The present study entitled “Studies on the flora of Satpura hills with special reference to District Chhindwara M. P.” is an outcome of study undertaken during the year 2006-2010. It included the floristic study of Satpura hills in Chhindwara District. Taxa of pteridophytes, Gymnosperms and Angiosperms have been in this work. The present account have been divided into the eight chapter.

CHAPTER I:

Deal with the general account and introduction of the floristic study and reason for undertaking the present work. Because of the new policy of Convention on Biological Diversity came into force and as per IUCN, the existing flora is to be studied looking to the threatened status of the exiting taxa, following investigation has been taken, due to number of reason. Some are mentioned below:

a] A large number of species have been described from various parts of the country from time to time since the publication of flora of British India by J.D.Hooker (1872-1897).

b] Comprehensive or partial list of additional species have been published by Calder, Narayanswami and Ramasawami (1926), Razi (1959) and Srinivasan and Agrawal (1963). Further earlier workers have centered their attention only towards the enumeration, identification, and classification of the taxon.

c] Several exotics has become naturalized and are spreading successfully in different parts of the country and effecting the plants diversity of the area.

d] Most of the flora have published either in the last quarter of the 19th century or in the first quarter of the present century. Due to human migrations, import of food grains, biotic interferences, there has been great changes in the floristic composition of any natural vegetation in particular region. Due to this, some species have disappeared or others are going to become extinct.

e] A large number of species have extended their distribution in country it self.

f] The nomenclature of quite a number of species in Hooker’s flora have also changed in accordance with the International Code of Botanical Nomenclature (1956, 1961, 1978, 1983).
g] Raizada (1958) published a list of incorporate name changes and besides, a number of publication scattered in literature, have appeared dealing with the nomenclature of plants.

h] Several families, genera, and species have been revised in monographic studies by taxonomists from time to time.

i] To support the taxonomic study in various aspects to botany committee like IUCN (International Union for Conservation of Nature and Natural Resources) and National committee of Man and Biosphere have been established.

j] In light of main objective of IUCN & MAB and State Biodiversity Board, this taxonomic study has been take to know the local flora of the “District flora of Chhindwara district”

Present investigation includes an intensive Botanical exploration of Satpura region range of Chhindwara district was done. Man objective of the present work to explore the flora of the district, which would be helpful to the researchers, teachers, foresters and person engaged with studies, in different disciplines. It would be a contribution for the district of state also.

**CHAPTER II:**

The chapter is on material & method followed during the study and include the previous botanical exploration done by different workers since the publication of Santapau’s (1958) who remarks, that quite a number of large area in India particularly those of Madhya Pradesh are still unexplored and very inadequately studies inspire of the fact that in is the largest and in plant diversitically rich. Present work in based on the result of four year intensive survey, collection and study of flowering plants of Santpau region of Chhindwara district covering **Tamia, Amarwada, Harrai** and **Patalkot** regions.

The field work has been conducted following the suggestion of Santapau (1955). The field trips were arranged 4-6 times in a month, in such a way so as to cover all parts of the areas and to collect all plants in flowering and fruiting stages. All the collected specimens were serially numbered and kept in polythene bags. Field observations were recorded in note book. Observation includes information on habitat, habit, size of the plant, leaf, colour, variation of the flowers, scent of the flower association etc. Local name were also noted. Name of the informer with age is
also given under uses of some of the taxa, in parentheses. To illustrate the range of variation of the plants, 5-6 specimens from different localities have been collected, for each species. During collection following precautions have been taken:

1. As far as possible specimens were collected on a clear dry day and were studied and examined as early as possible at the end of the day of collection.

2. Whole plants were collected in case of herbs, however, for shrubs and trees, small piece of twig with leaves, flowers were taken for the preparation of herbarium specimens. Other details like local name, date of collection, place of collection, habitat, habit, size, colour of flowers, associates, frequency, nectar etc. were also noted in the field diary on the spot. Field number mentioned on field level was attached to each specimen. Too much pressure on specimens should be been avoided, the branches, leaves, flower and fruits were properly spread up in such a manner that the plant may look as natural and as possible.

3. During rainy season, for drying specimens artificial heat was also used.

4. Special care were taken for the specimens having larger flowers, bell shaped, bilabiate corollas, plant with thorny or prickly structures, delicate water plants, succulents and Leguminous plants.

**Poisoning and mounting:**

All the dried specimens were identified and stored with saturated solution of mercuric chloride in rectified spirit. The poisoned specimens were mounted by favicol on the standard sized of herbarium sheets (42 x 28cm). Labels were affixed at the lower left hand corner of the sheets indicating all detailed information of the specimens, noted on the field diary during field visit.

**Identification:**

All the specimens were critically examined. Dissection of floral parts were made and identification easier. Further, the identified specimens have been confirmed by comparing them with authentic specimens, earlier deposited in the herbarium of Botany department. Dr. Hari Singh
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Gour Central University Sagar. All the herbarium specimens have deposited in the Herbarium of Botany Department.

