



Biodiversity and Sustainable Resource **Management**

(Basic to Research and Applied)

Edited by

Dr. Debabrata Das

 **Bharti**



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Bharti Publications
New Delhi- 110002 (INDIA)

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Title: Biodiversity and Sustainable Resource Management
(Basic to Research and Applied)

Editor: Dr. Debabrata Das

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First Published, 2022

ISBN:

Published by :

Bharti Publications

4819/24, 2nd Floor, Mathur Lane

Ansari Road, Darya Ganj, New Delhi-110002

Phone: 011-23247537

Mobile : +91-989-989-7381

E-mail : bhartipublications@gmail.com

info@bharatipublications.com

Website : www.bhartipublications.com

Printed in India, by: Sagar Color Scan, Delhi

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FOREWORD

India is home to have more than 102,718 species of fauna, with 557 new species including 407 newly described species and more than 50,000 species of plants, including a variety of endemics. It has approx. 329 million hectare of land and its coastal line stretches about 7500 km and the total forest and tree cover is 80.9 million Hectare which is 24.62% of the geographical area.

Highest biological diversity is observed in India and almost all the world's major ecosystems are found in India. Indian faunas are distributed in its 10 bio-geographical regions ranging from temperate to arctic in the Himalaya to tropical & sub-tropical in the Indo-Gangetic plains & the peninsular India. Vegetative cover consists of all types of forests and vast expanse of grass lands. A healthy biodiversity offers many natural services viz., protection of water resources, soil formation and protection, nutrient storage and recycling, pollution breakdown and absorption, contribution to climate stability, maintenance of ecosystems and recovery from unpredictable events. The ecological services provided by biodiversity are vital to our everyday life. We depend on nature for air to breathe, water to drink, foods and nutrients for survival. Insects, worms, bacteria, and other tiny organisms enrich soils by breaking down wastes and decomposing of dead plants and animals. But these biodiversity are being lost at a greater extent owing to various anthropogenic activities. In spite of introduction of several Laws and Acts, the animals are being indiscriminately poached for illegal export/import of wildlife and its derivatives. Endangered plant species are also illegally felling besides many valuable trees. Already we have lost some species for ever from our country and some are in the verge of extinction. About 90% of forest land areas have been destroyed over 100 years age. It is presumed that at the end of this century there would be no forests left outside the reserve and protected areas, if this situation goes on.

To protect the different components of biodiversity, we, the human being has to take initiative specific measures in spite of different Laws and Acts introduced by nationally and internationally. We can provide them some chance to survive.

The aim of this book "Biodiversity and Sustainable Resources Management (Basic to Research and Applied)" is to spread knowledge for sustainable use of natural resources and their management. These resources must be conserved to assume that these will be enough for the future.

Thanks to the Editor-in-chief, all the Authors and Co-authors of this book for bringing out this document.

Dated: 6th May, 2022



(Dr. J. K. De)

PREFACE

Biodiversity is the diversity of species, gene and ecosystem regionally or globally. It includes flora, fauna and microbes in a small scale or large habitat basis. Due to various threats on species and gradual increase of earth's temperature, biodiversity is under threat. Conservation of biodiversity is a popular issue in the present day scenario for protecting global environment. It includes overall health of ecosystem even sustenance of life on earth. It also reflects the economic growth of a nation that globally determines the healthy and wealthy environment.

As biodiversity is the distributed flora and fauna over the earth surface, so habitat conservation is important for us. The biodiversity totally depends on climate, temperature and natural resources, their interactions and sustenance.

Chapters of the book highlight the present status and conservation strategies on global biodiversity including natural resources that help to sustain the biodiversity in pan globe basis. The world environment totally depends on our biodiversity, so to strengthen the global biodiversity; our prime aim is to sustainable use of resources and their global management. We need green, wealthy and healthy environment for us.

Thanks with hope,
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Abstract

An ethno-botanical study was undertaken to collect information on using some weeds for the treatment of several diseases of Ambegaon Tehsil, Pune District, Maharashtra. Tribal peoples in this area have actual information about various medicinal plants. They use different parts of the plant such as roots, stem, leaves, fruits and seeds in juice, paste, decoction and rough form. Indigenous knowledge of local weed healers, which is used for medicine, collected in personal interviews with visits in the area. A field visits with those elements, collection and documentation was done on medicinal information about the weeds used for the treatment of various diseases. The current study documented 37 weed species belonging to 21 different families used by the tribal to treat various diseases.

Keywords: *Ethno-botanically important plants, Disorder, Decoction, treatment.*

INTRODUCTION

The species that grow on their own without human effort can be called weeds. This affects plants in general and, if left untreated, can dominate plants. Weeds are useless because they can damage crops. Many of these herbs have been found to be important in medicine. In India weed plants are used for their medicinal values and being important in various traditional systems of medicines. In India, the main traditional medicines include Ayurveda, Unani and Siddha. Traditional healers provide a lot of information about the use of many plants or parts of a plant as medicines. Many of the life saving drugs in life on the current day of the allopathic system are obtained from the source of plants. They are usually harmful to cultivated crops in fields. Many weeds are medically important. These weeds are used to collect the collection and treatment of diseases.

