

Biodiversity of Medicinal Plants in College Campus of Ranchi District (Jharkhand), India

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Abstract The present document deals with the medicinal plants found in the campus of Nirmala College, Ranchi. Its floristic study was carried out on regular intervals to describe the plant biodiversity. This range is rich with a variety of flora some of which with medicinal values. A field survey was conducted during 2014-2016 to find out the present status of medicinal plants. During the field study, different plants such as *Moringa oleifera* (Sajina), *Phyllanthus emblica* (Amla), *Azadirachta indica* (Neem), *Murraya koenigii* (Curry leaf), *Meringa oleifera* (Sajina), *Lawsonia innermis* (Mehndi), *Spondias mangifera* (Amra), *Saraca asoca* (Ashok), *Terminalia cattappa* (Indian almond), *Phoneix dactylefera* (Khajur) were identified and studied. The medicinal uses of plants by the local inhabitants have been discussed.

Keywords Medicinal plants, Campus, Ranchi, Jharkhand.

Introduction

The number and abundance of species of plants and animals that live in any ecosystems is known as biodiversity. Ecosystems contain both the living plants and animals and the nonliving elements. Medicinal plants are used directly in folk remedies or indirectly in modern medicine (Shah 2008). The record of biodiversity is important because the loss of floral diversity due to development causes a serious threat not only to the human being but also to the other living being. It causes a lot of damage to the environment (Bhattacharjee 2000, Mahapatra and Choudhury 2008). The greater biodiversity, ensure greater stability of an environment. In general, medicinal plants are good source of herbal drugs for primary health care.

Demand of increasing population and development of infrastructure has resulted extensive exploitation of the natural resources and natural habitats resulting loss of biodiversity, which has affected environment. Human activity have had an immense affect on biodiversity in all ecosystem.

Field survey and documentation of biodiversity of any region is a basic requirement to understand any ecosystem, pattern of biodiversity and other ecological qualities (Rajendran et al. 2014). Several scientists have recorded the potential of medicinal plants (Prajapati et al. 2003, Rawat and Vashistha

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2011). The different species affect structure and function of natural ecosystem (Sekar et al. 2012). There is an imminent threat in the flora in general and medicinal plants in particular.

Medicinal plants of different areas of Jharkhand has been documented by Upadhyaya et al. (1998), Kumar et al. (1999), Kumar and Goel (1998), Kumar and Abbas (2012). Wild edibles plants of the different location has been reported by Singh and Kumar (2014). The vegetables are used in treatment of several diseases and disorders has been documented by Kumar and Goel (1999). Deforestation, development of infrastructure, building, road construction causes extensive exploitation of natural resources resulting the loss of floral and faunal species.

Materials and Methods

Nirmala College is located in Ranchi, Jharkhand. Ranchi district is located at the longitude of 85.32

and latitude of 23.35. The method of study is based on the regular field survey, collection, identification and medicinal uses of plant species. To study and collect plants, several field survey were organized in Nirmala College, Ranchi, Jharkhand during 2014-2016. Area of Nirmala College campus is 6.10 acres. Studies revealed the occurrence of different varieties of plants belonging to Apocynaceae, Anacardiaceae, Leguminosae, Rubiaceae, Moraceae, Malvaceae, Annonaceae, Rutaceae, Myrtaceae, Meliaceae, Rosaceae, Verbinaceae, Euphorbiaceae, Combretaceae family.

The College campus consists suitable environmental conditions to support plant biodiversity. The samples collected were identified by using their local names with help of herbal medicine practitioners. The authenticity of identification of different plants were confirmed from Flora books, book chapters and published literature (Haines 1921-25, Raizada 1976, Raizada and Saxena 1984, Collet 1980, Singh and Anand 2002, Swain and Dash 2007, Adhikari et

Table 1. Plant biodiversity in college campus of Ranchi District Jharkhand.

