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# Biological spectrum of Ramgadhi (Megharj) range forest, District Sabarkantha, North Gujarat, India

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## Abstract

This paper deals with the study of Biological spectrum of Ramgadhi (Megharj) range forest, district Sabarkantha North Gujarat. The present study enumerated 317 plant species, which belong to 189 genera and 64 families of angiosperms. Five life forms of different percentage were observed. The highest percentage (46.37) of Therophytes and less percentage of Creptophytes (5.36). Hence, the area falls under the category of Therophytic types of phytoclimate, which indicates hot and dry climate in the region.

Key-Words: Flora, biological spectrum, life forms, Ramgadhi range forest

## Introduction

The increasing population trend over the last few decades and their consequent dependence on plant and bio-products has led to the vast exploitation of natural flora. Study of the floristic composition is objective of the present work; an attempt is made here to review some of the work done in the past on flora of Gujarat state. The flora and floral composition of Gujarat state has been studied ingreater details by contributors like Cooke (1901- 1908), Kotiwar(1995),Vora and Patel(1981), Shah(1978), Santapau and Janardhan(1966), Yadav(1979), Pandit and Raviya(2003), Pandit *et al* (1996), Patel(2003), and several other workers in Gujarat have further added to our knowledge about flora and floristics of the state. Some author has also studied the biological spectrum for Gujarat state. Boergesen (1929) studied the vegetation of Dwarka in Saurashtra with reference of Raunkiaer's life forms. This work is followed by an account of the biological spectrum of the vegetation of Bhavnagar in Saurashtra (Murthy, 1957) Dangs(Shah andYadav,1979), Gujarat state(Shah *et al.* 1978 and 1983), Pandit *et al*.(2005) etc.

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The Sabarkantha district is situated in the North West part of Gujarat between latitudes 20 13' 15" and24 34' 30" North and longitudes 72 47' 0" and 73 37' 30" Est.part of the westen Aravalli in Sabarkantha.The Megharj range forest is situated on latitudes 23 30' 40" North and Longitudes73 30' 40"east.The total forest area 9722.08 hector. 4234.28 hector is reserved forest and 5487.80 hector is unclass forest.The different part of the Megharj forest is hilly and elevation varies from 157 to 480 meters above the mean sea level. An attempt is now made to present biological spectrum is also compared with Barda Hills, Gir forest, Goghamaahal,Gujarat state, Saurashtra Region, South Gujarat.

## Material and Methods

Several field trips of duration range from 2 to 12 days were made at regular intervals to various parts of study area. The investigation based on the intensive and extensive field observation, collection and identification which were undertaken in different seasons for a period of two years and for the determination of life forms the methods of Raunkiaer's (1934) were employed.

## Results and Discussion

The present study enumerated 317 species, which belonges to189 genera and 64 families of Angiosperms.

Table 1 depicts biological spectrum of the present study. It shows the highest percentage (46.37) of Therophytes. Hence, the area falls under the category of therophytic type phyto climate, which indicates hot

and dry climate in the region, congenial for the growth of annuals and herbs.

The comparison of the biological spectrum in the study area with those of different regions of Gujarat is given in table 2. It reveals that among all life forms, therophytes contribute the higest percentage in all the regions of Gujarat including the present study. The predominance of therophytes indicate warm climate. According to Bharucha and Dave (1944) the predominance of theophytes is influence of heavy grazing by live stock or biotic interference.Hower, Meher-Homji (1961) and Daubenmire (1968) attributed the occurrence of Therophytes to the aridity factor. The higher percentage of therophytes and less percentage of cryptophytes and hemi cryptophytes inMegharj forest is due to deforestation, intensive utilization of land for cultivation and grazing by live stock. The result of present study is similar with the conclusions drawn by Meher-Homji (1971).

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**Table 1: Biological spectrum of Ramgadhi forest**

| Life forms | Ph | Ch | H | Cr/G | Th |
|---|---|---|---|---|---|
| Normal spectrum(%) | 46 | 9 | 26 | 6 | 13 |
| Total species | 107 | 19 | 27 | 17 | 147 |
| % of species | 33.17 | 5.9 | 8.51 | 5.36 | 46.37 |

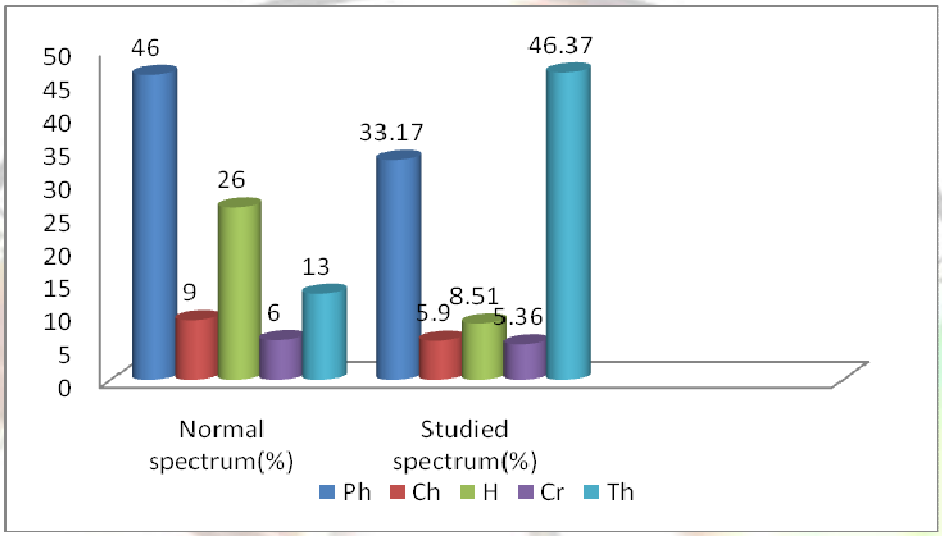


**Fig. 1: Comparison of Raunkiaer's life forms spectrum with present study**

**Table 2:** Comparison of biological spectrum of Ramgadhi forest with those in different forest of Gujarat

| Forest | Biological spectrum % | | | | | Phytoclimate |
|---|---|---|---|---|---|---|
| | Ph | Ch | H | Cr/G | Th | |
| Ramgadhi forest (present study) | 33.17 | 5.9 | 8.51 | 5.36 | 46.37 | Therophytic |
| Barda Hills | 41.18 | 5.13 | 7.07 | 7.61 | 40 | Phenero-Therophytic |
| Gir forest | 34.81 | 5.34 | 3.48 | 1.39 | 54.98 | Therophytic |
| Goghamahal | 6.72 | 6.30 | 8.82 | 4.20 | 49.58 | Therophytic |
| Gujarat state | 4.75 | 16.30 | 2.00 | 2.80 | 47.20 | Therophytic |
| Saurashtra region | 36.10 | 20.00 | 2.00 | 2.70 | 39.20 | Phenero-Therophytic |
| South Gujarat | 32.40 | 17.80 | 1.40 | 4.60 | 43.80 | Therophytic |