The earlier studies on weed and their medicinal utilities have been made by various workers like Mulay and Sharma (2012), Deokule and Kamble (1984) and Bagal and Deokule (2013) from different parts of India. The present work deals medicinal importance of some weeds from Ambegaon tehsil, Pune District of Maharashtra.

METHODOLOGY

Study Area

Ambegaon tehsil is located in the northern zone of the Pune District of Maharashtra state. This region extends between 19°2' 5" north latitudes and 73°50'11" east longitudes. The total villages 142, cities Manchar and Ghodegaon. The human population according to the 2001 census approximate 2,13,842 and tribals population 42,907 percentage of total population to the tribal population 20.06 %. The total area is approximately 87,851 hectars. Adavasi tribes are found in large number in this region. This tehsil falls to the foothill of Sahyadri Mountain range.

The present study has been conducted in two steps:

Step I- A survey was conducted among the tribal peoples of Ambegaon tehsil to gather knowledge on weeds used for treatment on different disorders as used by them.

Step II- We collected weeds in circumstances of flowering and fruit were identified by the help of Cooke (1958), Hooker (1872-1897). The knowledge about the medicinal uses of weeds was gathered from the tribal people of Ambegaon tehsil who have used plants for different disorders. This information was collected following Jain (1991). Medical items were verified using Nadkarni (1927).

RESULTS AND DISCUSSION

The present study brought knowledge of tribals for the treatment of different disorders. The collected weed specimens have been identified by the local flora, the collected plants specimens were alphabetically arranged according to their botanical names, local names, families, parts used and their uses.

1. *Achyranthes aspera* L., Family-Amaranthaceae, Local name-Aghada, Part used-Whole plant, Uses- Whole plant is used in toothache. Plant decoction is used in treating rheumatism and joint pain. Leaf paste is useful in skin diseases. Root paste is applied externally on scorpion sting.
2. *Ageratum conyzoides* L., Family- Asteraceae, Local name- Sahdevi, Osadi, Part used- Leaves. Uses-Leaf juice is also used in skin diseases, scabies. Decoction of leaf is applied on cuts, wounds and burns.
3. *Argemone mexicana* L. Family-Papaveraceae, Local name-Pivaladhotra, Part used-Whole plant, Uses- Plant paste applied externally for healing wound, swellings and body pains.
4. *Asclepias currasavica* L. Family- Asclepiadaceae, Local name-Haldikunku, Part used- Root. Use- Root extract is given to children during night to eradicate intestinal worms.
5. *Boerhavia diffusa* (L.) Hook, Family-Nyctaginaceae Local name-Punrnava, Part used- Leaves. Uses- Leaf decoction is taken for blood purification, treating kidney stone and urinary troubles.
6. *Calotropis gigantea* (L.) R.Br, Family- Asclepiadaceae, Local name- Rui, Mandar. Part used- Leaves, flowers, Uses- Leaves and flowers are kept on head and massage is given by warmed utensil to reduce headache
7. *Calotropisprocera* (Ait.) R.Br. Family-Asclepiadaceae, Local name Aak, Rui, Part used- Leaves, Uses- Dried leaves mixed with jagary are also given for treatment of cough.
8. *Cassia sophera* L. Family-Fabaceae, Local name Chilhar, Part used-Leaves. Use- Leaves half fried in *Sesamum orientale* oil and applied externally over joints in treating arthritic pain.
9. *Cassia tora* L. Family-Fabaceae, Local name –Takla, Parts used- Leaves, root, seed. Uses- Fresh leaf juice is applied for cuts, boils, burns, treating itch, Paste of roots with lemon juice applied externally over ringworm. Seeds are given in stomach disorder.

