

# Indigenous Traditional Knowledge about Medicinal Plants of Rajasthan State to Cure Respiratory and Liver Diseases

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## ABSTRACT

Rajasthan is the largest state in India, geographically lies between 23°3' to 30°12'N longitude and 69°30' to 78°17'S latitude and is rich in diversity of medicinal plants. Numerous literatures show the medicinal values of different plants standing from the age of Vedas. A lot of work has been also done on ethnomedicinal plants used for various ailments by different tribal communities and researchers in Rajasthan. This article highlights some important medicinal plants of Rajasthan and their therapeutic use in daily life to cure respiratory and liver diseases. Due to the constant association with the forest environment the tribal have accrued considerable knowledge of the plants and their utility, especially for medicinal purpose. The use of many of the medicinal plants employed by the tribal people are however still not known outside the restricted community. The importance of gathering informations on medicinal plants of the state is to initiate their proper scientific management and exploitation for economic development of the area.

**KEYWORDS:** medicinal, indigenous, respiratory, liver, diseases, Rajasthan, traditional, knowledge, tribal, communities

## INTRODUCTION

Medicinal plants of Rajasthan state which will be helpful for chemists and pharmacologists to undertake for there research on these medicinal plants to explore the prospect of their exploitation on a commercial scale. It is also hoped that the information presented herein will also be useful for a layman, government and other agencies engaged in the economic development of the area.

### **Balanites aegyptiaca**

*Balanites aegyptiaca* belongs to Zygophyllaceae family. In India, it is widely distributed in Rajasthan, Gujarat, Madhya Pradesh, and Deccan<sup>2</sup>. It has been reported that the plant has anthelmintic, insecticidal, antidiabetic, antimicrobial, antibacterial, antifungal, hepatoprotective, anticancerous, antiparasitic, anti-inflammatory, molluscicidal and antioxidant properties.[1,2]

It is traditionally used in treatment of various diseases i.e. jaundice, intestinal worm infection, wounds, malaria, syphilis, epilepsy, dysentery, constipation, diarrhea, hemorrhoid, stomach aches, skin boils, leucoderma, malaria, wounds, colds, syphilis, liver

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and spleen disorders, asthma, snake bite and fever. The bark of the plant is useful in curing mental diseases, yellow fever, jaundice and syphilis and can also act as a fumigant to heal circumcision wounds. Fruit kernel has been found as a mild laxative, an antidote to arrow poison, and also acts as a vermifuge. Kernel oil helps in curing skin disease. The seeds are useful as ointments, to cure cough, colic pain and also have magicoreligious properties.

### **Calligonum polygonoides**

*Calligonum polygonoides* is a member of family Polygonaceae. It is a small leafless shrub, which has a reputation in folklore medicine as a stimulant and astringent. It grows on sand dunes of Barmer, Bikaner, Churu, Jaisalmer, Jhunjhunu, Nagaur, Sikar and Shri Ganganagar.

Leaves and stems are chewed to wash teeth and to treat gummosis while young shoots infusion is used as tonic. Root's paste is applied on the affected areas for the treatment of prickly heat and scabies. Decoction is used for the treatment of sore gums, typhoid. Flowers buds are effective in sun stroke,

respiratory and liver diseases. Flowers paste are also used for the treatment of asthma, eczema, cough and cold. It is reported that juice of the plant is applied in eyes to remove poisonous effect of *Calotropis procera*.

*Calligonum polygonoides* possesses hypoglycemic, cytotoxic, antioxidant, antimicrobial, anti-cancer, antiulcer, anti-inflammatory, antifungal, and mosquitocidal activities.[3,4]

### **Citrullus colocynthes**

This plant belongs to family Cucurbitaceae, commonly known as Chitrapala or Bitter apple. It is found widely in the sandy lands of North West, the Punjab, Sindh, and Central and Southern India, and Coromandal coast.

*Citrullus colocynthis* shows mild stomachic, bitter tonic, anthelmintic, anti-cancer, antioxidant, antimicrobial, antidiabetic, analgesic, antipyretic, anti-inflammatory, carminative, diuretic and anthelmintic property.

