



# ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS USED TO TREAT HUMAN DISEASES IN BHAMBHORI AND ITAWA FOREST AREAS IN DAHOD, GUJARAT, INDIA

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## Abstract

This paper reports an ethnobotanical study that focused on the traditional medicinal plants used by local communities to treat human diseases. The study focused on documentation of medicinal plants used to treat various human diseases in the study area. Ethnobotanical data were collected using semistructured interviews, group discussion, guided field walks, and observations with participants. Local people in the study area possess traditional knowledge of medicinal plants to treat various human ailments; however, agricultural expansion and disinterest of young generation became the major threat to medicinal plants. It is, therefore, necessary to preserve this indigenous knowledge on traditional medicines by proper documentation, identification of plant species used and herbal preparation. To save medicinal plants from further loss, involving local communities in cultivation of the most utilized medicinal plants is recommended. Dahod district is located in Gujarat state in western India, its total area is 3,642 km<sup>2</sup>. Present research work is deals with ethnomedicinal plants used by local tribes from Bhambhori and Itawa forest. Bhambhori village is situated in Dahod district; it is far 9 kms from district headquarters Dahod. Itawa village is 15 kms away from district headquarters of Dahod. These are the deciduous type of the forest. Main tribes inhabiting forest range are, Sangoda, Baria, Ninama, Vasava, Parmar and Chauhan. We have arranged various field trips and contacted local "vaidya" from tribes and reported total 18 ethno-medicinal plants. During field trips we have collected *Tinospora cordifolia* (Thunb.) Miers, *Portulaca oleracea* L., *Albizia odoratissima* (L.f.) Benth., *Prosopis cineraria* L., *Sterculia urens* Roxb., *Ailanthus excelsa* Stap f., *Azadirachta indica* A. Juss., *Butea monosperma* (Lam.) Taub., *Enicostema littorale* L., *Calotropis procera* (Aiton.) W.T. Aiton, *Marsdenia volubilis* (L.f.), *Ocimum sanctum* L., *Clerodendrum multiflorum* (L.f.), *Tectona grandis* (L.f.), *Achyranthes aspera* L., *Ricinus communis* L., *Ficus racemosa* L. (Druce.), *Aloe vera* L. (Burm.) f. plant species which are useful to cure different diseases like cold, cough, gynecological disorder, eczema, piles, T.B., typhoid, backache and many more. Plant species are related with Menispermaceae, Portulacaceae, Sterculiaceae, Simarubaceae, Meliaceae, Fabaceae, Gentianaceae, Asclepidaceae, Lamiaceae, Verbenaceae, Amaranthaceae, Euphorbiaceae, Moraceae, Liliaceae Families. Specimens of flowering plants were identified with the help of faculties and different regional floras.

**Key words:** Ethnomedicinal plants, Bhambhori and Itawa forest, Deciduous Forest and Gujarat.

## Introduction

Plant resources have remained an integral part of human society throughout history. After fulfilling the primary needs like food and shelter, man has sought for a suitable remedy among plants for curing various diseases (WHO, 2002). Traditional medicine is defined as indigenous medicine that is used to maintain health and to prevent, diagnose and treat physical and mental illnesses differently from allopathic medicine based on theories, beliefs, and experiences (WHO, 2012). Dahod district is located in Gujarat state in western India, its total area is 3,642 Km<sup>2</sup>. Present research work is deals with ethnomedicinal plants used by local tribes from Bhambhori and Itawa forest. Bhambhori village is situated in Dahod district; it is far 9 Km from district headquarters Dahod. Itawa village is 15 Km away from district headquarters of Dahod. These are the deciduous type of the forest. Main Tribes Inhabiting Forest Range are Sangoda,

