

Floristic account of Central Gujarat special reference to Ahmedabad: a review

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Abstract - Duties of taxonomist are never ending as long as plant world exists, there will always be more to learn about plants, plants product and plant taxa, for both practical and theoretical purposes. Taxonomist and Conservation biologist are healers for the world. Yet their attempts are small but not the least. Central Gujarat is unique due to its ecosystem diversity. It has unique Bhal region in Ahmedabad, Mountain ranges in Panchmahal and Chhotaudaipur, Wetland formation in Kheda, Cultivation land in Anand district, Unparalleled grass land ecosystem in Dahod. It has lots of potential for diversity exploration. Present study provides an account of all earlier works in central Gujrat.

keywords - Plants, Taxonomy, diversity, conservation, exploration, Central Gujarat.

I. INTRODUCTION

The crisis of biodiversity and of extinctions: a majority of the planet's species might disappear before having even been studied by man. The discipline in charge of this study, taxonomy, is currently facing severe problems, concerning its status inside biology and its relationships with conservation biology. Yet taxonomy and conservation biology would have much to gain to becoming allies rather than largely foreign disciplines. This would require some important changes in mentality and behaviour [10]. Duties of taxonomist are never ending as long as plant world exists, there will always be more to learn about plants, plants product and plant taxa, for both practical and theoretical purposes. (Naik, V.N., 1984).

Earlier authors collection acts as reference material during revision or during floristic study of any area. It provides comprehensive idea about earlier vegetation. If in any case any specimen was misidentified that can be corrected. Correctly identified specimen can be a novel species. Museum collection plays vital role in identifying species rich area for potential conservation [46]. Hence collection during this study will play important role as reference material in future for conservation policies and many other researchers.

Identification is what one does when keying out an unknown, when determining the kind of a plant by comparing it with a plant of known identity, or with a description of such a plant. More precisely it can be explained as: "the determination of a plant as being identical with or similar to another and already known element" [12]. Nomenclature is the process to give the correct name to identified specimen or plant [12].

Classification of plants is the process of placing or grouping the plants into categories according to their groups or characters [12]. Alpha taxonomic activities should be focused primarily on taxonomic groups important for endemic or threatened species, as well as those of ecological and economic value. (Golding and Timberlake, 2003).

The angiosperm flora of Gujarat is mostly varied in extent and composition. There are 2198 species of higher plants belonging to 902 genera and 155 families. From which 1808 plant species are listed in flora of Gujarat. Which represent 12.91% of flora of country, although this list is incomplete. Raghavan *et al.*, (1981) from BSI of India published A checklist of a new plants of Gujarat, enlisting of 155 families, 861 genera, 1964 species, and 87 varieties [34].

Central Gujarat has mainly seven district. These are Ahmedabad, Kheda, Baroda, Annad, Dahod, Panchmahal, Chhotaudaipur. Only Ahmedabad has costal area.

II. STUDY IN CENTRAL GUJARAT

Flowering plants in Ahmedabad:

Flowering plants of Ahmedabad have been studied earlier by Saxton and Sedgwick (1918), Sutaria (1948, 1962), Gandhi (1958), Vaidya and Vora (1963), and Vaidya (1967) [32][44][45]. References of the occurrence of the flowering plants at Ahmedabad are also found in the work of Hooker (1897), Cooke (1901, 1958), Talbot (1902, 1949), Blatter and McCann (1935) and Shah (1963)[3][13][19][36][41]. Gandhi (1958) reported 809 species of flowering plants (including cultivated species) from Ahmedabad and surroundings; however, species of the families, Cyperaceae and Gramineae have not been described. Vaidya (1967) has worked out flora of Ahmedabad excluding the cultivated plants [44]. Sedgwick (1914) also listed Grasses of Ahmedabad and Surat. Pandya (1972) studied flowering plants of Gujarat university campus [26]. Vidya and Vora (1964) recorded new forms from Ahmedabad [44][45]. Gandhi (1958) made plant collection in Ahmedabad and its vicinity. Vaidya (1967) published an account on the flora of Ahmedabad [44].

Recent studies in Ahmedabad:

Tree census report (2009) Khijado, Peltroform, Saptarni, Kasid and Gulmohar are major trees in Ahmedabad. Tree density is very poor, as only 8.6 trees /ha was estimated in this census. Asopalav population has figured prominently as a few semi urbans were selected for counting. There is a scope to double the tree density in the district. Urbanisation in and around the major city has negative impact on tree cover [40]. Jadeja, B.A., Patel, N.A. and Odedra, N.K. (2011) listed 1015 plant species belonging to 580 genera spread over 135 families in Ahmedabad city [15]. Umerfaruq M. Qureshimatva *et al.*, (2016) has listed 71 species and 7 cultivated varieties belonging to 38 genera of palms in Ahmedabad [43]. Ruchi Patel *et al.* (2016) have reported about 45 genera and 73 species with 1 sub sp., 5 varieties and 2 cultivated varieties belonging to 15 families in Ahmedabad city area [31]. Patel, R.S., Kadia, R. and Patel, N. (2018) have surveyed the plant species of Malvaceae family in zoological garden of Kankariya and enumerated 14 plant species [26]. Patel, R.S. *et al.*, (2018) have surveyed the ornamental plant species from butterfly garden and one tree hill garden of Kankariya and listed 20 species of ornamental plants [27]. Patel, R.S. *et al.*, (2018) have observed the leguminous plants with their taxonomy and medicinal use of Ahmedabad Zoo, Gujarat, India and enumerated total 10 species belonging to Leguminosae family [25]. Maitreya, B. B. (2015) have enumerated 43 species belonging to 27 genera by surveying the sub-family Pappilionaceae of angiosperms from Sabarmati river of Ahmedabad, Gujarat, India. These species grow wild as well as cultivated [17]. Bharat B Maitreya (2015) has published the floristic diversity of Sabarmati river of Gujarat which includes the plant species of 384 genera and 542 species belong to 114 angiospermic families. Dicots were represented by 93 families and 459 species while Monocots were represented by 21 families and 83 species [18]. Meena, S. L. (2014) have reported the total 900 plant species belonging to 118 families and 464 genera from which 716 species of dicots and 184 species of monocot in the district of Ahmedabad and Gandhinagar, Gujarat [19]. Patel, R.M. *et al.*, have listed 73 species of succulent plants in Ahmedabad city [24].

Panchmahal:

Bedi (1968) in his publication on flora of Ratanmahal and surrounding and recorded total 640 plant species [2]. Pandya (1995) studied bioresources common property management in Jambughoda wildlife sanctuary. Bhatt (1975) in his Ph.D. thesis has given an account of the floristic and photo-sociology of Panchmahal district and analysed various communities and identified total 81 new plant species. Bedi (1968) noted addition to the flora of Pavagadh. Vora and George (1987) studied various life forms in Panchmahal forest. Chavan and Oza (1966) published the flora of Pavagadh [5]. Bedi *et al.*, (1968,1972) surveyed Pavagadh hills. Bedi (1973) explored the flora and vegetation of Ratanmahal hills [2]. Qureshimatva, U. M., Maurya, R. R., Gamit, S. B., & Solanki, H. A. (2016) studied the floristic diversity of Panchmahal district and reported 752 species belonging to 528 genus and 253 families with 2 subspecies and 3 varieties. Out of 752 species 117 species are tree, 126 shrubs, 20 sedges, 2 parasites, 2 epiphytes, 99 climbers and 41 grasses are present [30]. Charan, R.R., Solanki, H.A., Gadhvi, K.J. (2019) surveyed the aquatic habitat of Bandheli Wetland, Dumelav, Godhra, Panchmahal district, Gujarat and reported around 36 species belonging to 32 genera and 23 families. Out of 36 species, there were 24 herbs, 4 shrubs, 4 trees among them [4]. Patel, Y.B. *et al.*, (2014) have listed 312 plant species belonging to 88 families by surveying the floristic diversity of Kalol taluka, Panchmahal, Gujarat, India [28].

Baroda:

Sabnis (1963) has worked on flora of Baroda and its environs including an account of the cyperaceae of Gujarat and noted 69 species of cyperaceae [6]. Patil (1980) worked on urban vegetation of Baroda and reported total 57 plants to be apparently extinct with 16 new records [29]. Shah, D. R., & Gavali, D. J. (2017) have studied the 77 gardens of Vadodara city and listed the presence of 217 species belonging to 72 families from the gardens of Vadodara city. The floristic data revealed that around 53% of species represented indigenous species and 47% belonged to exotic species [33].

Anand:

Anjaria (2002) worked on flora of Anand district with special reference to tree species [1]. Shah, R.B. (2012) have reported 42 angiospermic climber species belonging to 34 genera and 14 families by surveying the climbers of Borsad Taluka in Anand district [35].

Chhotaudaipur:

Thaker (1974) in his thesis described on account of floristic and ethnobotanical studies on Kawant range forest and noted 38 species of ethnobotanical interest [42]. Desai (2002) have studied floristic diversity and ethnobotany of Chhotaudaipur forest division. Karatela (1973) in his study on floristic and phytosociology of Chhotaudaipur forest division reported total 103 species of Leguminosae and 123 rare plants [16]. Thaker *et al.* (1970-1971) studied the flora and vegetation of Chhotaudaipur and Kawant [42].

III. CONCLUSION

After so many exploration Authors still has managed to report about 2555 species in Gujarat state. Central Gujarat is unique due to its ecosystem diversity. It has unique Bhal region in Ahmedabad, Mountain ranges in Panchmahal and Chhotaudaipur, Wetland formation in Kheda, Cultivation land in Anand district, unique grassland ecosystem in Dahod district. It has lots of potential for diversity exploration. Anand district and Kheda reports very less study in floristics.

IV. FUTURE SCOPE

- More exploration for floristic account.

- Reinvestigation of reported plant species in central Gujarat.
- Geotagging of Rare and endangered species for their conservation.
- Ecosystem and niche modelling for different species.
- Availability of medicinal plants in central Gujarat.
- Threats to biodiversity of Central Gujarat.

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