

Unexploited plants of potential medicinal value from the Indian Thar desert

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Abstract

The present article gives a general idea of important unexploited medicinal plants of the Indian Thar desert, which are used in the cure of different human diseases like urinary problems, kidney stones, rheumatic pain, bronchitis, jaundice, diabetes, stomach pain, hernia, etc.

Keywords: Unexploited plants, medicinal value, Indian Thar desert.

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development of agrotechniques and cultivation on large-scale.

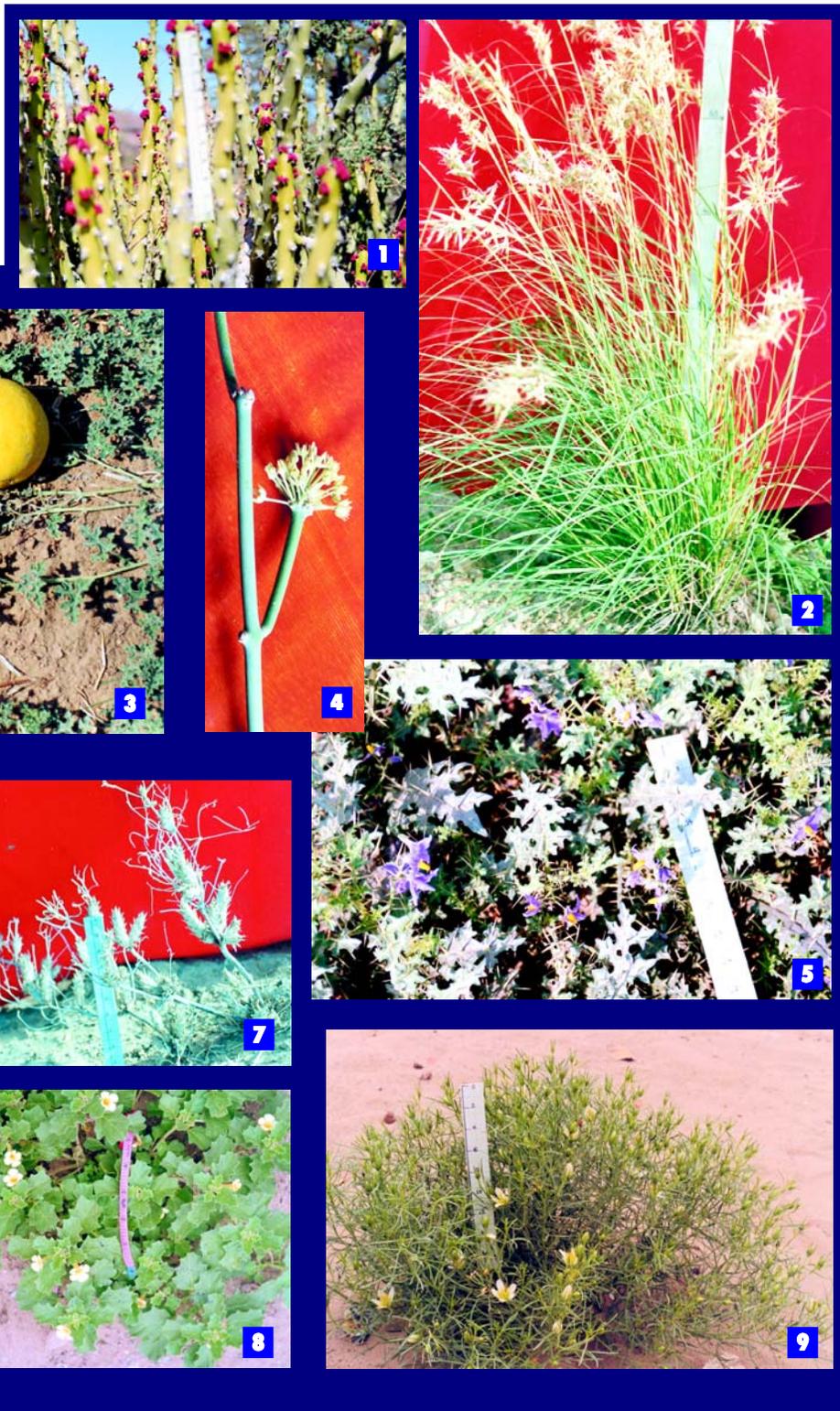
Presently, the forest area in the Indian desert is only 2.41% of the total geographical area extending from western Indo-Pak border to the dry deciduous mixed forest of the Aravalli hills and the Southeast plateau (Tripathi & Arya, 2002). Medicinal plants of the arid region are well-known and mostly used in crude forms. Sen (1991) reported that about one-fourth of the total plants of the Indian Thar desert are useful for the welfare of human beings and domestic animals for food, fuel, fodder, medicine and other requirements. The erratic rainfall and poor soil fertility have marked effects on the vegetation of the Indian desert. Despite the prevailing harsh climatic conditions, the Indian Thar desert comprises richest plant diversity among the other deserts of the world. Out of the 31 prioritized species by NMPB a few of them grow very well in desert conditions, which include: *Asparagus racemosus* Willd. (*Satavar*), *Cassia angustifolia* Vahl (*Senna*), *Chlorophytum borivillianum* Santapau & Fernandes (*Safed musli*), *Commiphora wightii* (Arn.) Bhandari (*Guggal*), *Glycyrrhiza glabra* Linn. (*Mulhatti*), *Plantago ovata* Forsk. (*Isaphgol*), *Tinospora cordifolia* (Willd.) Miers ex Hook. f

