SURVEY OF ANGIOSPERM DIVERSITY FROM LATERITIC PLATEAUS OF KONKAN

Shankar M. Shendage *

Abstract :

The low altitude lateritic plateaus are common in Konkan region of Maharashtra. The uniqueness of them is due to lack proper substrate (soil) and exhibit extreme climatic conditions like daily thermal variation, constant winds, high evapotranspiration, low water retention and impermeable soils. Angiosperm diversity in this area is basically edaphically controlled and show adaptation for water accumulation. A floristic survey of such plateaus in konkan revealed the presence of 515 taxa of angiosperms belonging to 233 genera under 93 families have been described from the region. Amongst them polypetalae dominates with respect to the number of genera and species. These plateau vegetations have varied microhabitats that support distinct plant communities. These unique and floral diversity rich ecosystems are in need of immediate conservation priority.

Keywords: A Plateaus, angiosperms, konkan, Maharashtra.

Introduction:

Biodiversity is the very basis of human survival and economic well-being. With current estimates of the total number of species on earth is of 13.6 million species of these, only 1.76 million species have been so far recorded. Western Ghats alone harbour about 1600 endemic plant species (Ahmedullah & Nayar, 1986; Nayar 1996). The biodiversity of Western Ghats is also due to its various habitats influenced by rainfall, altitude, latitude, edaphic conditions etc. The plateaus, stand out in their uniqueness which are quite frequent in Northern Western Ghats. In Maharashtra, low altitude lateritic plateaus (below 100 m from MSL) are common in Konkan region.

Plateaus in konkan lack proper substrate (soil) and exhibit extreme climatic conditions like daily thermal variation, constant winds, high evapotranspiration, low water retention and impermeable soils. Plant species diversity in this area is basically edaphically controlled and show adaptation for water accumulation. Infact, these habitats serve as centres of diversity

* *Department of Botany, Balwant College, Vita*

of desiccation-tolerant plants. In India, studies on plateaus are yet to gain pace. Till date there is no comprehensive account on the flora of plateaus. There is no checklist available on plateau flora. Secondly, the flora on the plateaus comprises mainly ephemeral and seasonal herbaceous elements and hence gets neglected by the botanists. Also, their dry barren appearance during drier months that has led people to label them as waste lands. In addition, these plateaus face an immediate threat because they lie on top of good-quality iron and aluminium deposits of worldwide economic importance. Hence, the present study was carried out to study the vegetation of the plateaus, to inventory the angiosperm diversity, to document threatened and endemic taxa of the plateaus and assessing their present status based on IUCN criteria and finally to assess their (plateaus) potential as reservoir of useful plants. This data will serve as a baseline for setting up conservation guidelines as many narrow endemics inhabit these plateaus.

Materials and methods:

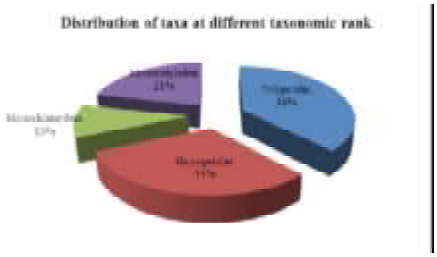
Field tours: Extensive field work was carried out for the last two years (2013-2015) on the lateritic plateaus of Konkan region of Maharashtra. Preliminary field work and literature survey was undertaken to identify the lateritic plateaus which are rich in plant diversity. One to two days duration frequent visits were made throughout the year. The field data such as habit, habitat, flower colour and distribution was recorded. The status of RET species was assessed as per the IUCN Red List Categories. All the taxa were assigned IUCN status tentatively based on field knowledge.

Floristic analysis and Conclusions :

A total of 515 taxa of angiosperms belonging to 233 genera under 93 families have been described from the Konkan region. The table shows the differential distribution of four subclasses Polypetalae, Gamopetalae and Monochlamydeae in the area of study.

Taxa	Families	Genera	Species
Polypetalae	40	88	122
Gamopetalae	23	72	98
Monochlamydeae	10	23	34
Monocotyledon	20	50	61

Pie chart showing the dominance of taxa at different taxonomic rank:

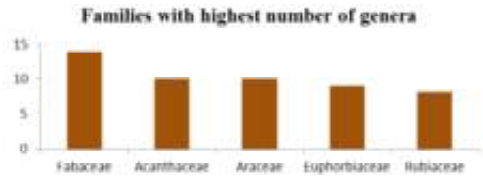


Amongst the angiosperms, Polypetalae dominates with respect to the number of genera and species.

