



A review on endemic Medicinal and Aromatic Plants found in Western Region of India: An Futuristic Exploration Strategy for Socio-economic Upliftment

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Abstract

A large portion of India's biodiversity comes from the western states, particularly Maharashtra, Gujarat, and Rajasthan. Despite the states' unfavorable geoclimate, they are home to an abundance of aromatic and medicinal plant species. The western part of India experiences a varied climate, ranging from tropical humid on the coast to semi-arid and dry inland, with hot summers and mild winters, primarily characterized by the heavy monsoon rains brought by the southwest monsoon winds during the rainy season. The plants having high constituents value of their active phytochemicals to impact the desired results. The studies show that the wild raw materials supply is dominant to supply of herbal raw material than the cultivated sources. During the compilation of literature total 48 plants species have found to be the endemic and reported by various workers in the western region (Maharashtra, Rajasthan and Gujrat) of India. In the western part of India, there are 22 protected areas that have their own unique flora, including a variety of medicinal plants. These areas include national parks, sanctuaries, and reserve forests. In order to address the demand and supply gap in the medicinal plant industry, it would be beneficial to encourage the cultivation of medicinal plants native to the western area of India. In order for medicinal plants to be viable, the supply network for them needs to be strengthened.

Keywords: Medicinal Plants, Reserve forest, Western region flora, Endemic plants, Western India.

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Introduction

The several ecological zones in India are home to a wide variety of plant and animal species. Out of the 36 biodiversity hotspots worldwide, four are located in India. The Himalayas, Indo-Burma, Western Ghats, and Sundaland are home to an abundance of rare and endangered species (Venkataraman, K., Sivaperuman, C. 2018). Because of the abundance of rare and endangered species that thrive in these areas, protecting biodiversity hotspots is of the utmost importance. More than 47,000 species of trees, shrubs, herbs, and aquatic plants are thought to exist in India, with an additional 8,000 kinds of plants said to have therapeutic properties. One way to alleviate poverty and raise living standards in rural areas is to cultivate medicinal plants for their medical properties. However, in order to satisfy the need of several enterprises connected to aroma-chemicals and pharmaceuticals, the Indian medicinal habitat and ecology are currently experiencing immense pressure. Additionally, it is evident that the wealth of plant genetic resources is being depleted, with many species undergoing extinction on a daily basis (Lakshman CD, 2016; Singh S, 2005; Vijayalatha SJ 2004). Approximately 21,000 plants have been documented by the World Health Organization (WHO) as having potential medical applications in various parts of the globe. India is home to some 25,000 plant species, 150 of which are exploited commercially for medication manufacturing on a big scale Modak M, *et al.* 2007; (Poornima Sharma and Dinesh Kumar Sharma 2018). Between 35,000 and 70,000 plant species have a history of medical usage in different parts of the world. More than eight thousand different types of medicinal plants are utilized in Indian medical systems. The medical literature lists more than 25,000 herbal products. The significance of medicinal plants is highlighted in numerous sacred texts, including the Vedas and other important collections authored by great sages and saints. For example, the Rigveda prescribes 67 millimoles, the Yajurveda 81 millimoles, the Atharvaveda 290 millimoles, the Brahmana 130 millimoles, the Charaksamhita 400 to 450 millimoles, the Shusrutsamhita 573 millimoles, Dhanvantri Nighantu 373 medicinal plant-based drugs, Raja Nighantu approximately 750 plant-based drugs, and Madanpala and Bhavprakash prescribe 569 millimoles, among others (Alok Kumar Chandrakar, 2014). About 70% of India's medicinal and aromatic plants (MAPs) are located in tropical forests in the Western and Eastern Ghats, the Vindhya, the Chhota Nagpur plateau, the Aravalis, and the Himalayas, according to an analysis of MAP distribution in natural habitat. Additionally, research has shown that, in contrast to temperate and evergreen climates, a disproportionate number of known MAPs are found in the dry and damp deciduous vegetation area. Trees make up approximately 33%, herbs 32%, shrubs 20%, creepers 12%, and other plants 3%, according to habit-wise classification (Source: Report of the Task Force on Conservation & sustainable use of Medicinal Plants, 2000).

Medicinal plants constitute approximately 8,000 species and around 80 per cent of all the 'higher flowering' plant species of India.

The Indian traditional systems of medicines i.e. Ayurveda, Unani, Siddha and Homoeopathy literature also revealed the plant species and their quality, uses and characteristics viz. The ancient granths i.e. The Rigveda mentions 67 herbal drugs, the Yajurveda-81 and Atharvaveda about 290. Other medicinal plants have been described by many sages and experts in the Vedas, Upnishads, Nighantus and Materia-medica. Other works of importance developed since ancient times are Charaka Samhita, Sushruta Samhita, Bhava Prakasha Nighantu, Raja Nighantu and Madanpala Nighantu etc. Anonymous (1994) cites 7500 plant species utilized medicinally by tribal peoples across India in the Status Report on Ethnobiology published by the Government of India in 1994. There are 2500 species and 15,000 traditional applications listed by Jain (2012) (Dhole, *et al.* 2021).

As per the sources revealed that 1587 species in Ayurveda, 1128 species-Siddha, 503 species in Unani, 253 species - Sowa-Rigpa , 468 species – Homoeopathy and 192 species- Western/modern medicines.

This review articles summarized the endemic medicinal and aromatic plant diversity in the Western part of India which comprising major three states i.e. Rajasthan, Maharashtra and Gujrat. The western part of India experiences a varied climate, ranging from tropical humid on the coast to semi-arid and dry inland, with hot summers and mild winters, primarily characterized by the heavy monsoon rains brought by the southwest monsoon winds during the rainy season; coastal regions see less seasonal variation in temperature compared to the interior areas. The climatic conditions are little different in this area favorable for plant diversity. From a barren wasteland to a relatively fruitful and populous terrain in the east and northwest, the area steadily improves from being nearly dry, poorly watered, and less productive. The principal transient river, Luni, only flows during the brief monsoon season. High wind speeds and low relative humidity characterize the typical hot dry desert environment, which is characterized by protracted periods of drought and extremely scorching temperatures (Malhotra 1966; Prariianik 1952).

The article has been compilation of studies taken in the wild area, reserve forests of the Maharashtra, Gujrat and Rajasthan for documentation of Medicinal and aromatic plant diversity of the areas for work out the conservation and development strategies to safeguard of this important medicinal plant diversity.

According to various studies on communities and forest areas revealed that 2000 plant species are found in the areas out of that 760 area medicinal 450 species are economic and ethno botanical importance. (Uma Devi -1988; Uma Devi *et al.* 1989; Vikas Kumar *et al.* 2015 a; Vikas Kumar *et al.* 2015 b; Vikas Kumar and Desai, 2014, Vikas Kumar, 2015)

Rohit Patel *et al.*, (2013) in their survey investigation, they discovered 28 essential medicinal herbs like as *Enicostema axillare*, *Cynadon dactylon*, different kinds of medicinal plants in TGRF, Kutch. These plants include *Commiphora wightii*, and *Capparis decidua*, among others.

