CHAPTER -1

INTRODUCTION
1. SIGNIFICANCE OF THE SUBJECT CHOSEN

Phytodiversity is defined in terms of genus, species and ecosystem, corresponding to their fundamental and hierarchically related levels of biological organization i.e. species diversity, genetic diversity and ecosystem diversity. It is a concept, which refer to the range of variation of difference among same set of entities thus refers to variety within the plant kingdom. Phytodiversity is thus indeed commonly used to describe the number, variety and variability in plants. It is commonly used as synonym of plant taxonomy.

Plant taxonomy is the most fundamental and the basic branch of Botany. The Vedic literature is full of technical term used for describing plants. The "ATHARVA VEDA" contains detailed description of many medicinal plants and diseases against which they are used. "VRIKSHAYURVEDA" (the science of medicinal plants), was compiled by Parasara before the beginning of the Christian Era. This treatise, which was meant for pre-medical students in ancient India, contained a wealth of details regarding the morphology of plants, soil characteristics, fourteen forest types of India, histology of plants and a system of classification of plants much more elaborated than any system developed in Europe before the 18th century.

Though very well developed during the Vedic times, the science of systematic Botany like many other disciplines of learning passed into oblivion due to successive invasions of the country from outside which led to the destruction of the Vedic culture. Early Portuguese and Dutch explorers laid the foundation of modern taxonomy in India.

2. OBJECTIVES OF THE WORK

The Phytodiversity study leads to an up to-date knowledge of the vegetable resources and raw materials; the supplementary food plants and those providing fodder for the animals species that carry medicinal value and the data that throw some light on the
Phytogeographical problems. Further, it is difficult for a post-graduate and research department in Botany to function unless the plants occurring in the surroundings are not well known. It is only after correctly identifying them, that one can study their detailed aspects botanical, anatomical, ontogenetically, cytological, and ecological as well as ethenobotanical.

Recently much work on the floristic made in the state with interest and enthusiasm by Botanical Survey of India, Jodhpur circle and various Universities in the Rajasthan (Bhandari, 1977; Shiv Sharma & Tyagi, B., 1979; Pandey, 1983; Parmar et.al., 1985 ;Sharma & Aggarwal., 2008 ; Purohit & Sharma., 2012). But the Sikar district has remained more or less neglected as far as floral surveys are concerned. The important aspects of study include:

(1) Survey of major places of district for 2 years in different seasons, collections of plant material particularly Angiosperms.

(2) Preparation of herbarium sheets.

(3) Maintenance of herbarium, especially prepared for phytodiversity of Sikar District.

(4) Authentication of the collected plants from various states and National herbaria.

(5) Medicinal value of various plants, if any use for local people of the district.

(6) Providing means of identification to the flora components from family to infra-specific level through keys and diagnostic descriptions.

(7) Standardization of nomenclature of plants according to the ICBN, along with local names.

(8) Determinations of the Phytodiversity and sketch of biological spectrum.

(9) The outcome of this study will be a valuable document for taxonomic study, for P.G. student & research scholar.
3. THE PRESENT STATUS OF RESEARCH OVER THE SUBJECT CHOSEN

The publication of Hooker's monumental work, entitled, "The Flora of British India" was a great landmark in the history of Taxonomy & Systematic Botany in India. Since then a large number of books and research papers have appeared on the flora and vegetation of India. Chattarjee (1939) and Santapau (1953) have excellently reviewed all these. Several very useful provincial Flora are available for the various regions of the India. Among these, "Flora of The Presidency of Bombay" by Cooke (1901-08); "Flora of The Presidency of Madras" by Gamble (1915-36); "Flora of Delhi" by Maheshwari (1963); "Flora of Tamil Nadu" by Matthew (1982, 1983) and "Flora of Gujrat" by Pandey (2001) are significant studies.

The earliest recorded information on botanical exploration in Rajasthan is about Jacquemont's journey in 1832 from Delhi to Bombay via Ajmer and Neemuch. Later in 1868, Sir George King made collections in Rajasthan, which resulted in his paper "Sketch of the Flora of Rajputana," (1879). The Western Rajputana States listed about 50 species of plants. Between 1918 and 1921, Blatter and Hallberg published the "Flora of the Indian Desert," which for about 30 years remained the only authentic systematic account of the plants of Rajasthan. Duthie (1903-29) in his "Flora of the Upper Gangetic Plain" which included the major part of Eastern and South-Eastern and South-Eastern Rajasthan. Ramachandra Rao (1941) and Sankhla (1951) published lists of some plants of the desert region.

A search through the vast literature existing on regional flora of India only magnifies the great lacuna in our knowledge about the vegetation and flora of Rajasthan, which is the largest state of India in respect to area. The only notable contributions towards the building up of a comprehensive flora of the state of Rajasthan are those of Puri et al. (1964), Gupta (1965), Majumdar (1969), Bhandari (1978 & 1990), Sharma & Tyagi (1979), Shetty & Singh (1987-1993) and Tyagi & Aery (2007).

Geographically, Sikar district covers the partial area of the Indian Desert. There are two monographic works on the flora of Indian Desert i.e., Blatter & Hallberg (1918-21) and Bhandari (1978) who
published a comprehensive flora of Indian Desert containing 594 species with keys and detailed description of species. Bhandari added 90 more species and revised the flora in 1990. Subsequently, Pandey et al. (1984), Shetty & Pandey (1978, 1979, 1988) etc. added further to the flora of Indian Desert.

However their work does not cover Sikar district. The publication of the district flora "Flora of Banswara" by Singh (1983); "Flora of Tonk district" by Shetty & Pandey (1983); Flora of Keoladev National Park by Prasad et al. (1996).

The research papers were published dealing with taxonomic account of different flora and vegetation. The notable contributors are: "Plants of Jodhpur" by Sarup (1954); "Vegetation of Pilani" by Bakshi (1954); A list of Common plants of Bikaner by Sarup (1957); "Flora of Ajmer" by Sharma (1958); "Plants of Jaisalmer" by Sarup (1958); "Hydrophytes of Bharatpur" by Sarup (1960); "Vegetation of Jhunjhunu" by Nair (1961); "Flora of Jhalawar" by Shringi (1981); "Grasses of Udaipur" by Katewa (1981); "Flora of Bhilwara" by Parmar (1982); "Flora of Pali" by Pandey (1984); "Vegetation of Bikaner" by Parmar (1985); "Flora of Jalor" by Vyas (1985); "Flora of Alwar" by Parmar (1987); "An analysis of the Flora of Churu" by Singh, Kalra and Romana (1997); Biological spectrum of the vegetation of Bikaner by Sharma and Prajapat (2002); Phytodiversity of Kumbhalgarh wildlife sanctuary by Pandey & Singh (2002); Ethnobotanical study of some weeds of Bikaner by Sharma (2003); Phytodiversity of Rawatsar by Gir (2006); Addition Grasses of Bikaner and Ganganagar by Sharma, Purohit and Kantiya (2006); Phytodiversity of Nagaur by Aggarwal (2007); Aquatic macrophytes of Bikaner by Sharma, Purohit and Kantiya (2007). An analysis of Flora of Nagaur District in Rajasthan by Sharma & Aggarwal (2008). A check list of Grasses of North –West Rajasthan by Chandan Singh Purohit & Suman C. Sharma (2012). However, no work regarding Phytodiversity has been done to Sikar district. Therefore, the district remained botanically unexplored and was chosen for the present investigation.