*Citrullus colocynthis* is used generally in the cure of various diseases such as leprosy, gut disorders, diabetes, constipation, asthma, indigestion, colic, rheumatism, hypertension, gastroenteritis, dysentery, bronchitis, jaundice, joint pain, cancer and mastitis.

### **Commiphora wightii**

Guggulu consists of oleo-gum resin obtained as an exudate from the tapping of stem and branches of *Commiphora wightii* (Arnott) Bhandari; Family, Burseraceae. The plant is commonly known as guggal, gugar, and Indian bdellium tree and is found in arid areas of India, Bangladesh, and Pakistan. In India, it is found in Rajasthan, Gujarat, Assam, Madhya Pradesh, and Karnataka. It is a small, bushy tree with thorny branches and produces a yellowish gum resin (guggulu) in small ducts located throughout its bark. Guggulu possesses hypolipidemic, anti-inflammatory, anti-arthritic, antifertility, Anti-atherosclerotic, astringent, anti-septic, anti-inflammatory, analgesic, wound healing, anti-obesity, anti-spasmodic activity.

In Indian traditional system of medicine, guggulu has been used for thousands of years in the treatment of arthritis, inflammation, stimulates libido, nervous diseases, bronchial congestion, cardiac and circulatory problems, weak digestion, wounds, abscess, foetid ear, fractures, gout, skin rashes, irregular menstruation, diarrhea, headache, mild nausea, liver toxicity, rheumatism, obesity, and disorders of lipids metabolism.[5,6]

### **Cordia myxa**

*Cordia myxa* belongs to family Boraginaceae, is also known as clammy-cherry, glueberry, Indian-cherry in

English and Gondi in Hindi. Pharmacological studies revealed that *Cordia myxa* possessed analgesic, anti-inflammatory, immunomodulatory, antimicrobial, antiparasitic, insecticidal, cardiovascular, respiratory, gastrointestinal and protective effects.

*Cordia myxa* was eaten to suppress cough and for the treatment of respiratory infections and a sore throat, as it has demulcent properties. The pulp was also applied as an emollient to mature abscesses, to calm rheumatic pain and as an anthelmintic. Fruit pulp is applied on ringworm. Leaves' paste was applied to wounds and ulcers.

### **Gymnema sylvestre**

*Gymnema sylvestre* belongs to family Asclepiadaceae, is also known as 'gurmar' or 'sugar destroyer' (If the leaves of the plant are chewed, the sense of taste for sweet and bitter substances is suppressed). *Gymnema sylvestre* is a slow growing, perennial, medicinal woody climber found in southern part of China, Tropical Africa, Vietnam, Malaysia, and Srilanka and is widely available in Japan, Germany, USA, central and peninsular India (mostly in Rajasthan, Bihar, West Bengal). The bioactive compounds of plant have antidiabetic, atherosclerotic, antimicrobial, antiarthritic, antibiotic, hypolipidaemic, immunostimulatory, hepatoprotective, anti-hyperglycemic, antipyretic, diuretic, anti-inflammatory, wound healing and anticancer properties.

*Gymnema sylvestre* is a traditional medicinal plant, with reported use as a remedy for diabetes mellitus, stomachic and diuretic problems. Its use has been indicated in adenopathy, cough, asthma, alexipharmic, anthelmintic, astringent, biliousness, bronchosis, cardiopathy, conjunctivosis, cornea, dysuria, digestive, emetic, expectorant, fever, furunculosis, glycosuria, hemorrhoid, hepatosplenomegaly, inflammation, jaundice, leukoderma, rheumatismopacities, ophthalmia, and worm. The roots of *Gymnema sylvestre* has also been used in snake bite, boil, constipation, and water retention, epilepsy, pain, high cholesterol, IDDM, NIDDM and obesity.[7,8]