Introduction

India is one of the richest floristic region of the world and is well-known for its ancient heritage regarding medicinal plants and plant drugs. The discovery of medicine is an effort of mankind over-million of years of search for eternal health, longevity and remedy to relieve pain and discomfort. The plants as medicine are used in different systems of medicine such as in Ayurveda, Allopathy, Unani, Homoeopathy and even in other systems. But the theoretical foundation and the insight and in-depth understanding of the practice of medicine that we find in Ayurveda is much superior among organized ancient system of medicine. India has 16 agro-climatic zones, 45,000 different plant species, out of which 15,000 are medicinal. The Indian System of Medicine has identified 1,500 medicinal plants, of which 500 species are mostly used in preparation of drugs

(Nautiyal *et al*, 2002). The traditional village Physicians of India are using about 4500 to 5000 species of plants for medicinal purpose. A survey conducted by the All India Co-ordinated Research Project on Ethnobiology (AICRPE) during the last decade recorded over 8000 species of wild plants used by the tribal and other traditional communities in India for treating various health problems (Report of the Task Force on Conservation & Sustainable Use of Medicinal Plants, 2000). The medicinal plant sector is organizing slowly, yet there is a need to make systematic effort. The department of ISMH and WHO are commissioned CERPA (Centre of Research, Planning & Action) to undertake the study on 162 selected medicinal plants. Recently, National Medicinal Plants Board (NMPB) had prioritized 31 plant species for encouraging their cultivation during 2002. Yet, there are many more unexploited medicinal plants found in the arid regions, which are neglected regarding

& Thoms. (*Nim-Giloy*), *Withania somnifera* Dunal (*Aswagandha*), etc. Beside these, there are many other species of medicinal importance as described in Table 1, which are underutilized and can easily be cultivated commercially by seeds, stem cuttings, tubers or root suckers.