Table –I: List of Medicinal Plants dominantly found in the Western region of India

S.No.	Species name	Common Name	Uses	Distribution	Reference
1.	<i>Acacia senegal</i> (L.) Willd.	Kumat, Gum acacia	Antioxidant, anti-inflammatory, antibacterial, wound healing	Rajasthan, Gujarat, Punjab, Haryana, Uttar Pradesh, etc.	Bharucha, 1955; Parker, 1956; Ram, 2011), Rajendra Prasad A. Arunachalam (2024), Bairwa (2022), Dashahre (2014), Malhotra (1966)
2.	<i>Acacia leucophloea</i> Willd.	Safed Kikkar	Bronchial inflammation and coughing, biliousness of the skin and leucoderma	Throughout India, especially in plains.	Bairwa (2022), Dashahre (2014), Malhotra (1966)
3.	<i>Balanites aegyptica</i> (L.) Del.	Desert date	wounds, jaundice, intestinal worm infection, dysentery, malaria, syphilis, epilepsy, constipation, stomach aches, diarrhea, hemorrhoid, asthma, and fever.	Distributed in dry regions of India, particularly in Rajasthan and Gujarat.	Chothani (2011) Raval (2013), Vaghasiya. <i>et al.</i> 2015, Kumar <i>et al.</i> (2018), Soni <i>et al.</i> (2018). Kamartaha <i>et al.</i> (2021), R.M. Bagul (2013), Samarth (2019), Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Saroj Kumari (2022), Bairwa (2022), Dashahre (2014), Malhotra (1966)
4.	<i>Blumia eriantha</i> DC.	Wool-Flower Blumea	anti-helminthic, anti-pyretic, and diuretic.	Found in various parts of India, especially in moist areas.	Bioactives and Pharmacology of Medicinal Plants EISSN 9781003281658, Saiyed Kamartaha <i>et al.</i> (2021), Malhotra (1966)
5.	<i>Boswellia serrata</i> Roxb.	Salai gum	sores, wound healing, treating arthritis, coughs, ulcerative colitis, and asthma	Predominantly in dry hilly areas of India, including Madhya Pradesh and Rajasthan.	Dev (1983), Atre and Khedkar (2020), Samudra, S.M. and Shinde H.P (2021). Chandrakar AK (2014). Saiyed Kamartaha <i>et al.</i> (2021), U.R. Kokate (2012), Gupta <i>et al.</i> (2021), Dashahre (2014), Malhotra (1966)
6.	<i>Bridelia retusa</i>	Spinous Kino	joint pain, enlarged spleen, anemia, asthma, cancer, colic, cough, diabetes, diarrhea, gonorrhea, hernia, menstruation, anti-inflammatory, antimicrobial, immunomodulatory, antirheumatic, analgesic and hepatoprotective activities	Common in deciduous forests across India.	Walling <i>et al.</i> 2023
7.	<i>Bryophyllum pinnatum</i> (Lam.) Oken.	Miracle Leaf	cough, treating fever, smallpox, otitis, headache, asthma, convulsion, and general debility	Widely cultivated throughout India.	Kamartaha <i>et al.</i> (2021)
8.	<i>Calotropis procera</i> (Ait.) R.Br.	Aak, madar	The skin, intestines, cough, ascites, and anasarca have all been treated with the root bark. Bronchitis, dyspepsia, gastroenteritis, dysentery, piles, boils, enlarged scrotum, filariasis, and cancer are all conditions that can benefit from the root power.	Common in arid and semi-arid regions of India.	Kadia, Riya, <i>et al.</i> (2020), Vaghasiya P.M. <i>et al.</i> 2015, Hardik Soni <i>et al.</i> (2018). P. A. Dhole <i>et al.</i> (2021), Chavhan <i>et al.</i> (2015), Ladda RG (2013), U.R. Kokate (2012), Samarth (2019), Gupta <i>et al.</i> (2021), Saroj Kumari (2022), Dudi (2018), Bairwa (2022), Dashahre (2014), Malhotra (1966)
9.	<i>Capparis cartilaginea</i> Decne.	Cartilage Caper	for the relief of aches and pains caused by rheumatism and arthritis, headaches, earaches, snakebites, and bruising	Found in dry regions of India.	, Bairwa (2022)
10.	<i>Capparis decidua</i> (Forsk.) Edgew.	Bare Caper, Karel	anti-inflammatory, hypolipidemic, anti-tumor, antiangiogenic, antioxidant, hepatoprotective, anticonvulsant, antihelminthic, antibacterial, antifungal, analgesic, anti-nociceptive, antirheumatic, and anthelmintic.	Predominantly in arid regions like Rajasthan.	Vaghasiya P.M. <i>et al.</i> 2015, Vilas V. Bankar (2021), Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Bairwa (2022), Dashahre (2014), Malhotra (1966)
11.	<i>Cassia siamea</i>	Kassod Tree, Johar	calming, anti-inflammatory, analgesic, antipyretic, antibacterial, anticancer, hypotensive, diuretic, antioxidant, laxative, antidepressant, and antimalarial properties	Cultivated in various parts of India.	Vikas Kumar <i>et al.</i> (2018)
12.	<i>Cassia auriculata</i> L.	Matura tree	diabetes, pink eye, joint and muscle pain (rheumatism), constipation	Common in dry regions of India.	Kamartaha <i>et al.</i> (2021) Samudra, (2021). Raval (2013), Vaghasiy. <i>et al.</i> 2015, Kanthale (2012). Soni <i>et al.</i> (2018). Kokate (2012), Gupta <i>et al.</i> (2021), Malhotra (1966)
13.	<i>Cassine glauca</i>	Jamrasi, Ceylon Tea	treatment of fever, rheumatism, and skin conditions	Found in moist deciduous forests of India.	Vikas Kumar <i>et al.</i> (2018), Kokate (2012)
14.	<i>Celastrus paniculata</i> Willd.	Malkaangani	hormone-regulating, anti-inflammatory, antispermatogenic, sedative, anti-fatigue, analgesic, and antiviral. Arthralgic, antirhumatic, aphrodisiac, emetic, laxative, nervine tonic, and laxative all describe it.	Distributed in hilly regions across India.	Kumar (2015), Kanthale (2012). Kamartaha <i>et al.</i> (2021), Kokate (2012), Gupta <i>et al.</i> (2021)
15.	<i>Citrullus colocynthis</i> (L.) Soland.	Indrayan	problems with the digestive system, diabetes, leprosy, the common cold, cough, asthma, bronchitis, jaundice, arthritis, cancer, toothache, wound, mastitis, and so on	Common in arid regions of India.	Kamartaha <i>et al.</i> (2021), P. A. Dhole <i>et al.</i> (2021), U.R. Kokate (2012), Rothe (2011), Gupta <i>et al.</i> (2021) , Kumari (2022), Malhotra (1966)
16.	<i>Commiphora wightii</i> (Arn.) Bhandari	Guggul	for the treatment of arthritic pain, elevated cholesterol, atherosclerosis, acne, and other skin conditions; and for the reduction of excess body fat.	Found in arid regions like Rajasthan and Gujarat.	Chandrakar (2014), Gupta <i>et al.</i> (2021), Bairwa (2022), Malhotra (1966)
17.	<i>Corchorus depressus</i> (L.) Stocks	Jute mallow, Bahufalli	This compound has a wide range of biological activities, including those that inhibit enzymes, reduce inflammation, ease pain, speed wound healing, and protect the liver from harmful infections. It also has diuretic, antifungal, antibacterial, antimalarial, cardiotonic, and antipyretic properties.	Distributed in dry regions of India.	Patel <i>et al.</i> (2022), Malhotra (1966)
18.	<i>Cordia dichotoma</i> Forst.	Slashmastak, Nisoda	treating fevers, coughs, colds, and wounds	Common in dry and moist deciduous forests across India.	Raval (2013), Kumar (2015), Kanthale (2012). Kamartaha <i>et al.</i> (2021), Kokate (2012), Samarth (2019), Gupta <i>et al.</i> (2021), Bairwa (2022), Dashahre (2014)
19.	<i>Cucumis callosus</i> (Rottl.) Cogn.	Kachri	skin conditions, snake bites, and it also possesses diuretic, antioxidant, anti-cancer, antidiabetic, and anthelmintic effects.	Found in arid regions, especially in Rajasthan.	Choudhary, <i>et al.</i> (2023), Malhotra (1966)
20.	<i>Datura innoxia</i> Mill	Thorn apple	a poultice and analgesic, anodyne, antispasmodic, hallucinogenic, hypnotic and narcotic.	Widely distributed across India.	Kanthale (2012). Sapkal (2024). Bagul (2013),
21.	<i>Dillenia pentagyna</i>	Dog teak	wound healing, treat cancer, diabetes, and diarrhea	Found in moist deciduous forests of India.	Front Nutr . 2022 Jul 12;9:11274.
22.	<i>Eclipta prostrata</i> L.	False daisy	antimicrobial, hepatoprotective, anticancer, neuroprotective and hair growth promoting activities	Common throughout India in moist places.	Biomolecules . 2021 Nov 22;11(11):1738. Kamartaha <i>et al.</i> (2021), Ladda (2013), Karande (2021), Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Bairwa (2022) , Malhotra (1966)

