

## Ethnobotanical studies and documentation of folk medicinal plants used by tribes in the management of liver diseases in Satpuda hills of Khandesh region of Maharashtra

Manoj V. Girase<sup>1,\*</sup>, Monika L. Jadhav<sup>2</sup>

<sup>1</sup>Assistant Professor, Dept. of Pharmacognosy, R. C. Patel Institute of Pharmaceutical Education and Research, Shirpur, Dhule, Maharashtra, <sup>2</sup>Research Student, C. U. Shah College of Pharmacy, S.N.D.T. Woman's University, Mumbai, Maharashtra, India

\*Corresponding Author: Manoj V. Girase

Email: manoj\_girase@rediffmail.com

### Abstract

West Khandesh region of Maharashtra was targeted areas for ethnobotanical survey of medicinal plants used by tribes in the management of liver diseases and simultaneously documentation was made on information. Field of area is densely occupied by various tribes communities like Pawara, Kokani, Bhils, Mavach, Vasave etc. Ethnobotanical survey was carried out after interviewed numbers of different age group traditional healers. It is cleared that, they have huge knowledge of medicinal plants, number of plants, method of preparations and their vernacular names as well as local names, for management of liver diseases. Tribals are strongly believed and have a strong faith on the treatment of medicinal plants by traditional healers. Traditional healers have been diagnosing and treating their patient in number of ways like skin color of patient, voice and tongue condition, herbal medicines are given in different forms to patient. Thirty numbers of plants belong to Rubiaceae, Mimosaceae, Nyctaginaceae, Acanthaceae, Cucurbitaceae and Convolvulaceae families are used by traditional healers in the management of liver disorders.

**Keywords:** Liver disorders, Ethnic groups, West Khandesh region of Maharashtra.

### Introduction

India is constructed by twenty eight states and seven union territories and fortunately every state and union territory has varied geographical and climatic conditions so India is an ideally known for its rich vegetation and plant biodiversity. Near about 422,000 flowering plants reported from the world,<sup>1</sup> out of that more than 50,000 are used for medicinal purposes.<sup>2</sup> In India, more than 43% of the total flowering plants are reported to be of medicinal importance.<sup>3</sup> Since antiquity plants have been playing a great role in the development of medicine and public health. In India People from rural areas are still rely on the Indian traditional systems of the medicine like Ayurveda, Sidha and Unani entirely and Homeopathy partially depend either on plant materials or their derivatives for the treatment of various ailments.

Nearly 1100 species were recognized as sources of raw materials for Ayurvedic and Unani formulations.<sup>4</sup> About 25% of drugs in modern pharmacopoeia were derived from plants (phytomedicines) and many others were synthetic analogues built on prototype compounds isolated from plants.<sup>5</sup> In spite of the advent of the modern medicines, tribal population is still practicing the art of herbal medicine as well as various underprivileged tribal communities are earning money by selling medicinal plants as an income source rather than use as a curative agent in various ailments. Almost 80% of the total human populations still depend upon traditional remedies together with folklore system based mainly on phytotherapy.<sup>6</sup> Tribals are more fortunate that they have sound knowledge of medicinal plants; as

a result they are being acts as a strong informative source.

Liver is one of the important vital organs with several important homeostatic responsibilities. One of the primary functions of the liver is to aid in the metabolism of ingested substances, including food, dietary supplements, alcohol and majority of medications. Various types of liver disorders are characterized by cirrhosis, jaundice, tumors, metabolic and degenerative lesions, liver cell necrosis and virus liver disorders can arise due to excessive drug therapy.<sup>7</sup>

### Results and Discussion

The present study indicated that tribes belong to Khandesh region of Maharashtra still having a strong faith on the treatment given by their traditional medical practitioners in concern to liver diseases. Traditional medical practitioners as well as local tribes are having huge and precious knowledge and using 30 species of medicinal plants belong to 21 families are used primary to cure Jaundice (Table 1). The 30 species of medicinal plants are categorized as 09 herbs, 07 shrubs, 02 small trees, 09 big trees, and 03 climbers. Literature survey was conducted on the information, which was given by traditional medical practitioners as well as local tribes in concern to ethnomedicinal uses of plants and it is cleared that out of 30 plant species, 07 plants were found as unexploited rationally. These plants are *Delonix elata* Gamble. Fabaceae, *Ficus tsiela* Roxb. Moraceae, *Gardenia turgida* Roxb. Rubiaceae, *Gossypium herbaceum* linn. Malvaceae, *Hymenodictyon orixense* Roxb. Rubiaceae, *Ipomoea*

*pes-tigridis* Linn. Convolvulaceae, *Mentha viridis* Linn. Labiatea, has not been reported previously.