10. *Catharanthus roseus* Don. Family- Apocynaceae, Local name – Sadaphuli, Part used-Leaves. Use- The juice of leaves taken orally once a day in empty stomach to cure jaundice.
11. *Celosia argentea* L. Family- Amaranthaceae, Local name –Kurdu, Part used-Seed. Use-Seed powder is given in sugar for fever.
12. *Centella asiatica* (L.) Urb, Family- Apiaceae, Local name – Brahmi, Part used-Whole plant,
Uses- The decoction of plant is given in treating urinary burning sensation while urination. The leaves are used to increase memory.
13. *Chenopodium album* L. Family-Chenopodiaceae, Local name -Bathua, chakvat. Part used-Leaves. Use- Leaves used as vegetable for treating anemia.
14. *Cleome viscosa* L. Family-Cleomaceae, Local Name - Pivli Tilvan, Part used -Leaves, Use –The leaves are used to cure fever.
15. *Clitoria ternatea* L. Family-Fabaceae, Local name -Gokarna. Part used-Whole plant. Use-Plant extract is used for skin itching.
16. *Cocculus hirsutus* L. Family-Menispermaceae, Local name -Vasanvel, Jaljamni, Part used- Leaves. Use- Leaves consumed directly for in enhancing spermatogenesis.
17. *Cuscuta reflexa* Roxb. Family-Cuscutaceae, Local name -Amavel. Part used-Whole plant. Use- Paste of whole plant applied externally on joint pains, rheumatism and inflammations.
18. *Cyperus rotundus* L.. Family-Cyperaceae, Local name -Nagarmotha. Part used-Whole plant. Use- The whole plant is used for malarial fever, dysentery and vomiting.
19. *Cynodon dactylon* (L.) Pers. Family-Poaceae, Local name -Harali. Part used-Whole plant. Use-The whole plant is used in ulcers in stomach.
20. *Datura metel* L. Family-Solanaceae Local name - Kala Dhotra, Part used-Root. Use- Root paste applied externally for pimples.
21. *Eclipta alba* L. Family-Asteraceae Local name - Maka. Part used-Leaves. Use- Leaves curry is eaten to purify blood and also used to treat jaundice.
22. *Euphorbia hirta* L. Family-Euphorbiaceae Local name -Dudhi, Part used-Leaves, Uses- Leaf juice is applied on wounds , treatment for snake bite and scorpion sting. latex applied externally twice a day for warts .

23. *Indigofera cordifolia* L., Family – Fabaceae, Local Name – Godhali, Part Used – Leaves, Use - leaves is used to treat fever.
24. *Jatropha gossipifolia* L. Family-Euphorbiaceae, Local name - Erand, Part used-Stem. Use- Stem used as brush for tooth problems.
25. *Justica adhatoda* L. Family-Acanthaceae Local name - Adulsa, Part used-Leaves. Use- The decoction of tender leaves with *Zingiber* used for cough.
26. *Lantana camara* L. Family - Verbenaceae, Local Name – Ghaneri, Part used – Leaves, Use - It is used in the treatment of skin itches
27. *Parthenium hysterophorus* L. Family-Asteraceae, Local name- Gajar gavat, Part used-Root
Use-Root extracts about 20-30 ml taken twice a day for two days to cure dysentery.
28. *Phyllanthus niruri* L. Family-Euphorbiaceae, Local name- Bhuiawla, Part used-Whole plant. Use- The extract of fresh entire plant is used to treat jaundice.
29. *Sida acuta* Burm Family-Malvaceae, Local name - Bala, Part used-Whole plant, Uses-Roots useful in treatment of urinary disorders, fever and stomach disorder. Flower paste is used in boils and burns. Leaf is given in gastric disorder and stomach pains.
30. *Solanum surratense* Burm. f. Family- Solanaceae, Local name -Bhuiringini, Part used-Leaves. Use- Leaf paste mixed with turmeric applied to cure itch and ringworm.
31. *Tephrosia purpurea* (L.) Pers. Family- Fabaceae, Local name - Unahali, Part used- Whole plant. Uses- Whole plant powder with curd taken 20-30 ml orally for treating jaundice. The roots are used to cure kidney stone.
32. *Tribulus terrestris* L. Family- Zygophyllaceae, Local name - Sarata. Part used- Fruit. Use-The powder of fruits with one tea cup of milk taken orally to treat urinary problems.
33. *Tridax procumbens* L. Family- Asteraceae, Local name - Ekdandi, Part used- Leaves. Use- Leaf paste used in wounds and cuts.
34. *Urginea indica* (Roxb.) Kunth. Family- Liliaceae, Local name -Janglikanda, Part used-Tuber. Use- 10-20ml decoction of tuber is taken orally once early in the morning to cure cough.
35. *Vitex negundo* L Family-.Verbanaceae, Local name - Nirgudi, Part used- Leaves. Use- Leaf boiled lukewarm water poured over joints in joint pain.

36. *Withania somnifera* (L.) Dunal . Family- Solanaceae, Local name- Ashavaganda, Part used- Root. Use- The powder of root with sugar similar proportion taken orally twice a day as a tonic.
37. *Xanthium strumarium* L., Family - Asteraceae, Local name - Landga, Part used - Leaves, Use- Leaves are used for fever.

CONCLUSION

Ethno-botanical research work is an enlist record of weed species for the treatments of different disorders with the help of tribal people. The tribal people in the area are dependent on limited agriculture land and local plant products. In this investigation 37 weeds belonging to 21 families have been documented. There is need for further investigation on these weeds for active principle and to test their safety and efficacy so that it can be further utilized in health care needs.

ACKNOWLEDGMENTS

Authors are thankful to the Principal, Annasaheb Awate Arts, Commerce and Hutatma Babu Genu Science College, Manchar, Dist. Pune for encouragement. The authors are also thankful to all tribals for providing necessary information at field survey.

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978-93-91681-79-1



9 789391 681791

Price- Rs. 1180/-