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23.	<i>Enicostema axillare</i> (Lamk.) Roynal	Indian whitehead	cure a variety of illnesses, including congestion, diabetes, fever, and cough.	Distributed in various parts of India.	Gupta <i>et al.</i> (2021)
24.	<i>Euphorbia caducifolia</i> Hains.	Spurge	Wound healing, skin diseases, and as a laxative. The latex has antimicrobial properties.	Found in dry regions of India.	Gupta <i>et al.</i> (2021)
25.	<i>Gmelina arboea</i>	Gambhar	Fever, inflammation, and digestive disorders. The bark and leaves have anti-inflammatory and hepatoprotective properties.	Common in deciduous forests across India.	Kumar <i>et al.</i> (2018), Kokate (2012), Gupta <i>et al.</i> (2021)
26.	<i>Grewia tenax</i> (Forsk.) Fiori	Phalsa cherry	The fruit is rich in antioxidants, used for cooling and digestive aid, and has anti-diabetic properties.	Found in dry regions of India.	Malhotra (1966)
27.	<i>Grewia tiliaefolia</i>	Dhaman	Ulcers, skin disorders, and respiratory issues. For diarrhea, a bark decoction might be utilized.	Distributed in deciduous forests of India.	Kumar (2015), Kumar <i>et al.</i> (2018)
28.	<i>Heterophragma quadriloculare</i>	Waras	Traditionally used for wound healing, skin diseases, and as an astringent in Ayurvedic medicine. anti-diabetic, antifungal, antiseptic and in skin disease like toe sores and chilblain	Found in deciduous forests of India.	Satani <i>et al.</i> (2016)
29.	<i>Leptadenia pyrotechnica</i> (Forsk.) Decne.	Jivanti	Enhance vitality, treat respiratory disorders, and as a general tonic.	Common in arid regions like Rajasthan.	Kumari (2022), Dudi (2018)
30.	<i>Phyllanthus frateruns</i> Webst	Tamalaki	Liver disorders, particularly jaundice and hepatitis. It has hepatoprotective and anti-viral properties.	Distributed throughout India.	Chaudhary, 2018
31.	<i>Prosopis cineraria</i> (L.) Druce	Sangari, Khejadi	Diabetes, skin diseases, and as a coolant. The pods are rich in nutrients.	Predominantly in arid regions like Rajasthan.	Gupta <i>et al.</i> (2021), Dudi (2018), Malhotra (1966)
32.	<i>Prosopis juliflora</i> (Sw.)DC.	Vilaiti Keekar	Wound healing, antimicrobial applications, and in diabetes management.	Widely naturalized across India.	Bairwa (2022), Dashahre (2014)
33.	<i>Salvadora oleoides</i> Decne	Bada Peelu	Dental hygiene, digestive disorders, and as a diuretic. The seeds are used for oil extraction.	Found in arid regions of India.	Vaghasiya <i>et al.</i> 2015, Gupta <i>et al.</i> (2021), Malhotra (1966)
34.	<i>Salvadora persica</i> L.	Peelu	The famous "Miswak" tree, used for oral hygiene, antibacterial properties, and digestive health.	Common in dry regions of India.	Kamartaha <i>et al.</i> (2021), Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Dudi (2018), Malhotra (1966)
35.	<i>Solanum surattense</i> Burm. f.	Irish potato, white potato	Respiratory disorders like asthma, bronchitis, and cough. Also has diuretic properties.	Distributed across India.	Soni <i>et al.</i> (2018). Kamartaha <i>et al.</i> (2021), Malhotra (1966)
36.	<i>Terminalia tomentosa</i>	Anjan Tree	Ulcers, diarrhea, diabetes, and skin disorders. The bark has astringent and anti-inflammatory properties.	Found in deciduous forests across India.	Kumar (2015), Kumar <i>et al.</i> (2018), Kokate (2012)
37.	<i>Wrightia tomentosa</i>	Kutaja	Diarrhea, dysentery, and as an anti-inflammatory agent. The bark is rich in alkaloids.	Distributed in dry deciduous forests of India.	Khare, (2007). Wrightia tomentosa Roem. & Schult.. In: Khare, C. (eds) Indian Medicinal Plants. Springer, New York, NY. https://doi.org/10.1007/978-0-387-70638-2_1778 , Kumar (2015). Kumar <i>et al.</i> (2018), Kokate (2012)
38.	<i>Zizyphus mauritiana</i> Lam.	Bor, ber	Digestive disorders, as an immunity booster, and for skin health. The fruit is rich in vitamins and antioxidants.	Common throughout India.	Raval (2013), Kumar <i>et al.</i> (2018), Soni <i>et al.</i> (2018). Kamartaha <i>et al.</i> (2021), Bairwa (2022), Malhotra (1966)
39.	<i>Zizyphus nummularia</i> (Burm.F.) W. &A.	Jharbery	Traditional medicine for wound healing, digestive problems, and as a blood purifier.	Found in arid regions like Rajasthan.	Kamartaha <i>et al.</i> (2021), Gupta <i>et al.</i> (2021), Dudi (2018), Bairwa (2022), Malhotra (1966)
40.	<i>Feronia limonia</i>	(Kaith)	Stomach disorders, respiratory issues, and as an anti-diabetic agent. The fruit is rich in tannins and antioxidants.	Distributed in dry regions of India.	Samarth (2019)
41.	<i>Diospyros melanoxylon</i> Roxb.	Tendu	When dealing with gastrointestinal issues, it is recommended to consume the powdered fruits three times daily for five days.	Common in deciduous forests across India.	Kumar (2015), Kamartaha <i>et al.</i> (2021), Chavhan <i>et al.</i> (2015). Bagul (2013), Ladda (2013), Kokate (2012), Karande (2021), Gupta <i>et al.</i> (2021), Dashahre (2014)
42.	<i>Crateva nurvula</i> Buch-Ham	Varun	This medication is used to treat a variety of conditions, including infections of the chest, fevers, vomiting, urinary stones, thyroid disorders, and increased biliary secretion and laxative and lithotriptic effects.	Found in moist deciduous forests of India.	Chandrakar (2014). Kamartaha <i>et al.</i> (2021), Gupta <i>et al.</i> (2021)
43.	<i>Azadirachta indica</i> A. Juss	Nimb, Neem	worms and skin diseases when administered topically. If you're prone to sunstroke or fever, try eating raw or crushed fresh flowers.	Widely distributed across India.	Raval (2013), Vaghasiya <i>et al.</i> 2015, Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Dudi (2018), Bairwa (2022), Dashahre (2014)
44.	<i>Acacia catechu</i> (L.f) Willd.	Kattha	For stomatitis, colic, boils, skin ailments, dysentery, bronchitis, asthma, cough, bronchi, colic, diarrhea, and dysentery	Common in dry deciduous forests of India.	Chavhan <i>et al.</i> (2015), M.A. Sunil <i>et al.</i> (2019), Gupta <i>et al.</i> (2021), Dashahre (2014)
45.	<i>Acacia nilotica</i> (L.) Del. subsp. indica (Bth.) Brenan	Babool	Joint fracture, diabetes, leucorrhoea	Widely distributed across India.	Kadia, <i>et al.</i> (2020), Raval (2013), Vaghasiya <i>et al.</i> 2015, Samarth (2019), Singh <i>et al.</i> (2023), Gupta <i>et al.</i> (2021), Dudi (2018), Bairwa (2022), Dashahre (2014), Malhotra (1966)
46.	<i>Calotropis gigantia</i> (L.)R.Br	Safed Aak	All parts are used against bronchitis and asthma.	Common in dry regions of India.	Raval (2013). Vaghasiya <i>et al.</i> 2015, Dhole <i>et al.</i> (2021), Sapkal (2024), Bagul (2013), Ladda (2013), Kokate (2012), Samarth (2019), Gupta <i>et al.</i> (2021) Dudi (2018), Bairwa (2022), Dashahre (2014)
47.	<i>Rivea hypocrateriformis</i> (Ders.)Choisy	Fang	To cure acidity and gas trouble.	Found in various parts of India.	Kadia, <i>et al.</i> (2020), Bagul (2013),
48.	<i>Solanum violaceum</i> Ortega	Chinchurdi	Root paste is applied for poison.	Various parts of India	Palwe, S. D. 2019