### **Discussion**

The local villagers and practitioners for their help in providing necessary information about the medicinal plants was great. Rajasthan has rich biodiversity consisting of a large number of plants, some of which are used for their medicinal value. A large number of medicinally important tree species are present on Aravalli hill range and other areas including less hoppable North-West Rajasthan. The tribals who depend on forest (mostly their surrounding vegetation) wealth are the real custodians that

safeguard the medicinal plants till now. Rapid deforestation caused by over-harvesting and exploitative trade of medicinal plants has significantly reduced the availability of the medicinal plants in arid and semi-arid region of Rajasthan. Generally, wasteland plants are called as weeds and said to be unwanted and undesirable plant species. On the contrary as suggested by 'Ayurveda' has said, "No plant of this world is useless". Knowledge about the medicinal properties of these plants is confined to tribals only. Generally the folk people are well acquainted with the medicinal properties of their surrounding vegetation particularly for their well-being. Rajasthan where 80 percent of its people live in the rural areas and cannot afford to the luxury of costly modern medicine. They depend on vegetation surrounding them and make perfect uses of them for their medicinal needs.[9,10]

1. ***Abrus precatorius*** Linn: (Local name–Chirmi, Family–Fabaceae). Decoction of root is given with almonds to increase vigour and vitality. Leaves are used for various skin and liver diseases.
2. ***Acacia nilotica*** (L.) Delile: (Local name–Babul, Family–Fabaceae). Gum of the tree is highly nutritive and is useful for pregnant mothers. Raw fruits have medicinal values in women diseases, also used in tooth paste and helps in asthma.
3. ***Argemone mexicana*** Linn: (Local name– Pili kateli / Satayanasi, Family–Papaveraceae): Root is used for chronic skin diseases, eye and mouth wash. Leaves for gonorrhoea, dropsy, jaundice, scabies, other skin diseases. The yellow juice is used in eye infection. The juice rubbed on the body relieves rheumatic pain. The oil from the seed is used externally for skin diseases, joint pains, respiration.
4. ***Azadirachta indica*** A. Juss: (Local name–Neem, Family–Meliaceae). The stem bark is bitter tonic, used to cure chronic fever. Bark is also used for wound and jaundice.
5. ***Calotropis procera*** (Ait.) R. Br.: (Local name–Akara. Family–Asclepiadaceae). Flowers of this plant are used in piles and asthmatic problems. Latex used in tooth-ache and ringworm, and also for removing face darkness. Roots is used for spleen complaints, elephantiasis, rheumatism, protracted labour (given with black pepper). Bark is used for diaphoretic, expectorant, emetic in dysentery hemiplogia. Leaves are used on sores, skin disease, respiration, liver diseases, inflammation and rheumatic joints.[11,12]
6. ***Datura innoxia*** Mill.: (Local name–Dhatura, Family–Solanaceae). The dried leaves and twigs of the plant are smoked as an antispasmodic in asthma, whooping cough, bronchitis etc.
7. ***Tephrosia hamiltonii*** Drum.: (Local name–Sarpanko, Family–Fabaceae) Plant is used as tonic, laxative, diuretic and deobstruent. Root and seeds are insecticidal and pesticidal. Decoction of pods used as vermifuge and to stop vomiting and liver problems.
8. ***Tridax procumbens*** Linn.: (Local name–Rukhari, Family–Asteraceae). Whole plant checks bleeding when applied on cut wounds. Leaf juice is insecticidal, pesticidal, checks haemorrhage, removes stones from urinary bladder, diarrhoea, dysentery and liver problems.
9. ***Xanthium strumarium*** Linn: (Local name–Aadha–Shishi, Family–Asteraceae). Seeds are used for the disease Aadha–shishi, generally known as migraine pain and chronic liver diseases.
10. ***Zizyphus nummularia*** (Brum.) Wt.: (Local name–Jhari–Bor, Family–Rhamnaceae). Leaves placed on to boils and scabies fruit are used for biliousness, astringent and cooling, respiratory problems.[13,14]

## Results

"Charak Samhita" the oldest book on medicine, written by Sage Charak mentions around 340 herbs and their indigenous use. In the present time medicinal plants have gained tremendous significance, approximately 25% of the drugs are derived and many other are synthesized from plants. During present investigation our major objective is to explore the potential in medicinal plants resources from the arid and semi-arid part of India. The study reveals that Rajasthan harbors a rich diversity of valuable medicinal plants and attempts are being made, at different levels, for documentation of some important medicinal plants of Rajasthan with their local name and their medicinal properties.