Baria, Ninama, Vasava, Parmar and Chauhan. We have arranged various field trips and contacted local "vaidya" from tribes and reported total 18 ethno-medicinal plants. During field trips we have collected *Tinospora cordifolia* (Thunb.) Miers, *Portulaca oleracea* L., *Albizia odoratissima* (L.f.) Benth., *Prosopis cineraria* L., *Sterculi aurens* Roxb., *Ailanthus excelsa* Stap f., *Azadirachta indica* A. Juss., *Butea monosperma* (Lam.) Taub., *Enicostema littorale* L., *Calotropis procera* (Aiton.) W.T. Aiton, *Marsdenia volubilis* (L.f.), *Ocimum sanctum* L., *Clerodendrum multiflorum* (L.f.), *Tectona grandis* (L.f.), *Achyranthes aspera* L., *Ricinus communis* L., *Ficus racemosa* L. (Druce.), *Aloe vera* L. (Burm.) f. plant species which are Useful To Cure different diseases like Cold, Cough, Gynecological disorder, Eczema, Piles, T.B., Typhoid, Backache and Many More. Plant Species are Related With Menispermaceae, Portulacaceae, Sterculiaceae, Simarubaceae, Meliaceae, Fabaceae, Gentianaceae, Asclepidaceae, Lamiaceae, Verbenaceae,

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Amaranthaceae, Euphorbiaceae, Moraceae, Liliaceae Families. Most of the published and unpublished written ethnomedicinal data with valuable and complementary information are scattered in Forest Area (Lawal *et al.*, 2010). Forest are renewable resources for raw materials like timber, firewood, medicinal and Economic important plants. They have major contribution to economic development of our country by providing of our country; it produce to the people and the industry (Dave and Patel, 2012b). The status of Gujarat herbaceous approximately 2000 species of Flowering Plants. Out Of them 1275 Species are identified as medicinally useful (Robbins, 2000). During the last few decades there has being an increasing interest in study of Medicinal Plants and their traditional use in different part of world but documenting the indigenous knowledge through ethnobotanical studies (Patel and Patel, 2016). Human beings have been using plants for long time and research workers are constantly bringing to light additional information on the relationship between plants and man. Some plants used for the treatment of Earache from Forest areas of Jhalod Taluka, Dahod District, Gujarat, India (Maru *et al.*, 2017). Ethnobotanist explore plants are used for food, shelter, medicine, clothing, hunting, religious ceremonies (Patel, 2017). The search for new sources of drugs, food and other life-support species has compelled man to look again at nature. It is also necessary and useful to seek clues from people living closer to nature. There has been resurgence of interest in ethno botany all over the world during the last about 40 years (Dave and Patel, 2017a). Ethnic groups and rural people of this area used to treat their alimentary by using fresh plants materials (Patel *et al.*, 2010). According to the classification of forest types by Champion and Sheth (1968) the forest of North Gujarat have been placed under *Boswellia* forest, here dry and deciduous type of forest is mostly found (Patel *et al.*, 2010). The Himalaya have a great wealth of medicinal plants and traditional medicinal knowledge. Himachal Pradesh is one of the pioneer Himalayan states is rich in repository of medicinal flora (Boktapa and Sharma, 2010). India having largest diversity region among the world; which has highly variable flora due to the various type of climatic conditions (Chavada *et al.*, 2010). Specimens of flowering plants were identified with the help of faculties and different regional floras. It is also observed that more than 35000 plants species are being used around the world for medicinal purpose. The communities residing in these rich biodiversity areas have rich traditional wisdom of herbal medicines (Patel, 2017). Ethno botany is the study of how people of a particular culture and region make use of indigenous plants for treating various diseases. Ethnobotanist explore how plants used for food, shelter, medicine, clothing, hunting, religious ceremonies (Patel and Patel, 2017). Medico-ethno botany acts as a bridge between Botany and tribal knowledge regardind medicinal aspects of plants. It deals with direct relation between man and plants (Patel and Patel, 2018). Herbalism is the study of plants used for healing and maintain health. Herbalism is a traditional medicinal or folk medicinal practice based on the use of plants and plant extracts (Dave and Patel, 2012a). In Jhalod forest there are about 257 angiospermic herb, shrub, trees and climbers plant were reported (Maru and Patel, 2012). The WHO (World

Health Organization) has recognized the role of traditional systems of medicine and considers them a part of strategy to provide health care to masses (Dave and Patel, 2017a).

