REVIEW OF LITERATURE
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It is well established fact that forest are the chief source of human economy, as well as play vital role in safe guarding the complex environmental values. Plants offer better protection to soil and water regimes, but forests are undergoing gradual degradation day by day. Large scale destruction of forest has resulted in several environmental problems. (Singh 1985, Ives and Messerli 1989). The study of natural plant community is basic and prerequisite for understanding the structural and functional attributes, specific to locate for better management practices.

Phytosociology - The Quantitative Study of Vegetation

Vegetation ecology is the study of structure of vegetation and vegetation systematics. This includes the investigation of species composition and the sociological interaction of species in communities. (Muller-Dombois and, Ellenberg 1974). It lays emphasis on study of composition, development, geographic distribution and environmental relationship of plant communities. Plants growing together have mutual relationship among themselves and with the environment.

Interaction among different plants and their environment result in outcome of different vegetation in different areas. The quantitative relationship between rare and profusely growing species is an important structural property of a community. The quantitative study of vegetation is called phytosociology, and its principle aim is to describe the vegetation, explain and predict its pattern and classify it in a meaningful way. Oosting (1956) suggested the importance of few phytosociological parameters for spatial problem in sociological behaviour of plants.

According to Odum (1971), the main aim of phytosociology is to describe, explain and classify the vegetation. Phytosociological analysis of plant
community is an important aspect of ecological study of any piece of vegetation and helps in analyzing the community dynamics. Species content and their ecological amplitude determine structure of nature of plant community. This includes the investigation of species composition and the sociological interaction of species in communities (Muller-Dombois and Ellenberg 1974). It lays emphasis on study of composition, development, geographical distribution and environmental relationship in plant communities. Various phytosociological techniques are employed to study different forest communities and their relationship (Raunkiær 1934, Pichi sermolli 1948, Sorensens 1948, Goodall 1945, Bray and Curtis 1957, Swan and Dix 1966, Noy-Meir and Austin 1970, Gauch and Whittaker 1973).

Misra and Puri 1957, Puri 1959, Whaedd Khan and Gupta 1960, Champion and Seth 1968 and Sharma et al. 1983 had recommended many methods for quadrat size and methodology for the study of vegetation. The study of phytosociological attributes is useful for comparing one community to other from season to season and year to year (Singh 1976). Phytosociological analysis was carried out with the objective of estimating analytical characters viz. Density, Frequency, Basal area, Richness of species, Distribution pattern of vegetation to estimate synthetic characters namely vegetation diversity, dominance, evenness and equitability etc.

Phytosociological studies were reported from many parts of the world in different forest ecosystem (Knight 1975, Palmir 1989, Lee et al. 1990, and Behect 1991). In India phytosociological studies were carried out in different forest ecosystem (Negi 1979, Ralhan et al. 1982, Rai and Procter 1986, Saxena and Singh 1982, 84 and Saxena et al. 1984).

A number of studies on plant species diversity of Himalaya and other regions of India as well as outside India are available. Troup (1921) studied the vegetation of Indian forest from silvicultural point of view and wrote exhaustively on large number of trees. Champion and Seth (1968) classified the forest of
Himalayan region from ecological point of view. Another workers like Sant (1964), Cherion and Bole (1964) Ahuja et al.(1968), Gupta and Saxena (1971),Kumar and Joshi (1972) carried out such types of studies in Rajasthan.

Tropical forests, non-renewable resources, according to some, represent complex structural and operational relationship. During the past few decades, however due to overexploitation, tropical forest have declined enormously. To understand the dynamic nature of forest development and the role of natural process, long-term studies are necessary. Age distribution of natural forest perhaps can provide intuitive knowledge on regeneration. However because of the difficulties in obtaining information regarding age distribution of natural forest have generally been studied in terms of distribution of parameters, such as diameter at breast height, at tree height (Oliver and Larson 1990).

Biotic interference in forest cause remarkable change in vegetation diversity and species composition (Verma et al.1997). The chronic forms of disturbance occurring in forest adversely influence the succession, growth and survival of seedling and sapling. Regeneration in many Indian forest is inadequate to replace the adults (Sukumar et al.1992), conservation of these forest will depend on an understanding of forest ecosystem dynamics ( Sussman and Rokotozfy 1994). Detailed quantitative ad qualitative description and information on the regeneration status of remaining forest are necessary as they form the basis for future plans to manage and restore the vanishing resources. However comprehensive studies are lacking on the pattern of species diversity and regeneration along the human use gradient. Such studies particularly in and around protected areas can serve as baseline information and would be useful in predicting the future course of succession and habitat condition.