Private and forest nurseries in the state are witnessing a rapid rise in demand for medicinal plants during Covid pandemic as residents are increasingly buying such plants for their gardens.

As many of these plants with medicinal values including Tulsi significantly improve air quality as per the traditional medicine system, the demand in recent past has increased manifold. Other plants with medicinal value including turmeric, ashwagandha (*Withania somnifera*) and guduchi are also in tremendous demand. Ethnobotany deals with folk use of plants especially as medicine because of no-side

effects of herbal medicine. The Keladevi wildlife Sanctuary (KWS) is the northern extension of the Ranthambhore national Park and falls within the buffer zone of the Ranthambhore tiger reserve.[15,16] The Sanctuary is located in the Karauli district of Rajasthan and falls within the Karauli and Sapotra blocks. It is spread over a total area of 676 sq. km. falling within the longitudes 76°37'E to 77°13' and latitude 26°2' N and 26°21' N. The Sanctuary is bounded on the west by the river Banas and on the south by the river Chambal. Here are some medicinal plants for curing respiratory and liver diseases: -

1. *Tinospora cordifolia* (Linn.) Miers, Local Name - Giloy, Family - Menispermaceae, Uses - Jaundice, fever, diabetes, skin disease
2. *Martynia annua* Linn, Local Name - Bichu, Family - Martyniaceae, Uses - sore throat, tuberculosis-glands
3. *Aegle marmelos* Local Name - Bel, Bello Family - Rutaceae, Uses - Bel tree is considered to be very sacred because it is associated with Lord Shiva.[17,18]

A drive for growing medicinal plants at home amid the COVID-19 pandemic has been launched in Rajasthan, with the task forces appointed for distributing saplings to all households along with the message for increasing natural immunity to fight the infection. The medicinal plants of tulsi, giloy, ashwagandha and kalmegh, prepared by the State government's Forest Department, would enable the people to develop "natural strength". The Rajasthan government, in an effort to boost the immunity of the people in the state, will distribute more than 30 crore medicinal plants to around 1.26 crore families in 5 years under its scheme named 'Ghar Ghar Aushodhi'. The scheme is an effort to boost the immunity of the people as prevention and good immunity is considered to be the only way to keep diseases like Covid-19 away. Every family will get 24 medicinal plants like Basil, Giloy, Ashwagandha and Kalmegh for free in these years. The government will spend Rs 210 crore on the scheme. The kadhas made from medicinal herbs were widely propagated and used to boost immunity during Covid. The government also promoted the use of Kadha. Taking this move into account, the Rajasthan government has linked this year's plantation drive with medicinal plants and made a scheme of five years so that every household can have its plants of immunity booster herbs. "The climate change, pollution and changing lifestyle are affecting everyone and people are falling prey to various diseases because of these. The scheme aims to better the health of the citizens of the state by making herbs available to every household," stated the order issued for the scheme.[19,20]

The plants selected for the scheme are considered to be good immunity boosters in Ayurveda and also suited to the climate of Rajasthan.

The department of the forest will grow the plants in its nurseries during the rainy season every year and distribute them in July and October.

Although, there are some reservations about the scheme also, the government plans to educate the people about the use of these herbs. 'Distribution of plants is good, but it is equally important to educate the people about the use of these herbs as all of them have certain qualities and protocol of use which needs to be followed. So it will be important to see how the government will make people educate'[21,22]

### Conclusion

The information on medicinal uses of plants is based on the exhaustive interviews with local physicians practising indigenous system of medicine, village headmen, priests and tribal folks. The Aravalli hills of Mewar region of Rajasthan are inhabited by many tribes; Bhil, Garasia, Damor and Kathodia being the main ones. Folk medicines, mainly based on plants, enjoy a respectable position today, especially in the developing countries, where modern health service is limited. Safe, effective and inexpensive indigenous remedies are gaining popularity among the people of both urban and rural areas. The tribal dominated Mewar region of Rajasthan harbours a vast diversity of vegetation. It includes subtropical evergreen forest of *Boswellia serrata*, *Diospyros melanoxylon*, *Dendrocalamus strictus*, *Bombax cieba*, *Madhuca indica*, *Tectona grandis*, *Anogeissus latifolia* and *Balanites aegyptiaca*. These forests are inhabited by the major tribes of the state, viz. Bhil, Garasia, Damor and Kathodia. The surrounding plants form an integral part of culture of these people and the information about plants is passed on from generation to generation only through oral folk lore, although it is often kept secret.[23,24]