**Table 1: Liver protective plant species documented from Satpuda hills of Khandesh region of Maharashtra**

S. No.	Botanical name and family	Local name	Tree/ shrub/ herb/ climber	Parts used	Mode of preparation
1	<i>Abelmoschus esculentus</i> Linn. Malvaceae	Bhendi, bhindi	Herb	Fr, Fl	Juice of fruit and given twice in day orally for five days
2	<i>Adhatoda vasica</i> Nees. Acanthaceae	Adulsa	Shrub	Lv	Juice of fruit and given orally for seven days.
3	<i>Aegle marmelos</i> Corr. Rutaceae	Bel, billi, belda	Tree	Lv, Fr,St	Leaves boil with water and take orally
4	<i>Ailanthus excelsa</i> Roxb. Simaroubaceae	Maharukh, budroka, rukhdo	Tree	Bk	Bark of Powder mixed with water
5	<i>Allium cepa</i> Linn. Liliaceae	Kanda	Herb	Fr	Juice of Fr and given orally
6	<i>Aloe barbadensis</i> Valh. Liliaceae	Khorpad	Herb	Lv	Juice of Lv and given orally
7	<i>Asteracantha longifolia</i> Nees. Acanthaceae	Tamimkhana, wakharya	Shrub	Lv, Sd	Wash Lv then dry, make powder and macerate with water
8	<i>Bauhinia racemosa</i> Linn. Caesalpiniaceae	Sone, apta	Tree	Lv,St Bk	Bark Powder boil with water and take orally for seven days
9	<i>Butea monosperma</i> Kuntze. Papilionaceae	Palas, khakara	Tree	St Bk, Fl	Keep Fl on stomach overnight
10	<i>Calotropis gigantea</i> R.Br Apocynaceae	Ruchki, ruwali, rui, aakadya	Shrub,	Fr, Fl.	Fl Powder mixed with water and take orally
11	<i>Cucurbita maxima</i> Duchesne Cucurbitaceae	Tambada-bhopala	Climber	Fr	Juice of fresh fruit or powder of fruit take orally
12	<i>Curculigo orchiodes</i> Gaertn Amaryllidaceae	Kali-musali	Herb	Rt	Rt Coarse Powder, boil with water take orally three times for three days
13	<i>Curcuma longa</i> Linn. Zingiberaceae	Halad	Herb	Rh	Powder of Rh mixed well with grains powder and poured little water mixed well and made tablets
14	<i>Cuscuta chinensis</i> Lam. Convolvulaceae	Amarvel	Climber	Wp	Make paste of aerial parts and apply on body
15	<i>Delonix elata</i> Gamble. Fabaceae	Sansada, way	Tree	Lv	Wash Lv and boil with water and take bath
16	<i>Eclipta prostrata</i> Roxb. Asteraceae.	Makha, kala-makha	Herb	Lv	Juice of fresh Lv orally or powder of Lv with honey orally
17	<i>Eranthemum roseum</i> vahl. R.BR. Acanthaceae	Thandi karav	Shrub	Rt, Lv, Bk	Make paste of fresh Lv and apply on body
18	<i>Ficus religiosa</i> Linn. Moraceae	Pimpal, pippal	Tree	Bk	Coarse Powder of Bk, boil with water, take orally twice day for five days
19	<i>Ficus tsiela</i> Roxb. Moraceae	Pipri	Tree	Bk	Bk powder macerate two days with water, take orally on empty stomach
20	<i>Gardenia turgida</i> Roxb. Rubiaceae		Small tree	Rt	Put Rt powder in hot water and take orally on empty stomach
21	<i>Gmelina arborea</i> Linn. Verbanaceae	Hiwan, shivan,	Tree	Lv	Wash Lvs then boil with water and take orally
22	<i>Gossypium herbaceum</i> linn. Malvaceae	Deo-kapus	Shrub	Rt	Rt Powder macerate with water overnight, next morning take orally on empty stomach
23	<i>Helicteres-isora</i> ,Linn. Sterculiaceae	Murud- sheng,atti,	Shrub	Sd Bk, Fr, Rt	Sds powder of boiled with water and take once in day for three days

24	<i>Hymenodictyon orixense</i> Roxb. Rubiaceae	Madal	Tree	Lv	Wash Lvs then boil with water and take orally
25	<i>Ipomoea pes-tigridis</i> Linn. Convolvulaceae	Borwel	Herb	Lv	Put drops of Lv juice in nostril, Powder of Lvs boiled with water, take bath once in day for three days
26	<i>Jatropha gossypifolia</i> Linn. Euphorbiaceae	Chandra-jyot	Shrub	Sd, Rt	Boil Coarse Powder of Sds, with water, take orally for five days
27	<i>Luffa acutangula</i> Roxb. Cucurbitaceae	Dodke	Climber	Fr	Juice of fresh Frs orally or boil powder of Frs with water and take orally
28	<i>Medicago sativa</i> Linn. Leguminosae	Ghoda-ghas, ghas-gavat	Herb	Wp	Make paste of aerial parts and apply on body
29	<i>Mentha viridis</i> Linn. Labiatea	Pudina	Herb	Lv	Juice of fresh Lvs orally or directly eat Lvs
30	<i>Ricinus communis</i> Linn. Euphorbiaceae	Erاند, erاندi	Small tree	Lv	Boil or macerate Lvs powder with water and take orally