The above mentioned medicinal plants are found as an endemic species in the Western region those are in highly concerned for conservation of the diversity and fulfill demand of the pharmacies (Table - I).

The medicinal plants studies and data revealed that the forest reserves, National Parks, Wild life sanctuaries of the western region also have the Table –II: The medicinal and aromatic plant diversity in forest reserves, National Parks, Wild life sanctuaries of the western region

diversity of medicinal plants shows the potential medicinal plant in the area. The details of the medicinal and aromatic plants have been summarized below in table -2

S.No.	State	District	Region/Area	Species	Reference
1.	Gujrat	Panch Mahal	Ratan Mahal & Sanctuary Forest	<i>Cissampelos pareira</i> L. <i>Cocculus hirsutus</i> (L.) Diel. <i>Cleome viscosa</i> L. <i>Cleome gynandra</i> L. <i>Polygala chinensis</i> L. <i>Bergia odorata</i> Edgew. <i>Azanza lampas</i> (Cav.) Alef <i>Kydia calycina</i> Roxb. <i>Helicteres isora</i> L. <i>Grew & hirsuta</i> Vahl <i>Ailanthus excelsa</i> Roxb <i>Schleichera oleosa</i> (L. our.) Oken <i>Careya arborea</i> Roxb. <i>Alangium salvifolium</i> (L.f.) Wang. <i>Randia uliginosa</i> DC. <i>Ageratum conyzoides</i> L. <i>Ceropegia bulbosa</i> Roxb. <i>Ehretia laevis</i> Roxb. <i>Tricholepis glaberrima</i> DC. <i>Leucas stricta</i> Benth. <i>Securinega virosa</i> (Roxb. ex Willd.) Pax. & Hoffm <i>Leonotis nepetae/blia</i> (L.) R. Br. <i>Tacca leontopetaloides</i> (L.) O. Ktze <i>Arisaema murrayi</i> (Graham) Hook.	SJ Bedi. (1978),
2.	Gujrat	Junagadh	Girnar Wild Life Sanctuary	<i>Cocculus hirsutus</i> (L.) W.Theob. <i>Casuarina equisetifolia</i>	Raval Nita D, Dhaduk Hareesh L (2013)
3.	Gujrat	Junagarh	Gir Wildlife Sanctuary	<i>Terminalia crenulata</i> , <i>Dalbergia latifolia</i> , <i>Saccharum spontaneum</i> , <i>Salmalia malabarica</i> <i>Anogeissus</i> spp., <i>Mitragyna parviflora</i> , <i>Diospyros melanoxylon</i> , <i>Carissa carandas</i> , <i>Capparis separia</i> , <i>Helecteres isora</i> , <i>Manilkara hexandra</i> <i>Lannea coromandelica</i> ., <i>Balanites aegyptica</i> <i>Themeda quadrivalvis</i> , <i>Sehima nervosum</i>	1.H. Santapau, and M. B. Raizada. (1954) 2.Ecological Monitoring of Gir Final Project Report 2009
4.	Gujrat	Kachchh	Kutch Desert Sanctuary	<i>Prosopis chilensis</i> , <i>Gugal</i> (<i>Commiphora wightii</i>) and <i>Thor</i> (<i>Euphorbia nivulia</i> , <i>Gorad</i> (<i>Dichrostachys cinerea</i>), <i>Kerdo</i> (<i>Capparis decidua</i>), <i>Apluda aristata</i> , <i>Dichanthium annulatum</i> , <i>Panicum antidotale</i> , <i>Cenchrus</i> spp., <i>Pennisetum</i> spp., <i>Cymbopogon</i> spp. and <i>Elionurus</i> spp., <i>Prosopis juliflora</i> , <i>Prosopis cineraria</i> , <i>Caparis decidua</i> , <i>Ziziphus nummularia</i> , <i>Acacia senegal</i> and <i>Salvadora oleoides</i>	https://en.wikipedia.org/wiki/Rann_of_Kutch_Wildlife_Sanctuary#:~:text=population%20of%20flamingos,-.Flora,and%20Elionurus%20spp.
5.	Gujrat	Dang	Purna Wild Life Sanctuary	<i>Swietenia mahagoni</i> <i>Solanum torvum</i> <i>Ixora coccinea</i> <i>Fardenia jasminoides</i> <i>Celosia cristata</i> <i>Amaranthus viridis</i>	R.T.Jadhav. (2018), YADAV, 2018.
6.	Gujrat	Kachchh	Kutch Bustard Sanctuary	<i>Prosopis chilensis</i> (Mesquite) <i>Gugal</i> (<i>Commiphora wightii</i>) <i>Thor</i> (<i>Euphorbia caducifolia</i>) <i>Gorad</i> (<i>Calotropis procera</i>) <i>Kerdo</i> (<i>Ziziphus</i> spp.	https://www.learnupsc.com/2023/08/kutch-bustard-sanctuary.html
7.	Gujrat	Jasdaan , Rajkot	Hingolghat Sanctuary	<i>Acacia Senegal</i> , <i>Euphorbia nivulia</i> , <i>Maytenus emarginata</i> , <i>Rhus mysorensis</i> , <i>Acacia nilotica</i> , <i>Acacia leucophloea</i> , <i>Acacia planiformis</i> , <i>Dichrostachys cineria</i> , <i>Commiphora wightii</i> , <i>Cassia auriculata</i> , <i>Borreria stricta</i> , <i>Indigophera cordifolia</i> , <i>Grewia demin</i> , <i>grewia polygamma</i> , <i>Borreria prionitis</i> , <i>Boerhabia diffusa</i> , <i>Evolvulus alsinoides</i> , <i>Zornea gibbosa</i> , <i>Aristida royleana</i>	Naik et al. (1990)
8.	Gujrat	Jamnagar	Khijadia Bird Sanctuary	<i>Prosopis juliflora</i> <i>Salvadora persica</i> <i>Acacia nilotica</i> <i>Bolboschoenus maritimus</i> <i>Lantana camara</i> <i>Avicennia marina</i>	Nikunj Jambu (2017).
9.	Gujrat	Banaskantha District, Iqbalgadh,	Jessore Wildlife Sanctuary	<i>Acacia chundra</i> (R oxb. ex Rottl.) Willd. <i>Adina cordifolia</i> (Roxb.) Hook. f. ex Brandis <i>Albizia lebeck</i> (L.) Benth. <i>Albizia odoratissima</i> (L.f.) Benth <i>Albizia procera</i> (Roxb.) Benth. <i>Bauhinia racemosa</i> Lam. <i>Bombax ceiba</i> L. <i>Bridelia retusa</i> (L.) Spr <i>Cordia dichotoma</i> Forst. <i>Dalbergia paniculata</i> Roxb. <i>Dillenia pentagyna</i> Roxb. <i>Erythrina variegata</i> L. <i>Ficus racemosa</i> L. <i>Ficus religiosa</i> L. <i>Ficus virens</i> Dryand. ex Ait. <i>Garuga pinnata</i> Roxb. <i>Heterophragma quadrilobularis</i> (Roth) K.Schum. <i>Holarrhena pubescens</i> (Buch.-Ham.) Wall. ex G. Don. <i>Holoptelea integrifolia</i> (Roxb.) Planch. <i>Madhuca indica</i> Gmelin <i>Melia dubia</i> Cav <i>Oroxylum indicum</i> (L.) Vent. <i>Ougeinia oojeinensis</i> (Roxb.) Hochr. <i>Prerocarpus marsupium</i> Roxb. <i>Schleichera oleosa</i> (Lour.) Oken <i>Syzygium cumini</i> (L.) Skeels <i>Tectona grandis</i> L. f. <i>Terminalia crenulata</i> Roth. <i>Catunaregam uliginosa</i> (Roxb.) Shivrajan	Yadav (2018).