## Materials and Method

For the study of ethnomedicinal plants and ethnobotanical plants; first i have contacted local tribal people of Bhambhori and Itawa forest. Their name are Arjun bhai Meda and Kalji bhai Sangadiya. These tribels give plangts as a medicine to local rural people of forest to cure different diseases. The methodology and approaches for this research work is guided by Dr. R.S. Patel. Different field trips were arranged frequently and collected the data regarding different plant species. I have visited certain places and documented through photographs. All the plant specimens are identified with the help of flora of Gujarat and another valuable literature. Some unidentified species are identified by Dr. R.S. Patel.

## Results and Discussion

The present research work is based on ethnomedicinal plants used to cure different diseases. These widely growing plant species are used by tribal of forest as a medicine and their daily regular life; Arjun bhai, Bachu bhai Mela and Kalaji bhai Sangadiya give these widely growing plants as a medicine to tribal society. During repeatedly field trips, I have noted 25 ethnomedicinal plants, among them I have taken 18 plants with their Botanical name, common name, family and its ethnomedicinal uses.

This research paper also highlights the aspects of utilization of plants as medicine in such major diseases like cancer, Diabetes, T.B and Gynac disorder by tribal people. They are directly or indirectly dependent upone plants as medicine and for home utilities. According to study of B.Sandhya and S.Thomas, among 59 medicinal plants 25% ethnomedicinal plants are used to cure Skin diseases, Snake bite, Tooth ache, Eczema, Diabetes, Wound and Fever. And according to my research work among 18 ethnomedicinal plants 33% of plants are cure any kind of fever, diabetes, Eczema, skin diseases, and another 33% plants are used to cure gynac disorder, Gangrene, T.B, Malarial fever etc. Advantage of this research work is to cure any kind of diseases without any side effect on body. Patient should take fix amount of medicinal plant which was fixed by tribal medicinal man. In long or short time period it will cure diseases. But disadvantage of this is that if any patient takes more amount of medicine it will directly or indirectly detrimental to patient.

## Enumertion of medicinal plants used for human ailments

1. **Botanical Name:** *Tinospora cordifolia* (Thunb.) Miers

**Family:** Menispermaceae

**Common name:** Galo

**Ethnomedicinal uses:** Take powder of whole plant with one glass of water at morning and evening to cure any kind of diseases.

