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An arbitrary survey for diversity of medicinal plants from regions of Hoshangabad, M.P. India

Neelam Singh, Madhulika Singh

Department of Botany and Biotechnology, Sadhu Vaswani PG College, Bhopal (MP), India

Abstract

Objective: For the study of biodiversity of medicinal plants in Hoshangabad district, the classical method of floristic survey was used.

Methods: Biodiversity makes opportunity when integrated with technology, thus imparting various meanings among various communities; so, a random floristic survey has been executed in the regions of Hoshangabad District in present work.

Results: The existence of various life forms including plants, animals and microorganisms with their genetic variability & ecosystem residing in a region is regarded as the biodiversity. In terms of diversity of plants, out of the 12 mega biodiversity centers, India is the one with 47513 plant species. About 28% of plants that occur in India are endemic to the country. There are about 1,500 medicinal plants in India. An abundance of 27 plant species of medicinal values has been reported in present survey from Hoshangabad region which belongs to various plant families

Conclusion: The diversity of medicinal plant species in the region also needs attention for conservation and their use in ethical ways.

Keywords: Biodiversity, Hoshangabad, Medicinal plants

Introduction

The existence of various life forms including plants, animals and microorganisms with their genetic variability & ecosystem residing in a region is regarded as the biodiversity [1]. Article 2 of the Biodiversity Convention defines biological diversity to mean: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems [2].

In terms of diversity of plants, out of the 12 mega biodiversity centers, India is the one with 47513 plant species. What make it different are 16 different agroclimatic zones 10 vegetative zones and 15 biotic provinces [3, 4]. With 12 biogeographical provinces, 5 biomes and 3 bioregion domains India being rich in floral diversity supports a diverse array of habitates including forests, grasslands, wetlands, coastal, marine and deserts. About 28% of plants that occur in India are endemic to the country [5, 6]. There are about 1,500 medicinal plants in India. Rigveda mentions the curative properties of herbs while Charaka-Samhita and Susruta-Samhita deal with 700 drugs. Wild native species of plants are still used for medicinal purposes by traditional societies. Many of these plants find industrial use [7].

It is a common observation that there's happening a decline in the natural habitat for a huge number of herbs and trees due to the enormously growing population worldwide, cumulative anthropogenic activities, destruction of natural ecosystem. Many of plant species have come to the edge of extinction [8]. There needs to conservation the unique flora and fauna of ecosystems under threat, which serves as food, medicine, shelter and habitat to both humans other organisms is considered as pride inheritance for some and need to sustain life for others in human society. Biodiversity makes opportunity when integrated with technology, thus imparting various meanings among various communities [2]. Thus, a random floristic survey is executed in the regions of Hoshangabad District in present work that may help to assess the diversity of important medicinal plant species.

Materials and methods

For the study of biodiversity of medicinal plants in Hoshangabad district, the classical method of floristic survey was used. The method involved the enlisting of plants surveyed with their common name, scientific name and family to which they belong. The enlisting of medicinal plant was done on random basis.

Results and discussion

Since, there is a great significance of studying biological diversity of any region to protect habitat loss, extinction of species and environmental & protection of ecosystem. This implies to study of flora and forests as essential aspect to comprehend and evaluate abundance in biodiversity [9]. Survey of the flora is only way to evaluate abundance in biodiversity. Assessment of phytodiversity, their sustainable utilization and conservation management basically relies on floristic studies [10].

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Situated in the central region Madhya Pradesh, Hoshangabad District lies between the parallels of 22º 15' and 22º 44' N and 77°15' and 77°55' divided into two hills and the valley. Satpura range, rising upto 1200 m in southern part. Hoshangabad is of moderate climate with an average rainfall of 134 cm and maximum and minimum temperatures are 32 ºC and 19 ºC respectively. Narmada, Tawa, Dudhi and Denwa are the rivers of district [11].

The present study reports the abundance of 27 plant species in survey of medicinal plants in and around the regions of Hoshangabad District as enlisted in table 1, belonging to 19 different families which includes Acanthaceae, Acoraceae, Apocyanaceae, Asclepiadaceae, Asparagaceae, Colchicaceae, Combretaceae, Cyperaceae, Fabaceae, Lamiaceae, Meliaceae, Menispermaceae, Myrtaceae, Plantaginaceae, Rubiaceae, Rutaceae, Sapotaceae, Solanaceae and Vitaceae. Out of the 27 plant species 9 are the tree species and 18 plants are the herbs. All these plants are potent resources of various types of phytochemicals which are responsible for their medicinal, therapeutic and curative properties for various types of ailments.