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10.	Gujrat	Vadodara	Shoolpaneshwar Sanctuary	<i>Tectona grandis</i> , while <i>Haldina cordifolia</i> , <i>Mitragyna parvifolia</i> , <i>Terminalia crenulata</i> [T. <i>arjuna</i>] and <i>Anogeissus latifolia</i>	Pradeepkumar (2001)
11.	Gujrat	Panchmahal	Jambughoda Wildlife Sanctuary	Sag, sadad, shisham, khair, mahuda, bamboos, timru, bor, dhav, bili, dudhalo Teak (<i>Tectona grandis</i>), Bamboo (<i>Bambusoideae</i>), Mahua (<i>Madhuca indica</i>), Shisham (<i>Dalbergia sissoo</i>), Khair (<i>Senegalia catechu</i>), Sadad (<i>Terminalia crenulata</i>), Timru (<i>Diospyros melanoxylon</i>), Bor (<i>Ziziphus mauritiana</i>), Dhav (<i>Anogeissus latifolia</i>), Bili (<i>Aegle marmelos</i>), Dudhalo (<i>Wrightia tinctoria</i>)	https://forests.gujarat.gov.in/jambughoda-sanctuary.htm?utm_source=chatgpt.com
12.	Rajastha n	Sawai Madhopur	Ranthambore National Park -	Dhok (<i>Anogeissus pendula</i>), Babul (<i>Acacia nilotica</i>), Neem (<i>Azadirachta indica</i>), Flame of the Forest (<i>Butea monosperma</i>), Kadamba (<i>Mitragyna parvifolia</i>), Ber (<i>Ziziphus mauritiana</i>), <i>Cenchrus ciliaris</i> , <i>Dactyloctenium aegyptium</i> , <i>Aristolochia indica</i> , Babool (<i>Acacia leucophloea</i>), Khejri (<i>Prosopis cineraria</i>), Peepal (<i>Ficus religiosa</i>), <i>Themeda arundinaceam</i> , Aloe Vera, Ashwagandha (<i>Withania somnifera</i>), Brahmi (<i>Bacopa monnieri</i>), Opuntia and Agave .	Alam <i>et al.</i> (2011).
13.	Rajastha n	Alwar	Sariska Tiger Reserve	Safed Musli (<i>Chlorophytum borivilianum</i>), Ashwagandha (<i>Withania somnifera</i>), Bamboo (<i>Dendrocalamus strictus</i>), Cynodon dactylon (Bermuda grass), <i>Dichanthium annulatum</i> , Ber (<i>Ziziphus mauritiana</i>), Adhatoda (<i>Justicia adhatoda</i>), Dhak (<i>Butea monosperma</i>), Dhok (<i>Anogeissus pendula</i>), Salar (<i>Boswellia serrata</i>), Kadaya (<i>Sterculia urens</i>), Guggal (<i>Commiphora wightii</i>)	Dashahre , (2014) .
14.	Rajastha n	Bharatpur	Keoladeo National Park (Bharatpur Bird Sanctuary)	Kadamba (<i>Neolamarckia cadamba</i>), Babool (<i>Vachellia nilotica</i>), Jamun (<i>Syzygium cumini</i>), Ber (<i>Ziziphus mauritiana</i>), Khejri (<i>Prosopis cineraria</i>), Prosopis juliflora (mesquite)	Mathur <i>et al.</i> (2009)
15.	Rajastha n	Rajsamand	Kumbhalgarh Wildlife Sanctuary	Dhak (<i>Butea monosperma</i>), Salar (<i>Boswellia serrata</i>), Khair (<i>Acacia catechu</i>), Mahua (<i>Madhuca indica</i>), Arjun (<i>Terminalia arjuna</i>), Ber (<i>Ziziphus mauritiana</i>), Giloy (<i>Tinospora cordifolia</i>)	Pandey <i>et al.</i> (1999).
16.	Rajastha n	Jaisalmer	Desert National Park –	<i>Euphorbia caducifolia</i> , <i>Aloe vera</i> and <i>Agave</i> , Calligonum polygonoides (Phog), Zizyphus nummularia (Ber), Leptadenia pyrotechnica (Khimp), Cenchrus biflorus (Indian sandbur), Lasiurus indicus (Sewan grass), Prosopis cineraria (Khejri), Salvadora persica (Toothbrush tree), <i>Acacia nilotica</i> (Babool), <i>Tribulus terrestris</i>	Bohra (2013)
17.	Maharas htra	Chandrapur District	Tadoba-Andhari Tiger Reserve -	Other major species of trees found within the protected area are- Bor Bel, Beheda, Hirda, Karaya Gum, Mahua Madhuca (crepe myrtle), Lannea Cormandelica (wodier tree), Chichwa, Dhawada, Kusum, Mahua, Mowai, Phetra, Rohan, Shisham, Sisoo, Shivan, Surya, Sirus, and Jamun.	https://www.tadobanationalpark.in/flora-in-tadoba.html#:~:text=Other%20major%20species%20of%20trees,Surya%2C%20Sirus%2C%20and%20Jamun.
18.	Maharas htra	Amravati District	Melghat Tiger Reserve	Teak is the dominant species. Others include: Tiwas, Bija, Haldu, Saja, Dhawda, Ain, Moha, Tendu, Achar, Amla, Behada, Bhilwa, Bor, Mango, Khair, Jamun, Apta, Bel and Kulu.	Deshmukh, (1994).
19.	Maharas htra	Pune District	Sanctuary of Bhimashankar	<i>Bilshmedia dalzellii</i> , <i>Mangifera indica</i> , <i>Olea dioica</i> , <i>Syzygium cumini</i> , <i>Carallia brachiata</i> , <i>Myristica malabarica</i> , <i>Diospyros malabarica</i> , <i>D. montana</i> , <i>D. sylvatica</i> and <i>Symplocos racemosa</i> . <i>Actinodaphne gullavara</i> , <i>Cinnamomum nitidum</i> , <i>Dimorphocalyx glabellus</i> , <i>Ixora brachiata</i> , <i>I. nigricans</i> , <i>Litsea josephii</i> , <i>Mallotus aureopunctatus</i> , <i>M. resinosa</i> and <i>Memecylon umbellatum</i> . The trees of the top and second canopy are climbed upon by <i>Piper hookeri</i> , <i>P. trichostachyon</i> , <i>Stephania japonica</i> , <i>Ancistrocladus heyneanus</i> and <i>Prenna obtusifolia</i> var. <i>pubescens</i> .	
20.	Maharas htra	Satara District	Koyna Wildlife Sanctuary -	Anjani, jambul, hirda, awala, pisa, ain, kinjal, amba, kumbha, bhoma, chandala, katak, nana, umbra, jambha, gela and bibba, shikekai, garambi, dhup (Indian frankincense), longan, and <i>Elaeocarpus</i> spp, karvand, agati, ranmiri, tamalpati, toran, dhayati, kadipatta, narkya and murudsheng.	http://www.wildkonkan.com/koyna-wildlife-sanctuary
21.	Maharas htra	Gondia and Bhandara Districts	Nagzira Wildlife Sanctuary	(<i>Boswellia serrata</i>), Saja (<i>Terminalia tomentosa</i>), Semal (<i>Bombax ceiba</i>), Sisoo (<i>Dalbergia sissoo</i>), Jamun (<i>Syzygium cumini</i>), Palash (<i>Butea monosperma</i>), Kusum (<i>Schleichera oleosa</i>), Harra (<i>Terminalia chebula</i>), Kachnar (<i>Bauhinia variegata</i>), Mahua (<i>Madhuca indica</i>), Teak (<i>Tectona grandis</i>), Tendu (<i>Diospyros melanoxylon</i>), Ain (<i>Terminalia alata</i>), Garari (<i>Clerodendrum phlomidis</i>), Bamboo (<i>Bambusa bambos</i>), Arjun (<i>Terminalia arjuna</i>), Dhawada (<i>Anogeissus latifolia</i>), Haldu (<i>Adina cordifolia</i>), Khair (<i>Acacia catechu</i>), Moha (<i>Madhuca longifolia</i>)	https://www.nagzirawildlifesanctuary.com/flora-in-nagzira.php Nair <i>et al.</i> (2021).
22.	Maharas htra	Wardha District	Bor Wildlife Sanctuary	Sal, Bija, Teak, Tendu, Bel, Bambo,	https://www.stripesholidays.com/natural-heritage-of-central-india/bori-wildlife-sanctuary Ashish. (2018)
	Maharas htra	Kolhapur, Sangli, Satara, and Ratnagiri Districts	Chandoli National Park	<i>Memecylon umbellatum</i> Burm. f. <i>Syzygium cumini</i> (L.) Skeels <i>Olea dioica</i> Roxb. <i>Terminalia elliptica</i> Willd. <i>Catunaregam spinosa</i> (Thunb.) Tirveng <i>Lagerstroemia microcarpa</i> <i>Terminalia chebula</i> Retz <i>Ficus racemosa</i> L. <i>Gnidia glauca</i> (Fresen.) Gilg <i>Mangifera indica</i> L. <i>Dimocarpus longan</i> Lour. <i>Glochidion ellipticum</i> Wight <i>Xantolis tomentosa</i> (Roxb.) Raf. <i>Careya arborea</i> Roxb. <i>Bridelia retusa</i> (L.) Speng. <i>Emblia officinalis</i> Gaertn. <i>Heterophragma quadriloculare</i> (Roxb.) K. Schum. <i>Carallia brachiata</i> (Lour.) Merr. <i>Ficus</i> sp. <i>Wendlandia thyrsoides</i> (R.&S.) Steud. <i>Mallotus philippinensis</i> (Lam.) Muell.-Arg. <i>Terminalia bellirica</i> (Gaertn.) Roxb. <i>Holigarna grahamii</i> (Wight) Kurz <i>Psychotria truncata</i> Wall. <i>Meyna laxiflora</i> Robyns <i>Atalantia racemosa</i> Wight <i>Actinodaphne angustifolia</i> Nees <i>Allophylus cobbe</i> (L.) Raeusch <i>Nothapodytes nimmoniana</i> (J. Grah.)	https://www.researchgate.net/publication/237705114 Kanade (2008).