2. **Botanical Name:** *Portulaca oleracea* L.  
**Family:** Portulacaceae  
**Common Name:** Jalbrahmi/Jallimado  
**Ethnomedicinal uses:** Take one teaspoon full powder of plant at morning and evening to treat strain and quech.
3. **Botanical Name:** *Albizia odoratissima* (L.f.) Benth.  
**Family:** Mimosaceae  
**Common Name:** Singari  
**Ethnomedicinal uses:** Take 200 gm fresh leaves, pound it adding 100gm curd and poultice is maid. Mixture is applied on Eczema at morning and evening to remove Eczema.
4. **Botanical Name:** *Prosopis cineraria* L.  
**Family:** Mimosaceae  
**Common Name:** Sarsedi  
**Ethnomedicinal uses:** Fresh stem bark is taken keep in the one glass water at evening. In a morning water is taken to cure swelling on the legs and hands.
5. **Botanical Name:** *Sterculia urens* Roxb.  
**Family:** Sterculiaceae  
**Common Name:** Kadi  
**Ethnomedicinal uses:** Pounded stem bark and keep in the water for fermentation. Drink its water twice in a day to cure pain of Backache. Bark and gum is used to remove Backache.
6. **Botanical Name:** *Ailanthus excelsa* Stapf.  
**Family:** Simaroubaceae  
**Common name:** Aalavo  
**Ethnomedicinal uses:** Stem bark is pounded in the water and fresh juice is made, it is drunk to remove poison on any snake bite.
7. **Botanical Name:** *Azadirachta indica* A. Juss  
**Family:** Meliaceae  
**Common Name:** Limado  
**Ethnomedicinal uses:** Fresh leaf juice is taken as a coolant. Bark is smeared and poultice is made, it is applied to cure wound.
8. **Botanical Name:** *Butea monosperma* (Lam.) Taub.  
**Family:** Fabaceae  
**Common Name:** Khakharo  
**Ethnomedicinal uses:** Root is pounded and powder is made and applied on knee to cure pain. Root bark is fermented into water liquid is taken twice a day to knee pain. Ark of root is dropped in the eyes for good visibility.
9. **Botanical Name:** *Encostema littorale* L.  
**Family:** Gentianaceae  
**Common name:** Mamejvo  
**Ethnomedicinal uses:** Chewed 2-3 leaves of plant to cure simple fever and malarial fever.
10. **Botanical Name:** *Calotropis procera* (Aiton.) W.T. Aiton  
**Family:** Asclepiadaceae  
**Common Name:** Akado  
**Ethnomedicinal uses:** Flowers of *Calotropis* are eaten twice a day to cure typhoid fever.
11. **Botanical Name:** *Marsdenia volubilis* (L.f.)  
**Family:** Asclepiadaceae  
**Common Name:** Kadavadodi  
**Ethnomedicinal uses:** Dried powder of leaf if taken to cure T.B.
12. **Botanical Name:** *Ocimum sanctum* L.  
**Family:** Lamiaceae  
**Common Name:** Tulsi  
**Ethnomedicinal uses:** Chew 5-6 leaves of plant to cure any kind of diseases.
13. **Botanical Name:** *Clerodendrum multiflorum* L.f.  
**Family:** Verbenaceae  
**Common Name:** Arani  
**Ethnomedicinal uses:** Pulp of root or leaves are applied on gangrene.
14. **Botanical Name:** *Tectona grandis* L.f.  
**Family:** Verbenaceae  
**Common Name:** Sag  
**Ethnomedicinal uses:** Extract of fresh seeds is taken orally twice in a day to remove gynecological disorder. Stem bark of *Tectona grandis*, *Butea monosperma* and *Syzigium cumini* is taken pounded it with water and taken twice in a day to cure gynecological diseases.
15. **Botanical Name:** *Achyranthes aspera* L.  
**Family:** Amaranthaceae  
**Common Name:** Tariyu  
**Ethnomedicinal uses:** Root is pounded and juice is made, taken orally twice in a day to cure gynecological.
16. **Botanical Name:** *Ricinus communis* L.  
**Family:** Euphorbiaceae  
**Common Name:** Aerando  
**Ethnomedicinal uses:** 2 tea spoon full fresh juice of root is taken to cure diarrhea for children.
17. **Botanical Name:** *Ficus racemosa* L. (Druce.)  
**Family:** Moraceae  
**Common Name:** Umbari  
**Ethnomedicinal uses:** Stem bark is pounded and keep in the bowl, one glass water is taken to remove piles.
18. **Botanical Name:** *Aloe vera* L. (Burm.)f.  
**Family:** Liliaceae  
**Common Name:** Kuvarpathu

**Ethnomedicinal uses:** “Aeliyo” made out from its leaves. It is useful to treat gynecological disorder, weakness and irregular menstruation. Leaves juice and roots are used to cure skin disorders. If any person drinks poison then pound the leaf with Turmeric powder and salt. It is drunk one glass of juice at a time.

**Plate 1** is shown 9 photographs of *Tinospora cordifolia* (Thunb.) Miers, *Portulaca oleracea* L., *Albizia odoratissima* (L.f.) Benth., *Prosopis cineraria* L., *Sterculia urens* Roxb., *Ailanthus excelsa* Stap f., *Azadirachta indica* A. Juss., *Butea monosperma* (Lam.) Taub., *Enicostema littorale* L. **Plate 2** shown the 9 photographs of *Calotropis procera* (Aiton.) W.T. Aiton, *Marsdenia volubilis* (L.f.), *Ocimum sanctum* L., *Clerodendrum multiflorum* (L.f.), *Tectona grandis* (L.f.), *Achyranthes aspera* L., *Ricinus communis* L., *Ficus racemosa* L. (Druce.), *Aloe vera* L. (Burm.) f. Graph-1 is shown different diseases reported with ethnomedicinal plants. Here 18 ethnomedicinal plants are useful to cure 20 types of diseases like snake bite, kidney stone, cancer, puss, swelling; graph-2 is shown number of plants present in various families; graph-3 is shown different plant forms like climber, annual succulent plants, trees etc; graph-4 is shown plant parts used in human traditional medicine.