1. *Euphorbia caducifolia* 2. *Cymbopogon jwarancusa* 3. *Citrullus colocynthis* 4. *Sarcostemma acidum* 5. *Solanum surattense*
6. *Cleome viscosa* 7. *Blepharis sindica* 8. *Pedalium murex* 9. *Peganum harmala*



Table 1 : Unexploited medicinal plants of Indian Thar desert

Botanical name/Family	Common name	Habitat/Distribution	Uses
<i>Abutilon indicum</i> (Linn.) Sweet (<i>Malvaceae</i>)	Kanghi	Perennial herb/ undershrub; throughout hotter parts	Whole plant: febrifuge, anti-emetic, anti-inflammatory and urinary troubles; Bark: astringent and diuretic; Roots: nervine tonic and in piles; Seeds: demulcent and laxative.
<i>Achyranthes aspera</i> Linn. (<i>Amaranthaceae</i>)	Latjira/Andhi Jhara	Annual herb; throughout India; wild	Whole plant: diuretic, stomachache, bowel complaints, in piles, renal dropsy, cough, fever, kidney stone and skin eruptions; Seeds: tonic and in hydrophobia.
<i>Adhatoda vasica</i> Nees (<i>Acanthaceae</i>)	Arusa	Perennial shrub; throughout plains	Leaves: bronchitis, anthelmintic, and an important component of <i>Chyawanprash</i> .
<i>Argemone mexicana</i> Linn. (<i>Papaveraceae</i>)	Satyanasi	Perennial herb; throughout India on wastelands	Whole plant: cutaneous troubles, scabies, ophthalmic, cathartic, boils, leprosy and psoriasis; Roots: in chronic skin diseases, eye and mouth-wash; Leaves: in gonorrhoea, jaundice and scabies; Yellow Leaf juice: for rheumatic pain and eye infection.
<i>Arnebia hispidissima</i> DC. (<i>Boraginaceae</i>)	Ram-bui	Annual herb; dry parts of India	Roots: red dye and colouring hair oil.
<i>Asparagus racemosus</i> Willd. (<i>Liliaceae</i>)	Satavar	Perennial climber; tropical & subtropical regions	Dry roots: in dysentery, liver diseases, demulcent, aphrodisiac and diuretic.
<i>Balanites aegyptiaca</i> (Linn.) Delile (<i>Simaroubaceae</i>)	Hingoto	Perennial shrub/ small tree; dry parts of India	Roots: source of diosgenin steroid hormone; Leaves: purgative and anthelmintic; Fruit pulp: skin diseases and cough.
<i>Barleria prionitis</i> Linn. (<i>Acanthaceae</i>)	Bajradanti	Perennial herb; rocky areas	Leaf juice: in catarrhal affections of children, glandular swellings and boils, whooping cough, dropsy and toothache.
<i>Blepharis sindica</i> T. Anders. (<i>Acanthaceae</i>)	Unt-kantalo/ Bhangari	Perennial herb; sandy tracts	Seeds: diuretic, expectorant, aphrodisiac, earache and tonic.
<i>Boerhaavia diffusa</i> Linn. (<i>Nyctaginaceae</i>)	Hog weed/ Punarnava/ Santhi	Perennial herb; throughout India as weed in wasteland and roadside	Whole plant: in rheumatism, cough, asthma, hernia, dropsy, piles, chest pain, gonorrhoea and as a blood purifier; Leaves: ophthalmia and eye wound; Leaf juice: in kidney stone.
<i>Caesalpinia cristata</i> Linn. (<i>Caesalpinaceae</i>)	Karanju	Perennial shrub/small tree; throughout India in the plains on wasteland and coastal areas	Seeds: tonic, antiperiodic and antipyretic Dry pods: tanning.