				Mabberley <i>Flacourtia montana</i> Grah. <i>Canthium dicoccum</i> (Gaertn.) Teijsm. & Binn. <i>Litsea josephii</i> S.M. Almeida <i>Garcinia talbotii</i> Raiz. ex Sant. <i>Macaranga peltata</i> (Roxb.) Muell.-Arg. <i>Diospyros montana</i> Roxb. <i>Nothopegia castaneifolia</i> (Roth) Ding Hou <i>Cinnamomum verum</i> J.S. Presl <i>Bridelia scandens</i> (Roxb.) Willd. <i>Myristica malabarica</i> Lam. <i>Bombax ceiba</i> L. <i>Casearia championii</i> Thwaites <i>Callicarpa tomentosa</i> (L.) Murr. <i>Diospyros nigrescens</i> (Dalz.) Sald. <i>Diospyros ebenum</i> Koen. ex Retz. <i>Symplocos racemosa</i> Roxb. <i>Butea monosperma</i> (Lam.) Taub. <i>Acacia auriculiformis</i> A. Cunn. Ex. Bth. <i>Clausena anisata</i> (Willd.) Hook. f. ex Bth. <i>Cassia fistula</i> L. <i>Drypetes venusta</i> (Wight) Pax & Hoffm <i>Tabernaemontana alternifolia</i> (Roxb.) Nicols. & Suresh <i>Ficus amplissima</i> J. E. Sm. <i>Ziziphus rugosa</i> Lam. <i>Chionanthus mala-elengi</i> (Dennst.)	
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Conclusion

The Western region of India is well versed with the medicinal and aromatic plants having high value and demand by the Indian industry. The forest areas and the diversity of medicinal plants should be conserved and release the pressure of exploitation of forests by the introduction of agro-techniques of plants for proper supply of raw material. The medicinal plants listed through out the compilation of this article should be treated as endemic and focused for their conservation and cultivation for fulfilling the demand and supply gap of medicinal plants industries. Because that all the stakeholders would be benefitted specially by the collection and cultivation the socio economic conditions of collectors and farmers would be better.