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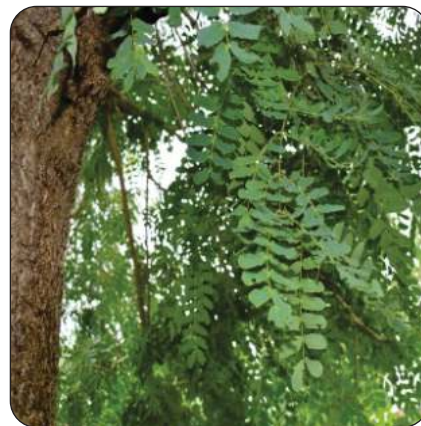
## Plate 1: Ethnomedicinal Plants



*Tinospora cordifolia* (Thunb.) Miers



*Portulaca oleracea* L.



*Albizia odoratissima* (L.f.) Benth.



*Prosopis cineraria* L.



*Sterculia urens* Roxb.



*Ailanthus excelsa* Stap f.



*Azadirachta indica* A. Juss



*Butea monosperma* (Lam.) Taub.



*Enicostema littorale* L.



**Plate 2: Ethnomedicinal Plants**



*Calotropis procera* (Aiton.) W.T. Aiton



*Marsdenia volubilis* (L.f.)



*Ocimum sanctum* L.



*Clerodendrum multiflorum* (L.f.)



*Tectona grandis* (L.f.)



*Achyranthes aspera* L.



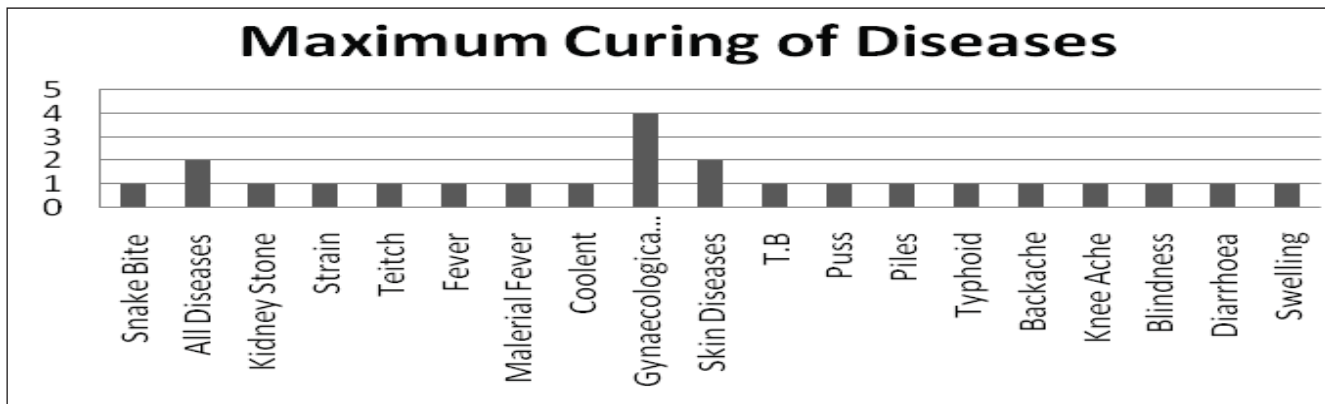
*Ricinus communis* L.