From last many years several studies were undertaken on community structure and organization in natural forest in different climatic zones of India (Singh and Singh 1981, Yadav and Shah 1982, Singh and Singh 1984, Ralhan et al. 1982). Tripathi et al. (1989) and Rikhari et al.(1989) studied the population
structure and community characters of forest of Kumaun Himalaya and found dominancy of lower aged population in almost all sites.

Kusumilata and Bisht (1991) studied the quantitative characteristics and regeneration potential in forest of Garwhal Himalaya. Jose et al. (1994) and Singh et al. (1994) studied structural, floristic and soil matter attributes at forest of Peninsular India and Basaltic region.

Chandra (1996) carried out work on quantitative pattern of vegetation along elevational gradient in kumaun Himalaya and ordained 57 forest stands. Kuamar and Kumar (1997) studied floristic and edaphic attributes in mangrove forest of Kerala. Aravajy et al. (1997) and Mehta et al. (1997) studied the phytosociology of forest of western Ghats and Garwhal Himalaya. Similar work on tree layer analysis and regeneration in forest of Garwhal Himalaya was done by Rikhari et al., Pandit et al. and Gargya et al. (1998). Work on vegetation characters of forest of Agasthyamalai region (Kerala) was done by Varghese and Menon (1998).

Pande and Shukla and Pande (1999) studied diversity, community pattern in relation to disturbance gradient in some Sal forest areas. Like wise Rawat et al. (1999) studied woody vegetation of Shivaliks and outer Himalaya. Species diversity and soil variability in Shorea robusta forest in and around Motinala (M.P) was assessed by Singh et al. (1999) Regeneration status of Navegaon national park was assessed by IIorkar et al. (1999).

Structure, composition, plant diversity and regeneration status of dry deciduous forest of Karnataka was studied by Seetharam et al. (2000). Vegetation study of community managed forest was carried by Shadangi et al. (2000) in Orissa. Sundrapandian and Swamy (2000) study the vegetation structure of deciduous and evergreen forest ecosystem of in Western Ghats.

Demographic studies were carried by Chauhan et al. (2001) in major Sal forest of Doon valley. In Garwhal Himalaya study of vegetation as per aspects
and altitudes was carried by Pande (2001). Similar studies on community structure, tree diversity and phytosociological properties of forest of Garwhal Himalaya was carried by Misra et al. (2003) and Bhatt et al. (2004). Assessment of plant diversity in response to forest degradation in dry deciduous forest of Eastern Ghats Orissa was done by Devi and Bhera (2003). Sagar et al. (2003) done their studies along disturbance gradient in dry tropical regions of India. Jha and Nanduri (2003) measure the biodiversity index of forest of various canopy densities.

Diversity and population characters of woody species exposed to disturbance and effects of disturbance on Scared groves of Meghalaya was studied by Upadhaya et al. (2004) and Misra et al. (2004) respectively.


Sanjeev et al. (2006) carried on phytosociological analysis of Arigad Microwatershad in Mussorie Hills of Garwhal Himalaya. Pande (2006) studied regeneration behavior of important tree species in relation to disturbance in
village forest of Satpura Plateau of Madhya Pradesh (M.P). Tripathi et al. (2006) studied vegetation characters of tropical forest of Andaman Island.


Recently Gearld and Obua (2005) studied tree condition and characters of natural regeneration in forest of Southwestern Uganda. Similarly Wangda and Ohsawa (2006) did their work on structure and regeneration dynamics of dominant tree species in dry valley slopes of Bhutan Himalaya.

As at present anthropogenic factors regularly affects the diversity and structure of forest, it became necessary to study forest as per their quantitative characters along with its floristic and species diversity, so that its future pattern can be predicted. The present study aims at-

1. Assessing and describing the plant species richness of tropical forest ecosystem.

2. Understanding the regeneration status of tree species.

3. Polar ordination will be used to assess interrelation of vegetation communities. Any importance value of the tree species will be used to execute ordination and cluster analysis.