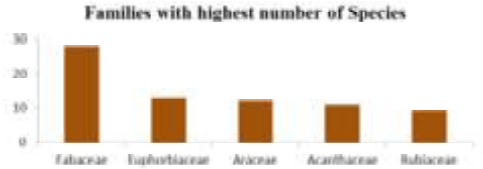
Five dominant families based on the number of genera and species in Konkan: Out of the total 93 families of Angiosperms occurring in Konkan the five dominating families accounts for 23.17% of genera.

Family	Genera	Species
Fabaceae	14	28
Acanthaceae	10	11
Euphorbiaceae	9	13
Araceae	10	12
Rubiaceae	8	9

Graph showing the top five families with highest number of genera:



Graph showing the top five families with highest number of species:



Amongst the angiosperms studied in the region, family fabaceae dominates the others with respect to the number of genera as well as number of species.

References:

Ahmedullah., M. & Nayar, M. P. (1986). *Endemic plants of Indian Region. Botanical Survey of India,* Calcutta.

Cook, C.D.K. (1996). *Aquatic and Wetland Plants of India – A reference book and identification manual for the vascular plants found in permanent and seasonal fresh water in the subcontinent of India south of the Himalyas.* Oxford University Press, London.

Cooke, T. (1901-1908). *The Flora of the presidency of Bombay.* 2 vols. London. Vol.- II (Reprinted in 3 vols. 1958, Calcutta).

Gaikwad, S. P. & Yadav, S. R. (2004). *Endemic flowering plant species of Maharashtra and their possible utilization. In T. Pullaiah (ed.), Biodiversity of India.* 3: 28-58. Regency Publications, New Delhi.

Jain, S. K., & Rao, R. R. (1977). Handbook of Field and Herbarium Methods. New Delhi.

Jain, S. K., & Rao, R. R. (1983). `An assessment of threatened plants of India.` Botanical Survey of India, Howrah.

Karthikeyan, S., Nayar, M. P. & Sundara Raghvan, R. (1981). A catalogue of species added to the flora of Presidency of Bombay during 1908-1978. Rec. Bot. Surv. India. 21: 153-220.

Mabberley, D. J., (1997). *The Plant Book,* ed.2. (Repr. 2000). Cambridge University Press.

Mishra, D. K. & N. P. Singh (2001). *Endemic and threatened flowering plants of Maharashtra. Botanical Survey of India,* Kolkata.

Nair, N. C. & P. Daniel. (1986). *Floristic diversity of the Western Ghats and its conservation: a review.* Proc. Indian Acad. Sci. (Anim. & Pl. Sci.) Suppl.: 127-163.

Nayar, M. P. & A. R. K. Sastry, 1987. Red data Books of Indian Plants. Vol.-I, Botanical Survey of India, Calcutta (Repr., 2000).

Nayar, M. P. (1980a). *Endemic flora of Peninsular India and their significance.* Bull. Bot. Surv. India. 22: 12-13.

Nayar, M. P. (1996). "Hot Spots" of Endemic plants of India, Nepal and Bhutan. Tropical Botanic Garden and Research Institute, Palode, Thiruvannthapuram.

Vajravelu, E. & Daniel, P. (1983). `Enumeration of threatened plants of Penninsular India.` In: S. K. Jain & A. R. K. Sastry (eds.), Materials for catalogue of threatened plants of India: 8-43. Botanical Survey of India, Howrah.

Watve, A. (2003.) `Vegetation on rock outcrops in Northern Western Ghats and Konkan region, Maharashtra,` Geobios (Jodhpur) 30: 41-46.

Yadav, S. R. (1997). `Endemic plants of Peninsular India with special reference to Maharashtra.` In: D. S. Pokle, S. P. Kanir & V. N. Naik (eds.), Flowering plant Systematics & Diversity Part I. Proceedings, VII IAAT Annual Meet and National Conference: 31-51. Aurangabad.