Modern health care in the tribal and rural areas of the Rajasthan state is characterised by a deficiency of infrastructure, of qualified personnel and of medicine. Access to and within the region is extremely difficult during certain periods of the year making evacuation for medical treatment an unrealistic option. Given these extreme conditions, the population has recourse almost solely to traditional medicines. The traditional healers of Rajasthan have a commendable knowledge of the medicinal virtues of plants that grow around them. This knowledge of traditional healing practices using wild plants is now fast disappearing due to modernisation and the tendency to discard their traditional lifestyle. There is an urgent need to study and document this precious knowledge for posterity.

The traditional uses of plants as herbal remedies has further declined due to a scarcity of species, which is caused by multifarious human activity coupled with natural calamities like droughts and overgrazing by sheep, goats and other domestic animals in the state, thus threatening the diversity of the herbal medicines. It is in this context that conservation and scientific verification of rare and lesser known medicinal plants assume greater significance.

The traditional knowledge system in India is fast eroding. There is an urgent need to record all ethnobotanical information among the diverse ethnic communities before the traditional culture is completely lost. Often, tribals are exploited by the modern societies and they are forbidden to use the forest resources with which their lives are strongly interwoven. [25,26]

The Jodhpur district a part of Thar Desert is very rich in medicinal plant wealth. The medicinal plants of this region have great potential to be used in drug and pharmaceutical industries. These herbal plants have been used by local people, tribal communities, vendors, native doctors such as Ojhas, Bhagats Bhopas and experts of Ayurvedic fields since long time in herbal and folk remedies. Kalbelia, Nats, Bhils, Raika, Bhopas, Banjara, Gadolia-Lohar, Saharia and Meena communities of this district have a rich knowledge of plants based traditional medicines. Ten ethnomedicinal plants like *Cleome gynandra* Linn., *Clerodendrum phlomidis* Linn., *Cassia angustifolia* Vahl., *Echinops echinatus* Roxb., *Leucas aspera* (Willd.) Spreng., *Mimosa hamata* Willd., *Moringa oleifera* Lamk., *Pedaliium murex* Linn., *Peganum harmala* Linn., *Sida cordifolia* Linn. are known to cure liver and respiratory problems. [27]

