Governmental, non-Governmental, teaching and research institutes, corporate and private agencies, and also entrepreneurs.

However, the number of institutions/agencies to be included in the study was fixed, based on exclusion criteria viz. non cooperation, poorly informed location, and insufficient records. Information collected from few agencies in the absence of proper records prone to recall bias. Some respondents being reluctant to disclose the extent of their activities especially in income related matters has affected the accuracy of the data in certain instances.

3.3. TOOLS FOR INVESTIGATION

Historic data from the ancient literature and excerpts from contemporary literature form the secondary data. The data obtained from the field investigation forms the primary data.

Field survey is the major tool for the study. Different sites/locations where preservation or/and cultivation of medicinal plants being practiced were visited. Data in facts and figures were collected regarding the performance of different agencies as per the prepared interview schedule. The schedules are given in Appendices I (a-c)

3.4. DATA COLLECTION

To aid the sampling, notifications in the leading daily newspapers were given at three regular intervals during the period of investigation. This helped to obtain
information on the small/less known agencies who are involved in the practice of preservation and/or cultivation of medicinal plants. The informants were contacted personally for obtaining first hand information. Participant observation and questionnaire methods were used for collection of primary data.

Large/well known agencies form the integral part of investigation, and were visited for collecting the data. The primary data from the above samples were recorded according to the interview schedule. Photographs were taken wherever it was feasible, to supplement the presentation of facts in the report.

Outstanding agencies were visited with special intention to present them as case studies.

3.5. VARIABLES AND CLASSIFICATION

3.5.1. PRESERVATION OF MEDICINAL PLANTS

a.) In-situ conservation

i. Nature of agency

ii. Time of inception

iii. Extent conserved

iv. Forest type

v. Locality factors

vi. Number of medicinal plant species identified in the area.

vii. RET status assessed, if any

viii. Reintroduction of medicinal plants, if any


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b. Ex-situ conservation

i. Nature of agency

ii. Time of inception

iii. Extent conserved

iv. Soil type

v. Conservation model

vi. Number of medicinal plant species preserved

vii. Methodology adopted for planting

viii. Nursery practices

ix. Sale of planting material

x. Man power

xi. Extension activities

[Note: The number of medicinal plant species were counted as per the inclusion criteria and was based on the principal list of 500 medicinal plants (Warrier et. al 1997).]

3.5.2. CULTIVATION OF MEDICINAL PLANTS

i. Nature of agency

ii. Time of inception

iii. Extent cultivated

iv. Soil type

v. Number of species cultivated
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vi Criteria for selection of species

vii Methodology of cultivation

viii Use of fertilizer

ix Use of pesticides

x Irrigation methods

xi Details of crops harvested

xii Marketing facilities.

3.6. SCORING AND CONSOLIDATION OF DATA

Variables classified and recorded on each sample are tabulated in terms of *in situ* conservation, *ex-situ* conservation and cultivation separately. Scoring of the qualitative parameters was resorted to a specifically chosen scale. Observations and consolidated data are presented in tables, charts, graphs, diagrams, pictures, algorithms and photographs.

3.7. ANALYSIS

Preliminary analysis of the variables has been done in all cases. Simple statistical tools like percentages are employed for comparative analysis. Inferential analysis was resorted to after evaluating the case studies of the outstanding agencies; both in the field of preservation and cultivation of medicinal plants.