<i>Citrullus colocynthis</i> Schrad. (<i>Cucurbitaceae</i>)	<i>Indrayan/ Tumba</i>	Perennial herb/creeper; throughout India in warmer areas	Dried pulp of fruits: source of colocynth drug, which is drastic hydragogue, cathartic and provide large watery evacuations; Roots: in jaundice, ascites, liver problems, rheumatism, fever, urinary diseases and stomach pains; Fruits: purgative.
<i>Cleome viscosa</i> Linn. (<i>Capparidaceae</i>)	<i>Pilihulhul</i>	Annual herb; throughout plains	Whole plant: in infantile convulsions (a disease of brain) and liver protection; Seeds: in digestive problems of animals, anthelmintic and piles; Leaf juice: earache.
<i>Convolvulus microphyllus</i> Sieb. ex Spreng. (<i>Convolvulaceae</i>)	<i>Santari</i>	Annual herb; throughout plains and Waste places	Whole plant: laxative and brain tonic.
<i>Cymbopogon jwarancusa</i> (Jones) Schult. (<i>Poaceae</i>)	Lemon grass	Perennial grass; throughout drier rocky and gravel places	Roots: in fever; Root oil: anti-microbial and in skin diseases; Leaves: soap and perfumes.
<i>Eclipta alba</i> (Linn.) Hassk. (<i>Asteraceae</i>)	<i>Bhringaraja/ Bhangra</i>	Annual herb; throughout India in wetter places	Plant juice: in catarrhal jaundice; Seed oil: hair tonic; Dry plants: in viral hepatitis, bronchitis, asthma, memory disorders, minor cuts and burns, eye diseases and <i>kapha vath</i> .
<i>Euphorbia caducifolia</i> Haines (<i>Euphorbiaceae</i>)	<i>Danda-thor</i>	Perennial shrub; rocky terrains	Latex: in cough, applied on blisters, purgative, expectorant and earache; Leaf: vegetable.
<i>Euphorbia hirta</i> Linn. (<i>Euphorbiaceae</i>)	<i>Lal dudheli</i>	Annual herb; widespread throughout tropics, waste places, gardens, lawns, etc.	Whole plant: in cough, asthma, gonorrhoea and bronchial affections; Latex: applied on warts, depressant action on heart and respiration and relaxes the bronchioles.
<i>Evolvulus alsinoides</i> Linn. (<i>Convolvulaceae</i>)	<i>Shankpushpi/ Phooli</i>	Annual herb; growing in open grassy places throughout India	Whole plant: brain tonic, memory, febrifuge, vermifuge, in dysentery Leaves: in chronic bronchitis and asthma.
<i>Fagonia cretica</i> Linn. (<i>Zygophyllaceae</i>)	<i>Dhamaso</i>	Perennial herb; sandy tracts and in agricultural fields	Whole plant: bitter tonic, diuretic, astringent, prophylactic against small pox, disorder caused by poisoning, in dropsy, cough, fever, asthma, skin diseases and cooling agent.
<i>Grewia tenax</i> (Forsk.) Aschers. & Schwf (<i>Tiliaceae</i>)	<i>Gangeti/ Gagrain</i>	Perennial under- shrub; throughout India in deciduous and semi-evergreen forest	Whole plant: in rheumatism and cough; Bark: in tuberculosis.
<i>Maytenus emarginatus</i> (Willd.) Ding-Hou (<i>Celastraceae</i>)	<i>Kankero</i>	Perennial shrub/small tree; gravel, rocky and sandy places	Leaves: in diabetes, jaundice and heal sores; Fruits: as a blood purifier.