For the taxonomic account Bentham and Hooker’s system of classification has been followed. Key to the genera under each family and key to the species under each genus have also been provided. The keys are based on morphological characters. The systematic account of each species is given following sequence:

Name of the species with original citation and citation of latest taxonomic work, reference to the Hooker’s flora of British India followed by other National and regional floras. Synonym if any followed by local names, brief description and the enumeration of species, field notes (regarding habitat, associated, frequency etc.), flowering and fruiting period, herbarium number, ethnobotanical and ethnomedicinal details.

CHAPTER III:

This chapter deals with the general of the area of present study, which includes the Satpura range of Chhindwara District, including of nine tahsils and eleven developing blocks. From the geographical point of view, Chhindwara District can be divided in three main regions:

1] The plains from near Nagpur region comprising of Tahsils Sausar and Pandurna.

2] The central region comprising of Chhindwara, Southern parts of Amarwara regions and Northern parts of Sausar region. This region is also Known as the Satpura mountain region.
3] The third region is mostly the region comprising of hilly terrain. There are five major rivers which flow though the district namely Kanhan, Pench, Kulbehera, Shakkar and Doodhi. Kanhan River flows in the southern direction through the western parts of Chhindwara Tahsils and mixes with the Wenganga river. Jam river flows mostly through the Sausar region and joins with the Kanhan river. Pench river flows in the border areas of Chhindwara and Seoni District and mixes with the Kanhan river in Nagpur District. Kulbehera river starts at Umreth and flows through Chhindwara and Mohkhed and joins with Pench river.

The district is surrounded by Hoshngabad, Narsinghpur district in North, Amravati, Nagpur district in South, Betul district West and Seoni and Balaghat district in West. A brief account of climate, temperature rainfall and humidity is also given.

CHAPTER IV:

This deal with a brief account of forest vegetation of the area. Main forest in the area is dry deciduous forest, main dominating species of the this forest are:

Tree:


**Shrub:**


**Herb:**


**Climbers:**

Clematis gouriana Roxb., Celastrus paniculatus Willd., Cayratia auriculata (Wall.) Gamble, Cayratia trifolia (L.) Domin., Cissus repanda Vahl, Viitis vinifera L., Atylosia scarabaeoides (L.) Benth. Phaseolus vaulagaris L., Pueraria tuberosa (Roxb. ex Willd.) DC., Teramnus labialis
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CHAPTER V:

Deal with the systematic enumeration of all the taxa taken under present study. This chapter includes recent nomenclature concise taxonomic description, habit and habitats, flowering and fruiting times, distribution note, specimen examined with brief notes on its economic use, medicinal uses, name of the informer with age group is also mentioned, for some the taxa. All the beginning, dichotomous key to the families is given. Key to the genera, in individual family and key to the species of each genus are also given with a purpose to make the indemnification easier. Attempt has been made to give correct identity, recent nomenclature and citation of author. This chapter incudes the taxonomic description of total 873 species belonging 122 genera of Pteridophytes, Gymenospers and Angiosperms.

CHAPTER VI:

In this chapter, a brief account of phonological details of taxa particularly of arborescent taxa of angiospermic species is given.

CHAPTER VII:

Covers the floristic analysis of all taxa taken consideration. Amount the angispemic taxa. Total 830 species belonging to 510 genera and 122 families have also studied. Details of the total number of species, genera and families and their percentage of total studies taxa of vascular plants are given in table below:

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Relative dominance of species and families among Dicotyledons and Monocotyledons are also show in Pie Chart given below:

The ratio of Angiosperms families to genera and species for angiosperms worked which is \(1 : 4 : 7\)

Among Angiosperms, Dicotyledons is represented by 95 families is represented by 95 families, 388 genera and 653 species ration of families genera & species comes to \(1 : 4 : 6\)

Monocotyledones are represented by 27 families, 122 genera and 197 species who ratio comes to \(1 : 4 : 7\)

Species reported for the first time form Chhindwara district are also listed. It has been observed that population of some of the taxa in getting depleted due to anthropocentric activates, hence on
the basis of field observation and position of population of each species of angiosperms taxa, threatened status like critically endangered, endangered, vulnerable and rare status is also given. Current threatened status of the taxa, will help to chalk out the appropriate measures strategies for their conservation and propagation.

Relative dominance of 10 large families of angiosperms in respect to the number of genera and species are also given. Leguminosae stand first position as for as number of species and genera are concerned. This is flowed by Poaceae, Asteraceae, Lamiaceae, Acanthaceae, Cyperaceae, Euphorbiaceae, Malvaceae, Rubiaceae, Solanaceae families represented by single species are also listed.

A total 44 families are found belonging to each category out of which 18 species, of Pteridophytes, 5 species of Gymnosperms and 850 species of angiosperms group.

**CHAPTER VII:**

Deal with the economic importance of the flora. Plants are categorized into medicinal plants, wild edible plants of economic importance, plants of miscellaneous used and as cultivated plants. Beside the ornamental plants, road side avenue tree species are also listed.