The present work, pertaining to the Phytodiversity of endangered plants in Chhatarpur district with special reference to *Ficus benghalensis* was carried out during 2008 to 2010. The whole text to the thesis has been grouped into 10 chapters and bibliography.

**Chapter-1 : Introduction :**

The first chapter of the thesis deals with the introductory theme of the thesis, the rational for taking up the study, its scope and objectives. Interrelationship of plants, human and their environments and various aspects of phytodiversity, phytosociology, ecophysiological study, phenological study, medicinal importance of *Ficus benghalensis*, study of endangered plants and utility for the modern society are also described. Main work focused on *Ficus-benghalensis* because it is very important and ever green plant of this region due to having medicinal importance.

This chapter also deals with the phytodiversity of India and forest diversity at Chhatarpur district, taxonomic description of *Ficus benghalensis*, meteorological and climatic data as well as floristic composition, which ultimately provide a fruitful ground for ethnomedicinal investigation.
Summary

This chapter also describes how people understand the relationship between human, animal, plant and physical element of a locale. This chapter also highlights about the phytosociology, ecophysiology, phenology, interrelationship of individuals of many species growing together in the field and more usually, it includes the study of sets of species forming communities under natural conditions.

Chapter-2 : Review of Literature :

Comprehensive account of the history of usage of plants since ancient times to the modern period has been mentioned. Important contributions made by various researchers in the field of phytodiversity in India and abroad were quoted. References of some important literature written by Indians during Vedic periods are also mentioned. The importance of endangered plants knowledge is a new path in scientific research for conservation, monitoring or for understanding ecological knowledge and has much attention in resource management. An account of phytodiversity of endangered plant work done in various states is also given with a particular emphasis on the work done in different district as Rewa and Gwalior of Madhya Pradesh.

Ecophysiological study are focused on anthelmintic activity of root, stem and leaf extract of *Ficus benghalensis* with Indian adult earthworm (*Pheretima psothuma*), Phenological study have been carried out at different three sites (water site, road site and forest site)
and medicinal importance have been given by different diseases like improving fertility, leucorrhoea, toothache, improving memory, dysentery, pimples, piles, arthritis, hair fallings and gyanic disorders.

Chapter-3 : Study Area and Climate Conditions:

Chhatarpur district is situated on the north central part of Madhya Pradesh and known for its Khajuraho Temples, which are the super piece of architecture. It is named after Raja Chhatarsal Bundela of Panna, who founded it in the year 1707.

The district extends between the parallels of latitude 24°6’ and 25°20’ North and the meridians of longitude 78°59’ and 80°26’ east. It resembles the shape of a fish, with its fins projecting across the length and the bifurcated tail in Buxwaha and Ghoura circles. The greatest length of the district is 185 km. and the width about 121 km. It is bounded on the north by the districts of Mahoba and Banda (U.P.), on the east by a small portion of Banda district and the rest by Panna districts on the south by the district of Damoh. Except south west corner which is bounded by Sagar and on the west by the districts of Sagar, Lalitpur (U.P.) and Tikamgarh. The total area of the district was 8690 sq.km. The district as a whole lies on the lower part of Bundelkhand plateau. The general height is about 400 meters. The range stands about 100 meters from the surroundings and 500 meters from MSL. As per the Census 2011 (Provisional) the total population of the Chhatarpur district is 17,62,857. There are 9,35,870 male and 8,26,951 female in the district. Total literate population in
the district is 9,62,827 out of which 5,85,128 are male and 3,77,694 are female population.

The climate of this district is characterized by general dryness except during the south-west monsoon season, and a very hot summer. The year may be divided into four seasons. The cold season from about the middle of November to February is followed by the summer season from March to about the middle of June. The south-west monsoon season is from about middle June to about the end of September. The succeeding period lasting till the middle of November constitutes the post monsoon or retreating monsoon season. Variation of higher magnitude in temperature were observed between winter and summer.

The total area of Government forest is 1,999.64 Sq. km. These forest are divided into 253 blocks and 733 compartments. They are treated, by and large as protected forest, and the total reserved area in only 13.81 Sq. km.