Sl. No.	Family	Local name	Scientific name	Medicinal value
1.	Fabaceae	Ashok	<i>Saraca asoca</i>	Uterine disorder, stimulates ovarian tissue
2.	Oleaceae	Harsingar	<i>Nyctanthes arbor tristis</i> L.	Anti-arthritis, malaria, inflammations, diarrhea, pimples, cough
3.	Moringaceae	Sajina	<i>Moringa oleifera</i>	Hypertensions, skin, diabetes, antiarthritis, asthma
4.	Moraceae	Jack fruit	<i>Artocarpus heterophyllus</i>	Anti-inflammatory, reduce high blood pressure, constipation, stomach ulcer
5.	Caesalpinioideae	Gulmohar (red)	<i>Delonix regia</i>	Inflammation, ear and chest pain, anti-arthritis, bronchitis, asthma, malaria
6.	Combretaceae	Indian almond	<i>Terminalia catappa</i>	HIV AIDS, headache, leprosy, acute liver injury, sickle cell disorder
7.	Fabaceae	Karanj	<i>Pongamia pinnata</i>	Piles, skin diseases, tooth brush, worm infections
8.	Morus alba	Mulbery	<i>Morus</i> sp.	Anti-inflammatory, lower cholesterol, anthemintic, mouth infection
9.	Lythraceae	Mehndi	<i>Lawsonia innermis</i>	Headache, leprosy, muscular pains, eczema, burns
10.	Rubiaceae	Ixora	<i>Ixora</i> sp	Abdominal pain, fever, diarrhea, ulcers, headache
11.	Lamiaceae	Teak (Sagwan)	<i>Tectona grandis</i>	Leucoderma, dysentery, skin problem
12.	Meliaceae	Neem	<i>Azadirachta indica</i>	Anti-diabetic, anti-bacterial, anti-viral, skin diseases, improve liver function
13.	Myrtaceae	Guava	<i>Psidium guajava</i>	Dysentery, diarrhea, diabetes
14.	Fabaceae	Amaltas	<i>Cassia nodosa</i>	Inflammations, ulcer, wounds, anemia, cough, leprosy
15.	Verbenaceae	Gumhar	<i>Gmelina arborea</i>	Inflammation, piles, fever, constipation
16.	Moraceae	Peepal	<i>F. religiosa</i>	Anti-inflammatory, anti-oxidant, anti-dysenteric, anti-rheumatic
17.	Papilionaceae	Shisham	<i>Dalbergia sissoo</i>	Piles, pain, swelling, bleeding disorder
18.	Euphorbiaceae	Amla	<i>Emblica officinalis</i>	Vitamin-C, cough, diabetes, cold, laxative, hyper acidity
19.	Magnoliaceae	Champa	<i>Michelia champa</i>	Cardiac disorder, inflammation, cough, ulcer, wounds
20.	Caesalpinioideae	Gulmohar (blue)	<i>Jacranda mimosifolia</i>	Anti-oxidant, diabetes

al. 2010, Rajendran et al. 2014). Scientific names, common names, families and medicinal values were also recorded.

Results and Discussion

Biodiversity has great impact in all the aspects of ecological process. The results of the present study show different varieties of medicinal plants belong to different families are available in College campus. Different species of medicinal plants were collected and identified. Different varieties of plants belonging to Annonaceae, Moraceae, Malvaceae, Rutaceae, Leguminosae, Myrtaceae, Verbinaceae, Meliaceae, Anacardiaceae, Apocynaceae, Rubiaceae, Moraceae family are available in College campus. The brief descriptions of the plant diversity with scientific name, common name, family and medicinal values is summarized in the table given below (Table 1).

Azadirachta indica (Neem), *Spondias mangifera* (Amra), *Murraya koenigii* (Curry leaf), *Phyllanthus emblica* (Amla), *Lawsonia innermis* (Mehndi), *Moringa oleifera* (Sajina), *Saraca asoca* (Ashok), *Terminalia cattappa* (Indian almond), *Phoneix dactylefera* (Khajur) are tall tree species in the campus.

There are several species like *Azadirachta indica*, *Moringa oleifera*, *Pongamia pinnata*, *Tectona grandis* and *Acacia auriculiformis* are widely used in skin diseases. Plants *Ixora* sp, *Nyctanthes arbor tristis* L., *Moringa oleifera* and *Delonix regia* are used in treatment of arthrities.

Conclusion

It is very important to conserve the flora for healthy environment. The tribal and rural people depend on the herbal plants for their health care. Present report will help them. A concise list of the medicinal flora of the area and their utilization will provide basic knowledge. Ethnomedicinal plants may be used directly or indirectly in treatment of various diseases. Proper management and awareness among the people is needed for conservation and proper utilization. Data collected from well documented report, there will be huge scopes for varieties of medicines from natural medicinal plants.

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