Reference

- Chandran, M. (2016). The Third Gender in India: Issues and Challenges. Economic and Political Weekly, 51(43).
- Rohit Patel, A. K. Roy Mahato, V. Vijay Kumar and R. V. Asari (2013). Status of the medicinal plants in Tharawada-Gandher: The ethno medicinal practices of the local community of Kachchh, Gujarat. Journal of Medicinal Plants Studies 1(4):1-10.
- Modak M, Dixit P, Londhe J, Ghaskadbi S, Devasagayam TP. Recent Advances in Indian Herbal Drug Research Guest Editor: Thomas Paul Asir Devasagayam Indian Herbs and Herbal Drugs Used for the Treatment of Diabetes. Journal of clinical biochemistry and nutrition. 2007; 40(3):163-73.
- Poornima Sharma and Dinesh Kumar Sharma Medicinal value of three common plants of Rajasthan, India: Review JMPS 2018; 6(1): 96-101).
- Anonymous. Report of the Task Force on Conservation & sustainable use of Medicinal Plants, 2000).
- Vikas Kumar (2015). Ethno-Medicinal Plants in Five Forest Ranges in Dang District, South Gujarat, India. Indian Journal of Tropical Biodiversity. 23(2):148-156.
- DK Ved and GS Goraya, (2017). Medicinal Plants in India: An assessment of their demand and supply. (DOI: <http://dx.doi.org/10.22192/ijarbs.2021.08.01.009>).
- Uma Devi (1988) Identification and status survey of medicinal plants of Gujrat. Ph.D. Thesis Submitted (Dept. of Bioscience) South Gujrat University, Surat.
- Umadevi AJ, Parabia MH, Reddy MN (1989) Medicinal Plants of Gujarat: A Survey, 'Proceeding of All India Symposium on the 'Biology and Utility of Wild Plants': Prof. G.L. Shah Commemoration, (Dept. of Bioscience) South Gujrat University, Surat
- Vikas Kumar (2015c) Ethnomedicines of Malayan Tribes of Southern Region of Kerala, India. In: Recent Advances in Ethnobotany. Sanjeev kumar, Deep Publication, New Delhi.
- Vikas Kumar, Ajeesh R, Revale AA, Nayak MR (2014b) Medicinal: Cultivation to value addition: Problems and issues: Research and Reviews: Journal of Agriculture and Allied Sciences 3(3): 63-71.
- Alok Kumar Chandrakar (2014). Conservation of Medicinal Plant diversity in Gujrat. International Journal of Environmental and Natural Sciences. 1:44-64
- Rohit Patel, A. K. Roy Mahato, V. Vijay Kumar and R. V. Asari. Status of the medicinal plants in Tharawada-Gandher Reserve Forest of Kachchh, Gujarat and the ethno-medicinal practices of local community Journal of Medicinal Plants Studies. 2013, Volume: 1, Issue: 4, pp-1-10.
- Hardik Soni, Dr. K. V. Kanjariya, Dr. R. S. Patel. Angiospermic Plants Used Medicinally, By Local People of Vijapur Taluka of Mehsana District, Gujarat, India. IJSRST. Volume 4 Issue 5, pp 661-668.
- Riya Khadiya, BK jain and RS Patel. Study of some Ethnomedicinal plants from Kanzeta forest Gujrat, India. Plant Archive. 2020. Vol.20, Special issue pp 243-247.
- SJ Bedi. Ethnobotany of the Ratan Mahal Hills, Gujarat, India. Economic Botany. Vol. 32, No. 3 (Jul. - Sep., 1978), pp. 278-284 (7 pages).
- Raval Nita D, Dhaduk Hareesh L (2013), Ethno-Botanical Survey Of Some Medicinal Plants In Jatasankar Region Of Girnar Forest, Gujarat, India, Global J Res. Med. Plants & Indigen. Med., Volume 2(12): 830-841.
- Santapau H., M. B. Raizada. Contribution to the Flora of the Gir Forest in Saurashtra Volume 80, Issue 7, July 1954
- Ecological Monitoring of Gir Final Project Report 2009.
- R.T.Jadhav.Traditional Medicinal Plants Used by Local People at Ahwa Dang District in Gujarat State. Aayushi International Interdisciplinary Research Journal. 2018, Vol.V, issue VI, pp-101-105.
- Comparative Study of Wooded Angiospermic Diversity of the two protected areas (Purna Wildlife Sanctuary and Jessore Wildlife Sanctuary) in two biogeographic regions of Gujarat, India. Indian Forester, 144 (7) : 639-645, 2018
- G. Pradeepkumar, G. Prathapasanen. Tree diversity of Shoolpaneshwar Wildlife Sanctuary in Gujarat Indian Forester, 2001, Vol. 127, No. 11, 1207-1214 ref. 11
- Dharmendra Kumar, P.S. Chauhan, S.B.S. Pandey, Prerak Bhatnagar, M.K. Sharma and Bhuvnesh Nagar. 2020. Phyto diversity Characterization of Mukundara Hills Tiger Reserve. Int.J. Curr. Microbiol. App. Sci. 9(07): 2037-2047. <https://doi.org/10.22271/ed.book.911>
- Khare, C. (2007). Wrightia tomentosa Roem. & Schult. In: Khare, C. (eds) Indian Medicinal Plants. Springer, New York, NY. https://doi.org/10.1007/978-0-387-70638-2_1778.
- Samudra, S.M. and Shinde H.P (2021). Studies on ethnomedicinal plant diversity at daund tehsil, Pune, Maharashtra. International Research Journal of Plant Science. Vol. 12(1) pp. 01-013.
- Chandrakar AK (2014), Conservation of medicinal plants diversity of Gujrat. International Journal of Environment and Natural Sciences, Vol. 1, 44-64.
- Kadia, Riya, Jain BK, Patel RS (2020). Plant archives. Vol-20 (Special Issue). AIAAS 2020 – pp. 243-247.
- Palwe, S. D. 2019. Indigenous knowledge of medicinal plants among the tribal population of Dang-Surgana International Journal of Current Research, 11, (03), 1875 – 1879
- Raval Nita D, Dhaduk Hareesh L (2013), Ethno-Botanical Survey Of Some Medicinal Plants In Jatasankar Region Of Girnar Forest, Gujarat, India, Global J Res. Med. Plants & Indigen. Med., Volume 2(12): 830-841
- Vaghasiya P.M., P.K. Pilania, N.M. Panera, M.K. Mirani and N. S. Panchal (2015). ANALYSIS OF VEGETATION AT SALINE DESERT (GREAT RANN OF KUTCH) OF GUJARAT STATE IN WESTERN INDIA International Journal of Science & Medical Research. Vol -2 pp 67-83.
- Vikas Kumar (2015). Ethno-medicinal plants in five forest ranges in Dang district, south Gujarat, India. Indian J Trop Biodiv 23(2): 148 – 156
- Vikas Kumar, Anjali Tiwari and Bimal S. Desai (2018). Pattern of Floristics and Biodiversity of Angiosperms of Purna Wildlife Sanctuary, Mahal, Gujarat. Indian Journal of Ecology 45 (2): 260-265.
- Kanthale PL and Biradar SD (2012). Ethnomedicinal wisdom of tribals of Mahur forest of Nanded district Maharashtra, Recent Research in Science and technology. 4 (10): 67-70.
- Hardik Soni, Dr. K. V. Kanjariya, Dr. R. S. Patel (2018). Angiospermic Plants Used Medicinally, By Local People of Vijapur Taluka of Mehsana District, Gujarat, India, IJSRST. (4) 5 : 661-668.
- Saiyed Kamartaha, Oza Kavi, Raole Vinay. Diversity of Unani medicinal plants of northwest Gujarat. Int J Unani Integ Med 2021;5(2):188-195.
- P. A. Dhole, P. Y. Bhogaonkar, V. N. Chavhan, P. P. Kshirsagar (2021). Some Ethnomedicinal plants from Amravati District (M. S.) India. Int. J. Adv. Res. Biol. Sci., 8(1): 65-71.
- Sapkal Mukinda B, Talwankar Dhananjay S, Mishra Nayna O and Thombare Rangnath S (2024) Survey on Ethno- medicinal Plants from Ambabarwa Forest, District Buldhana (M.S.), India, Int. J. of Life Sciences, 12 (3): 389-393.
- Pankaj R. Chavhan and Aparna S. Margonwar, [2015]. Ethnobotanical Survey of Markanda Forest Range of Gadchiroli District, Maharashtra, India. British Journal of Research. 2[1]- 055-062.
- M.A. Sunil, V.S. Sunitha, E.K., Radhakrishnan, M. Jyothis (2019). Immunomodulatory activities of Acacia catechu a traditional thirst quencher of South India. Volume 10(3)185-191.
- R.M. Bagul (2013). Some ethnomedicinal plant species of Satpuda forest region of east Khandesh Jalgaon district, Maharashtra. Journal on New Biological Reports 2(3): 264-271.
- Ladda RG, Aradwad RP and Ambhore JS, 2013. Studies on herbal medicinal plants in Marathwada region (MS) India. Biosci. Disc., 4(2):211-213.
- U.R. Kokate, G.D. Muratkar, 2012. Diversity Of Medicinal Plants From Melghat Forests Multilogic in Science, Vol II, Issue II -61-67.
- Ramdas Karande, S.R. Kshirsagar, Shenpadu S. Bhoi (2021). Medicinal Plants Diversity in Nashik District (Maharashtra: India)-Polypetalae & Gamopetalae. Journal of Scientific Research. Volume 65, Issue 7- 94-98.
- Vilas V. Bankar (2021). Few Ethano-Botanical Medicinal Plants from Toranmal Plateau, Maharashtra, India. Journal of Scientific Research. 65 (7):99-102.
- S.P. Rothe (2011). Exotic medicinal plants from West Vidarbha region of Maharashtra –III. Journal of Ecobiotechnology, 3(9): 11-13.
- V.D. Samarth, S.R. Sinkar (2019). Folkloric Medicinal plants of Ralegaon region of Yavatmal district, Maharashtra. Int. J. Adv. Res. Biol. Sci., 6(5): 65-71.
- Meena Girraj Singh and Fatmi Amjad (2023) Important Medicinal Plants in Sandstone Areas of Eastern Rajasthan, Int. J. of Life Sciences, 11 (1): 51-54.
- Sushma Gupta, Yogita Solanki, Deepika Gunpal, Shikha Gupta, Amit Kotiya (2021). Some important medicinal plants of Rajasthan, India. International Journal of Botany Studies. Volume 6, Issue 3, Page No. 954-958.
- Saroj Kumari, Akhtar Khan, Aparna Pareek (2022). An ethno-botanical survey of important medicinal plants in the Shekhawati region of Rajasthan, India. International Journal of Botany Studies. Volume 7, Issue 3, Page No. 126-135.
- Aishwarya Dudi, ML Meena and Dheeraj Singh (2018). Exploration of some important medicinal plants of Pali district (Rajasthan) Journal of Pharmacognosy and Phytochemistry; 7(4): 2729-2733.
- Ashok Kumar Bairwa, Rajendra Prasad, Jagat Pal Singh (2022). An ethno-botanical study of medicinal plants of Alwar district, Rajasthan. International Journal of Botany Studies. Volume 7, Issue 6, Page No. 1-12.
- Anil kumar Dashahre, B. Navaneethan, Priyanka Bhutt, Subhasis Mahato (2014). Medicinal Plants of Sariska Tiger Reserve (Rajasthan) India. Journal of Medicinal Plants Studies. Volume: 2, Issue: 2:137-146.
- Lakshman CD(2016). Bio-diversity and conservation of medicinal and aromatic plants. Adv Plants Agric Res.;5(4):561-566.
- Vijayalatha SJ (2004). An Ornamental garden with medicinal plants an indirect approach for conservation of medicinal plants. Indian J Arecanut Spices and Medicinal Plants.;6(3):98-107.
- Singh S(2005). Medicinal plants –A Natural gift to mankind. Agriculture Today.;3(3):58-60.
- Tekameren Walling, Tannmayee Mahanaik, Neetipreeta Dash and Sanjeet Kumar (2023) ; Kasi (Bridelia retusa (L.): a medicinal tree of India. Medico Biowealth of India, Chapter VII, Volume XI. ISBN: 978-81-965138-8-7.
- Patel, M., Dhake, S., & Rajput, T. (2022). A Brief Review On Phytochemical And Biological Activities Of Corchorus Depressus (Linn.). Journal of Advanced Scientific Research, 13(01), 107-114