**Chapter-4 : Proposed Methodology During the Tenure of Research Work :**

This chapter gives the detailed methods applied in field collection phytosociological study anthelmintic effects on earthworm. Medicinal importance of *Ficus-benghalensis* different types of disease cured by *Ficus-benghalensis* and phenological observation at different sites in different seasons. All methods and formulas are given in this chapter.
Chapter-5: Biodiversity of Endangered Plant by Phytosociological Method:

This chapter deals with the measurement of the different phytosociological study like frequently, density abundance. Relative frequency, Relative diversity, Relative abundance and Importance Value Index (IVI) etc. at Chhatarpur district. List of endangered, vulnerable and rare plants and extended distribution of some little known endangered and endemic plants from Chhatarpur district (M.P.) have been given.

Chapter-6: Ecophysiological Study of Ficus-benghalensis:

Anthelmintic effect of Ficus-benghalensis on earthworm is given in this chapter. Different leachate (Stem, Leaf and Root) have been used and studied for morphological and physiological change of Indian adult earthworm (Pheritima posthuma). After observation it has been reported that root and stem leachates are more effective them leaves, but higher concentration of leaves extract also give effect on earthworm.

Chapter-7: Phenological Observation of Ficus benghalensis:

The phenological observation have made in floristic ecological and meteriological investigation in the beginning of 20^{th} century. Phenological observation of Ficus-benghalensis plant species were observed by visiting the different selected site at different time interval for one year i.e. July 2008 to June 2010. Different stages of
Phenophase and their sequences were recorded in every visit after keenly observation about their individual of species.

**Chapter 8 : Medicinal Importance of *Ficus-benghalensis* :**

In this chapter all studies which describe the traditional system of medicine, the plant (*Ficus benghalensis*) is used for various health problems and disease such as leucorrhoea, dysentery, improving memory, piles, arthritis, hairfalling, pimples and many gyanic disorders. In the plant it is used for various health problems and disease. Therefore the aim of the study is to present an overview of traditional medicines investigations carried out on the plant and the worship of certain tree and taboos with contribute to conservation and fall within the medicinal scope.

**Chapter-9 : Results and Discussion :**

This chapter embodies a detailed comprehensive interpretation of various parameters viz. climatic condition and biodiversity of district, phytosociological study of some endangered, vulnerable plant at Chhatarpur district, correlation of tribal and live style and their environment concept of medicinal and economical uses of *Ficus benghalensis* and way of diagnosis, various forest type, phenological observation antinimaticidal activity of Earthworm have been given. The assay was performed on adult Indian earthworm *Pheretima posthuma* due to its anatomical and physiological dissemblance with the intestinal round worm parasite on human being. Because of easy availability earth worms have been used widely for the initial
Summary

evaluation of anthelmintic compounds in vitro. It is much useful work for population because synthetic drugs give side effect and it is mainly based on herbal. The taxonomic and anatomical characters and detailed description of ever green plant *Ficus benghalensis* also given in this chapter.

**Chapter-10 : Summary and Conclusion :**

This chapter deals with the summary of the present work. Phytodiversity is the vast diversification of flora in the biological world and forest is one of the richest source of biodiversity. Phytosociological study have been given line transect method to find out the frequency, density, abundance, relative frequency, relative density, relative abundance and important value index (IVI).

General introduction, taxonomic description, dispersal pollination and medicinal importance, antinemiticidal activity and phonological observation of *Ficus benghalensis*. Plants are essential for the survival of all life and therefore on the other hand we depend on plants. *Ficus-benghalensis* is the key stone species of ecosystem, so present work focused on *Ficus benghalensis* and the studies of the total natural and traditional relationship and the interaction between man and his surrounding knowledge about plant wealth and search of new source of herbal drugs, edible plants and other aspects of plant including conservation. Plant are essential for the survival of all life and therefore, on the one hand our dependency on plants and on the other hand or even taboos and avoidance of plants result in a chain action.
and reactions, all of which fall within the realm of ethno ecology. The surroundings have fascinated man, since time immemorial and by virtue of his brain’s ability of quest and the wondering habits. We have gathered sufficient scientific knowledge about flora and fauna.

**Bibliography:**

At last of the thesis this chapter deals with all the references mentioned in the text and also the reference of various flora (not given in the text) which were used for the identification of plants. References are arranged alphabetically in the last of the thesis.