Table 1: List of the plants of medicinal importance surveyed in Hoshangabad district

S. No.	Plant name	Common name	Family
1.	*Calotropis gigantia*	Madar	Apocyanaceae
2.	*Pterocarpus marsupium.* Roxb.	Beeja	Fabaceae
3.	*Terminalia arjuna*	Arjun	Combretaceae
4.	*Acacia nilotica*	Babul	Fabaceae
5.	*Cissus quadrangularis*	Hadjod	Vitaceae
6.	*Withania somnifera*	Ashwagandha	Solanaceae
7.	*Vinca rosea*	Sadabahar	Apocyanaceae
8.	*Tinospora cordifolia*	Giloy or Guduchi	Menispermaceae
9.	*Madhuca indica* Gmel.	Mahua	Sapotaceae
10.	*Aegle marmelos* Correa.	Bilv	Rutaceae
11.	*Azadirachta indica* Juss.	Neem	Meliaceae
12.	*Gmelina arborea* Roxb.	Khamar	Lamiaceae
13.	*Acacia catechu* Willd	Khair	Fabaceae
14.	*Chlorophytum borivilianum*	Safed Musli	Asparagaceae
15.	*Rubia cordifolia*	Manjishtha	Rubiaceae
16.	*Asperagus racemosus*	Satavari	Asparagaceae
17.	*Gloriosa superba*	Kalihari	Colchicaceae
18.	*Andrographis paniculata*	Kalmegh	Acanthaceae
19.	*Ocimum sanctum*	Tulsi	Lamiaceae
20.	*Bacopa monnieri.*	Jalbrahmi	Plantaginaceae
21.	*Cyperus rotundus*	Nagarmotha	Cyperaceae
22.	*Datura stramonium* L.	Dhatura	Solanaceae
23.	*Acorus calamus*	Vach	Acoraceae
24.	*Coleus forskohlii* L.	Pattharchur	Lamiaceae
25.	*Gymnema sylvestre* R. Br.	Gudmaar	Apocyanaceae
26.	*Leptadenia reticulata*	Jivanti	Asclepiadaceae
27.	*Eucalysptus globulus*	Neelgiri	Myrtaceae

Upadhyay (2013) [11] documented the ethnomedicinal uses of tree barks including *Acacia catechu*, *Aegle marmelos*, *Azadirachta indica*, *Balanites aegyptica*, *Boswellia serrata*, *Butea monosperma*, *Terminalia arjuna*, *Ficus religiosa*,

Neelam Singh, E-mail:- nhari1965@gmail.com

Holarrhena antidysenterica, and *Pterocarpus marsupium* by tribals of Hoshangabad District. The survey made in the present study also matches in enlisting the plant species common to the Upadhyay's work (2013) [11]. There were about 25 plant species belonging to different families having varied medicinal used are listed in table 1.

Table 2: List of plant families to which number of observed medicinal plant species belonging

S. No.	Floral family	Number of species observed
1.	Acanthaceae	1
2.	Acoraceae	1
3.	Apocyanaceae	3
4.	Asclepiadaceae	1
5.	Asparagaceae	2
6.	Colchicaceae	1
7.	Combretaceae	1
8.	Cyperaceae	1
9.	Fabaceae	3
10.	Lamiaceae	3
11.	Meliaceae	1
12.	Menispermaceae	1
13.	Myrtaceae	1
14.	Plantaginaceae	1
15.	Rubiaceae	1
16.	Rutaceae	1
17.	Sapotaceae	1
18.	Solanaceae	2
19.	Vitaceae	1

Conclusion

In terms of biological diversity India is a richest and a mega diverse nation because of its position in the tropical and subtropical latitudes. India has a great diversity of natural ecosystems ranging from the cold and high Himalayan regions to the sea coasts; from the wet north-eastern green forests to the dry northwestern arid deserts; with different types of forests, wetlands, islands and the oceans. Biodiversity related to plant species diversity is assumed here as an index for the survival value of the community or its relative stability status. Greater the diversity, greater is its stability under the prevailing climate. In present floristic survey of medicinal plants in the region of Hoshangabad District, it is reported to be rich in biodiversity plants of medicinal use. Since the biodiversity makes opportunity when integrated with technology, thus imparting various meanings among various communities. Thus, the diversity of medicinal plant species in the region also needs attention for conservation and their use in ethical ways.

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Neelam Singh, E-mail:- nhari1965@gmail.com