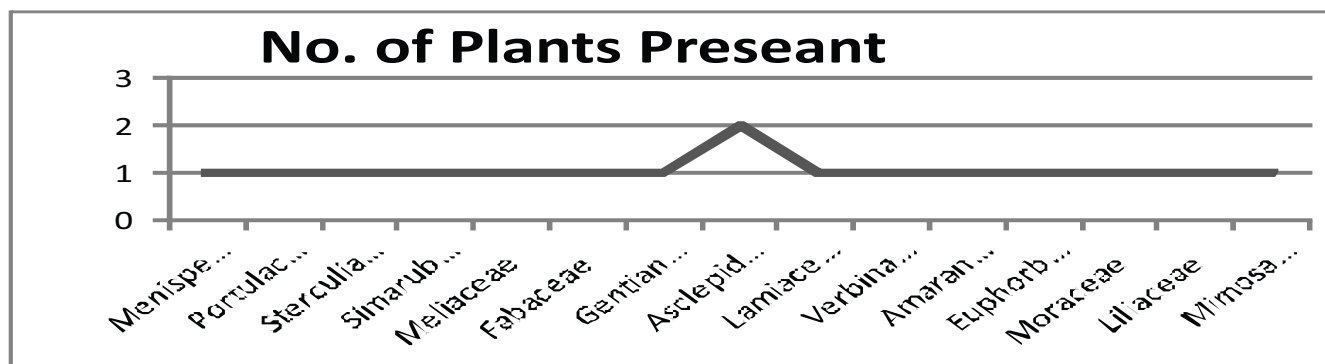
*Ficus racemosa* L. (Druce.)



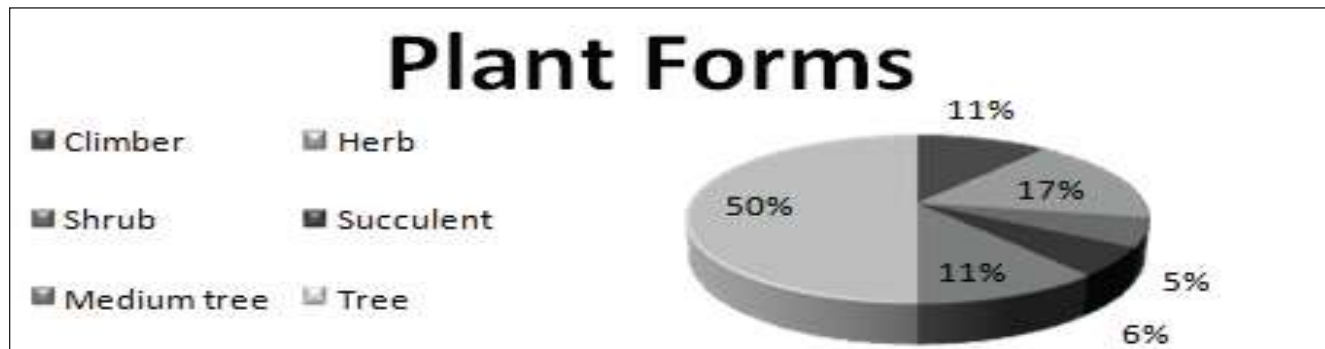
*Aloe vera* L. (Burm.)f.



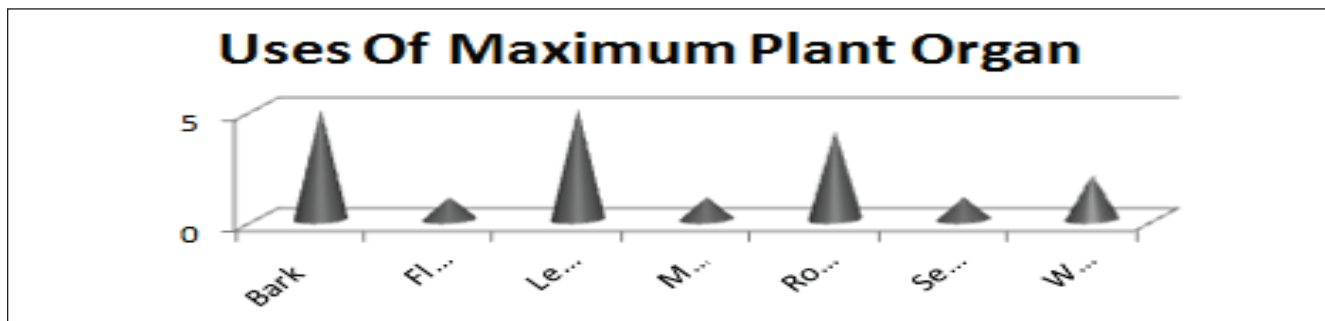
Graph 1: Maximum Curing of Diseases by Ethnomedicinal Plants



Graph 2: No. of Plants Present in Different Families



Graph 3: Cooperation of Various Plant Forms



Graph 4: Plant parts used in human traditional medicine