## References

- [1] Rao MM, Meena AK. Folk herbal medicines used by the Meena community in Rajasthan. *Asian Journal of Traditional Medicines*. 2010; 5(1): 19-31.
- [2] *Balanites aegyptiacus* (L.) Delile". Germplasm Resources Information Network. United States Department of Agriculture. 2008.
- [3] Chothani DL, Vaghasiya HU. A review on *Balanites aegyptiaca* Del (desert date): phytochemical constituents, traditional uses, and pharmacological activity. *Pharmacogn Rev*. 2011; 5(9): 55–62.
- [4] Yadav JP, Panghal M. *Balanites aegyptiaca* (L.) Del. (Hingot): A review of its traditional uses, phytochemistry and pharmacological properties. *International Journal of Green Pharmacy*. 2010; 140-146.
- [5] Khare CP. *Indian medicinal plants: An illustrated dictionary*. Springer. 2007: 77–80.
- [6] Ojo OO, Nadro MS, Tella IO. Protection of rats by extracts of some common Nigerian trees against acetaminophen-induced hepatotoxicity. *Afr J Biotechnol* 2006; 5: 755-60.
- [7] Hamid O, Wahab M, Hassan E. *Balanites aegyptiaca* extract for treatment of HIV/ AIDS and leukemia. International Publication Number WO 2001/49306 A1.
- [8] Bukar A, Danfillo IS, Adeleke OA, Ogunbodede EO. Traditional oral health practices among Kanuri women of Brono state Nigeria. *Odontostomatol Trop*. 2004; 27: 25-31.
- [9] Nawash OS, Al-Horani AS. The most important medicinal plants in Wadi Araba desert in South West Jordan: A review article. *Ad Environ. Biol*. 2011; 5: 418–25.
- [10] Khan A, Khan RA, Ahmed M, Mushtaq N. In Vitro antioxidant antifungal and cytotoxic activity of methanolic extract of *Calligonum polygonoides*. *Bangladesh Journal of Pharmacology*. 2015; 10(2): 316-320.
- [11] Liu XM, Zakaria MN, Islam MW, Radhakrishnan R, Ismail A, Chen HB. Anti-inflammatory and anti-ulcer activity of *Calligonum comosum* in rats. *Fitoterapia*. 2001; 72: 487–91.
- [12] Al-Abraham JS, Mohammed AE, Elobeid MM. Assessment of in vitro anti-fungal potential of ethanolic extract of *Calligonum comosum* against two fungal postharvest pathogens of fruits and vegetables in Saudi Arabia. *IJABPT*. 2014; 5: 90–94.
- [13] El-Hag E, Harraz F, Zaytoon A, Salama A. Evaluation of some wild herb extracts for control of mosquitoes. *J King Saud Univ*. 1996; 8: 135–45.
- [14] Gurudeeban S, Ramanathan T. Antidiabetic effect of *Citrullus colocynthis* in alloxon-induced diabetic rats. *Inventi Rapid: Ethno Pharmacology*. 2010; 1: 112.
- [15] Marzouk B, Marzouk Z, Fenina N, Bouraoui A, Aouni M. Anti-inflammatory and analgesic activities of *Citrullus colocynthis* Schrad. immature fruit and seed organic extracts. *Eur Rev Med Pharmacol Sci*. 2011; 15(6): 665-72.
- [16] Abo K, Fred-Jaiyesimi A, Jaiyesimi A. Ethnobotanical studies of medicinal plants used

- in the management of diabetes mellitus in South Western Nigeria. *Journal of Ethnopharmacology*. 2008; 115(1): 67-71.
- [17] Sultan A, Khan F, Iqbal H, Khan M, Khan I. Evaluation of chemical analysis profile of *Citrullus colocynthis* growing in southern areas of Khyber Pukhtunkhwa Pakistan. *World Applied Sciences Journal*. 2010; 10(4): 402-5.
- [18] Ernest Small. Frankincense and Myrrh – imperilled divine symbols of religion’s duty to conserve biodiversity. *Biodiversity*. 2017; 1–16.
- [19] Urizar NL, Moore DD. Gugulipid: a natural cholesterol-lowering agent. *Annual Review of Nutrition*. 2003; 23: 303–313,.
- [20] Al-Snafi AE. Therapeutic properties of medicinal plants: a review of plants with anti-inflammatory, antipyretic and analgesic activity (part 1). *Int J of Pharmacy* 2015; 5(3): 125-147.
- [21] Ali Esmail, Al-Snafi. The Pharmacological and therapeutic importance of *Cordia myxa*- A review. *IOSR Journal of Pharmacy*. 2016; 6(6): 47-57.
- [22] Kapoor LD. *CRC Handbook of Ayurvedic Medicinal Plants*; CRC Press: Boca Raton, FL, 1990; 200-201.
- [23] Ye WC, Zhang Q, Liu X, Che C, Zhao S. Oleanane saponins from *Gymnema sylvestre*. *Phytochemistry*. 2000; 53: 893-899.
- [24] Kishore L, Kaur N, Singh R. Role of *Gymnema sylvestre* as Alternative Medicine. *J Homeop Ayurv Med*. 2015; 3: 172.
- [25] Tiwari P, Mishra BN, Sangwan NS. Phytochemical and Pharmacological Properties of *Gymnema sylvestre*: An Important Medicinal Plant. *BioMed Research International*. 2014.
- [26] Kirtikar KR, Basu BD (1st ed., 1918, 2nd ed., 1935 or 1938), *Indian Medicinal Plants*, 4 volumes text, 4 volumes illustrations, M/S Periodical Experts, New Delhi, 1975.
- [27] Bone K. *Clinical Applications of Ayurvedic and Chinese Herbs — Monographs for the Western Herbal Practitioner*, Phytotherapy Press, Warwick, Australia, 1996.