<i>Mollugo cerviana</i> Ser. (Molluginaceae)	<i>Prapat/ Chiria-ro-khet</i>	Annual ephemeral; sandy plains and in agricultural fields	Whole plant: to promote menstrual discharge in women, gouty rheumatic complaints, in gonorrhoea, purification of blood and fevers.
<i>Pedaliium murex</i> Linn. (Pedaliaceae)	<i>Bara-gokhru</i>	Annual herb; throughout India in waste places	Fruits: in discontinuance of urine, spermatorrhoea, nocturnal emission, impotency and tonic.
<i>Peganum harmala</i> Linn. (Zygophyllaceae)	<i>Gandhya/Harmal</i>	Perennial herb; throughout northern and north-western India	Whole plant: aphrodisiac, emmenagogue and abortifacient; Seeds: in asthma, hysteria, rheumatism, gall stones, colic pains, fever, jaundice and painful menstruation; Leaf decoction: in rheumatism.
<i>Pergularia daemia</i> (Forsk.) Chiov. (Asclepiadaceae)	<i>Gadariari Bel/ Utarni</i>	Perennial climber; throughout hotter parts of India	Whole plant: in pulmonary affections, asthma, cough, biliousness, piles, leprosy and syphilis; Leaves: in infantile diarrhoea, expectorant, uterine tonic and emetic.
<i>Phyllanthus amarus</i> Schum. & Th. (Euphorbiaceae)	<i>Bhuiamla</i>	Annual herb; throughout India in moist places	Whole plant: in leprosy, stomachache, diarrhoea, dysentery and urinogenital disorders; Fresh roots: in jaundice.
<i>Pithecellobium dulce</i> Benth. (Mimosaceae)	<i>Jungle jalebi</i>	Perennial shrub/ small tree; throughout India	Leaf: astringent; Seed oil: spermicidal, anti-inflammatory and antioedemia; Fruit/seeds: edible; Bark: tannin.
<i>Sarcostemma acidum</i> Voigt. (Asclepiadaceae)	<i>Khira khimp/ Art-thor</i>	Perennial climber; dry rocky places	Roots: in snake-bite and taken as an infusion in dog-bite cases; Latex: to kill white ants (termites); Dry stem: emetic.
<i>Sida cordifolia</i> Linn. (Malvaceae)	<i>Kunghi/Bala</i>	Perennial herb; tropical and sub-tropical India	Seeds: in bowel complaints, aphrodisiac, possess demulcent and laxative properties; Roots: diuretic, stimulant, in urinary troubles, haematuria, hemiplegia, sciatica and facial paralysis; Entire plant: in leucorrhoea and nervous diseases.
<i>Solanum surattense</i> Burm.f. (Solanaceae)	<i>Nili-kateli</i>	Perennial herb; throughout India in waste places	Roots: in cough and asthma; Fruits: sore throat, in cough, asthma and toothache; Leaves juice with black pepper: in rheumatism.
<i>Tephrosia purpurea</i> Pers. (Fabaceae)	<i>Biyani/ Sarphanko</i>	Perennial herb; throughout India in waste places and along roadsides	Dried herb: hypnotic, tonic, diuretic, in bronchitis, boils, pimples and bleeding piles, liver and kidney

			disorder; Leaf: in jaundice; Root decoction: in dyspepsia, diarrhoea, rheumatism, asthma and urinary disorder; Seed oil: in eczema.
<i>Trianthema portulacastrum</i> Linn. (Aizoaceae)	<i>Santhi/ Lalsabuni</i>	Annual herb; moist waste places and gardens	Whole plant: vermifuge, diuretic, promotes urination and swelling of body caused by disorders of liver or kidney, in rheumatism and dropsy.
<i>Tribulus terrestris</i> Linn. (Zygophyllaceae)	<i>Chhota-gokhru</i>	Annual herb; sandy places and in agricultural fields	Fruits: diuretic, aphrodisiac, urinary disorders, impotence, improves vitality, apparent, tonic properties, in kidney diseases, genito-urinary system, calculus affections, gout and AIDS; Leaf paste: in bladder stones; Roots: in diabetes and dropsy.
<i>Withania somnifera</i> Dunal (Solanaceae)	<i>Aswagandha</i>	Perennial shrub; dry parts of India	Whole plant: inflammatory, in ulcers and scabies; Roots: in hiccup, cough, dropsy, rheumatism, female disorders and weakness.

Conclusion

The arid ecosystem of western Rajasthan is a rich repository of genetic material of important arid medicinal plant wealth. The plants are not only valued as herbal drugs but also utilized for food, fodder, gums and resins, essential oil, dyes, fatty oils, condiments, spices, etc. There is an urgent need to create greater awareness amongst the population as a whole particularly amongst the farmers about the medicinal and economic values of these plants, so that this heritage may be wisely used and exploited and at the same time conserved and perpetuated through judicious management for future generations. This would ensure eventual conservation of valuable germplasm of medicinal plants. Thus, the conservation of biodiversity of medicinal plants in the

Indian desert is essential to maintain the most fragile ecological processes and life support system to ensure sustainable utilization of the species as well as the desert ecosystem.

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