(Fr-Fruit, Fl-Flower, Lv-Leaves, St-Stem, Bk-Bark, Rh-Rhizome, Rt-Root, Sd-Seed, Wp-Whole plant)

### Experimental Section

**Study Area:** In Maharashtra state there are 47 Scheduled tribes. Khandesh region of this state is basically constructed by Dhule, Nandurbar, Jalgaon and Nashik districts respectively. Western hilly areas of Dhule and Nandurbar districts are densely occupied by a number of tribes communities like Pawara, Bhils, Vasave etc. But among all tribes, Pawara tribe is one of the major and is mostly in habited in the ranges of Satpuda hills. Their economical activities are entirely depends up on agriculture and their deities concern with hills, forest, animals and forest materials. Dhule and Nandurbar districts are situated between the meridians of longitudes 73°31' and 75° 11' east and between the parallel of latitudes 20°38' and 22°3' N. Dhule district is bounded by Gujarat State on west and by Madhya Pradesh on north along with Nandurbar, on east and south by Jalgaon and Nasik respectively. Climate of district is on the whole dry except during south-west monsoon season. Average annual rainfall in the district is 674.0 mm. It is also situated in valley of the Tapi River along with bank of Panzara River.

Nandurbar district sharing common boundaries with Dhule district to the south, Gujarat State in the west, States of Gujarat and Madhya Pradesh in the north and Madhya Pradesh and Dhule district to the east. Climate of district is on the whole dry except during south-west monsoon season. Average annual rainfall in the district is 767 mm. It has mainly hilly region and have 'Toranmal' which is 2nd hill station after Matheran in Maharashtra.<sup>8-13</sup>

### Methodology

Dhule and Nandurbar districts of Khandesh region of Maharashtra were, ethnobotanically exploited for folk medicinal plants used by pawara tribe in treatment of liver diseases. Initially relevant format was prepared for ethnobotanical survey and then various tribal villages, belongs to especially pawaras communities

were visited and interacted with tribes to acquire valuable information on medicinal plants. But in the beginning faced lot of difficulties such as tribals are residing in hilly areas as a result it was difficult mission to identify about their location, to get traditional healers at their places, to understand their language because most of them speak their native language only, they also hesitated to give information and so on. Numbers of visits were made to get an opportunity to develop relation with different Pawara tribe also with head of the Pawaras tribe in the village is known as Patil who conducted village administration by all respects as well as local mediators were identified and through them survey was conducted.

### Conclusion

This study records the uses and abundance of the hepatoprotective plants in Satpuda region of Khandesh, Maharashtra, India. The information obtained can be used in identifying species which should be given priority when developing sustainable harvesting strategies for species within the communities. It also assists the people in this locality to maximize the use of their flora in the management of liver diseases.

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### References

1. R. Govaerts, 2001, Taxon 50, 1085–1090.
2. U. Schippmann, A. B. Cunningham, D. J. Leaman, 2002, Ninth Regular Session of the Commission on Genetic Resources for Food and Agriculture, FAO, Rome, Italy, 143–167
3. P. Pushpangadan, 1995, Ethnobiology of India: A Status of Report. Government of India, New Delhi.
4. R. Gupta, 1986, Indian Society of Tree Scientists, Solan, India, pp. 59–67.

5. M. R. Rao, M. C. Palada, B.N. Becker. Agroforestry Systems. 2004;61:107-122.
6. H. Azaizeh, S. Fulder, K. Khalil, O. Said. Fitoterapia 2003;74:98-108.
7. R. Binvy, S. D. J. Singh, V. J. Samual, S. John, A. Siddiqua. *Journal of Pharmacy Research*. 2013;7:15-19.
8. D. A. Patil, 2003, Flora of Dhule and Nandurbar Districts, Bishan Singh Mahendra Pal Singh Publication, Dehradun, 80-559.
9. K. R. Kirtikar, and B. D. Basu, Indian Medicinal Plants, 2<sup>nd</sup> edition, reprint 1999, International Book Distributor, Dehradun, India, 854-872.
10. The Wealth Of India, raw materials, revised edition, Vol III, Council of Scientific and Industrial Research New Delhi, reprinted by the Publication of Information Directorate, New Delhi, 2003;3:327-373.
11. P. P. Sharma, A. M. Mujundar. *Indian Journal of Traditional Knowledge*. 2003;2:292-296.
12. S. B. Badgujar, R. T. Mahajan. Ethnobotanical Leaflets. 2008;12:1137-44.
13. D. L. Jain, A. M. Baheti, K. R. Khandewal. *Indian Journal of Traditional Knowledge*. 2010;9(1):152-157.