- Satani, Bhavikkumar & Surana, Vilas & Shah, Shailesh & Mishra, Hari. (2016). Qualitative and quantitative phytochemical analysis of *Heterophragma quadriloculare* (Roxb.) K. Schum. leaves. *Journal of Pharmacy and Applied Sciences*. 3. 18-25. DOI:10.61080/JETB/V47/i4/2023/162-170
- Nikunj Jambu (2017). Avifaunal Survey to Understand Bird- Habitat Linkages at Khijadiya Wildlife Sanctuary and Gosabara Wetland in Gujarat. CIPA Technical Series No. 35. Indo-German Biodiversity Programme, GIZ India, New Delhi. pp 67.
- Rajkumar S. Yadav, Ashok Suthar And Ravi Dutt Kamboj , 2018. Comparative Study of Wooded Angiospermic Diversity of the two protected areas (Purna Wildlife Sanctuary and Jessore Wildlife Sanctuary) in two biogeographic regions of Gujarat, India . *Indian Forester*, 144 (7) : 639-645.
- Malhotra S. P., Dutta B. K., Gupta Raj Kumar, Gaur Y. D(1966). Medicinal plants of the indian arid zone. In: *Journal d'agriculture tropicale et de botanique appliquée*, vol. 13, n°6-7. pp. 247-288
- Pramanik S. K. & Hariharan P. S. 1952. — The climate of Rajasthan. *Proc. Symp. Rajasthan Desert*. National Inst. Sci. India, 43.
- Manju Chaudhary, 2018. Ethnobotanical study of Beer jhunjhunu conservation reserve of jhunjhunu District of Rajasthan and screening of selected plant species for their antibacterial activity. Ph.D. thesis – 2018 (university of Kota)- pp- 115.
- Choudhary, Shyam Sundar *et al.* (2023). *Cucumis callosus* (Rottl.) Cogn. fruit extract ameliorates calcium oxalate urolithiasis in ethylene glycol induced hyperoxaluric Rat model . *Heliyon*, Volume 9, Issue 3, e14043
- DL Chothani and Vaghasia HU (2011), A Review on *Balanites Aegyptiaca* Del (desert date): Phytochemical Constituents, Traditional uses, and Pharmacological Activity. *Pharmacogn Rev.* 5 (9):55-62.
- Naik, R. M., Murthy, M.S., Rao, Y.N., Mundkur, T. & Pravez, R. 1990. Ecology of Hingolghat Nature Educational Sanctuary. Final Report. WWF-India Sponsored Research Project. Department of Biosciences, Saurashtra University, Rajkot.
- Afroj Alam, Vinay Sharma and Shivcharan Sharma (2011). Bryoflora of Ranthambore tiger Reserve, Rajasthan (India) 106 (1)1-8.
- Mathur, V.B., K. Sivakumar, Bhumes Singh and Anoop, K.R. 2009. A bibliographical review for identifying research gap areas: Keoladeo Ghana National Park – A World Heritage site. Wildlife Institute of India, Dehradun. 54p.
- R. P. Pandey , N. P. Singh (1999). Studies on the Vegetation of Kumbhalgarh Wildlife Sanctuary in Rajasthan. *The Indian Forester* . Volume 125, Issue 11.
- N.K. Bohra (2013) .Desert National Park-Jaisalmer. *The Indian Forester*. Volume 139, Issue 10.
- V. R. Deshmukh , M. A. Dhore (1994). Nutritive Values of some Lesser Known Herbivore Foods from Melghat Tiger Reserve (maharashtra). *The Indian Forester* .Volume 120, Issue 10
- R. Kanade, M. Tadwalkar, C. Kushalappa and A. Patwardhan 2008 Vegetation composition and woody species diversity at Chandoli National Park, northern Western Ghats, India. *Current Science*, VOL. 95, NO. 5, 10.
- Tiple, Ashish. (2018). Butterflies (Lepidoptera Rhopalocera) of the Bor Wildlife Sanctuary, Wardha, Maharashtra, Central India. *Biodiversity Journal*. 9. 171-180. 10.31396/Biodiv.Jour.2018.9.3.171.180.
- Anil Kumar Nair , Mahendra Bhojram Raut , Manisha Ashraf , Rajat Thanekar (2021).Collection and Distribution of Mahua (*Madhuca longifolia*), Tendu (*Diospyros melanoxylon*) and other NTFPs in Critical Tiger Connectivity Corridor of Maharashtra. *The Indian Forester*. Volume 147, Issue 4.
- <https://www.tadobanationalpark.in/flora-in-tadoba.html#:~:text=Other%20major%20species%20of%20trees,Surya%2C%20Sirus%2C%20and%20Jamun.>
- <https://ntca.gov.in/assets/uploads/briefnote/melghat.pdf>
- <https://www.researchgate.net/publication/237705114>
- <https://www.stripesholidays.com/natural-heritage-of-central-india/bori-wildlife-sanctuary>
- <https://www.nagzirawildlifesanctuary.com/flora-in-nagzira.php>
- <http://www.wildkonkan.com/koyana-wildlife-sanctuar>
- https://en.wikipedia.org/wiki/Rann_of_Kutch_Wildlife_Sanctuary#:~:text=population%20of%20flamingtonos.-,Flora,and%20Elionurus%20spp.
- <https://www.learnupsc.com/2023/08/kutch-bustard-sanctuary.html>
- https://forests.gujarat.gov.in/jambughodasanctuary.htm?utm_source.