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Study on the some Plants of Phyto-chemical and Ethno-medicinal Aspects

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I. Introduction

Medicinal plants of arid zone are good source of phytochemically important compounds. However, the supplies of these plants are becoming difficult due to their limitation in conservation of the environment, technical and economical problem in cultivation and labour costs.

The medicinal plants of the region are utilized by the local inhabitants as well as in indigenous system of medicine. In last few decades, there is growing demand of medicinal plants by pharmaceutical companies. This increasing demand if properly utilized can help in boosting the village economy as well as will open new avenues of employment. The per hectare income generated from growing medicinal plant is much more than any other crop. However, it depends upon the quality and market demand of the concerned species/crop. On the other side, the lands which are not suitable for other crop cultivation may be utilized for cultivation of species which is suitable to that habitat. Even the wastelands and other areas lying unused around the villages can also be utilized for it. For example, the farmers can utilize the boundary of their fields without affecting the yield of crop by introducing the species which are suitable for it. Some of the medicinal herbs occur as weed of cultivated field and these may be exploited. The cultivation of medicinal plants will not only improve the economic condition of the local people but also encourage them to conserve the medicinal wealth of the arid region.

Some important herbaceous plants used in herbal drugs found in western Rajasthan are: Ashwagandha (*Withania somnifera* (Linn.) Dural), Atibala (*Abutilon indicum* (Linn.) Sweat.), Bala (*Sida cordifolia* Linn.); Dhamasa (*Fagonia indicum* Burm. f.), Dhatura (*Datura stramonium* Linn.), Gwarpatha (*Aloe barbadensis* Mill.), Gokhru (*Tribulus terrestris* Linn.) and Tumba (*Citrullus colocynthis* Linn.).

India has a vast and inexhaustible resource of drugs of plant origin. A number of important medicinal and aromatic plants prescribed by Vaids and Hakims have been carefully investigated from every point of view. Economic importance revealed that there are several plant species which have great potential to be used in drug and pharmaceutical industries, perfumeries, petroleum industries, oil, soap and dye industries.

Ayurveda, the science of life, dates back to the days of Charaka Samhita and Sushruta Samhita (1200 AD). A balance between the two is a recurring theme of Ayurveda and, to achieve this goal, medicinal plants have been accepted for centuries (Chopra *et al.,* 1956). Medicinal plants are used for the treatment of human diseases since ancient times. The Sacred Vedas in India between 3500 BC and 800 BC make many references to medicinal plants which is one of the remotest works in traditional herbal medicine Vrikshayurveda, compiled by Surapala even before the beginning of ancient India and the Christian era formed the basis of medical studies. The two memorable works of Charaka Samhita and Sushruta Samhita (400-500 AD) are called the "Golden Age" of Indian culture (Jain, 1968).

Ten arid herbal plants species have been selected from phytochemical and ethnomedicinal point of view from study area. Information about their utility and medicinal value have been gathered from local people, tribal communities and experts Ayurvedic fields (Vaids and Hakeems). The arid herbal plants are being used by local people to cure many diseases.

The name of plants, its family, local name, habitat, morphological characteristics, flowering and fruiting period, phytochemical and ethnomedicinal aspects have been described..

In the present study the following ten medicinal plant species have been taken for research work:

(i) *Abutilon indicum* (Linn.) Sweet.
(ii) *Achyranthes aspera* Linn
(iii) *Argemone mexicana* Linn.
(iv) *Boerhavia diffusa* Linn.
(v) *Calotropis procera* (Ait) R.Br.
(vi) *Datura innoxia* Mill.
(vii) *Solanum surattense* Burm.f.
(viii) *Tecomella undulata* (Sm.) Seem.

(ix) *Tephrosia purpurea* (Linn.) Pers.
(x) *Tribulus terrestris* Linn.

1. ***Abutilon indicum*** **(Linn.) Sweet.**
Family **:** Malvaceae
Local napme **:** Tara-kanchi, Itawari
Habitat **:** Common in wastelands, neglected cornes of fields and gardens and fringes of forests.

Morphotaxonomic Characteristics-

It is a perennial erect shrub, 1-1.5m high, goary, tomentose all over.Stem is woody when it is in old stage. Leaves are 5-6x3.6 cm, ovate, acuminate, chordate, 7-9 nerved from base, toothed, rarely 3 lobed, velvety on both sides, stipules depressed. Flowers solitary axile, jointed very near at the top, slightly curved at the joints. Pedicle is 2.5-5 cm long.Calyx 8-12 mm long, divided to the middle, lobes apicuate, corolla 2-3 cm in diam, yellow.Epicalyx is totally absent in this plant.Stamens numerous, anther kidney shaped.Staminal tube hairy at base, carples usually 15-20, 11-13 cm long, densely hairy at first, ultimately shining, glabrous, turning black, with a distinct mucro which is turned outwards.

Flowering and fruiting: October – April
Phytochemical Aspects: From the roots non-drying oil consisting of various fatty acids viz. linoleic, oleic, stearic, palmitic, lauric, myristic, caprylic, capric and unusual fatty acid having C_{17} carbon skeleton besides β-sitosterol, and β-amyrin from unsaponifiable matter is yielded. The oil showed significant analgesic activity. From the leaves amino acids, glucose, fructose and galactose have been isolated. Gossypetin-8 and 7 glucosides and cynidin-3-rutinoside is also isolated. Caryophyllene and its oxide, cineole, β-pinene, geraniol, geranyl acetate, eudesmol, farnesol and borneol are identified in oil.

Uses in Traditionally medicine:

- The leaves and seeds are crushed with water to from a paste which is applied for 20 to 30 days on penis to cure syphilis.
- Tribal also take orally the decoction of plant before dinner for about a month to cure gonorrhea. They grind the fresh leaves with turmeric, rice and coconut-milk to prepare a paste which is applied to cure boils and abscesses. They also use infusion of green leaves for gargling in stomatitis and psilosis.
- The paste of leaves is prepared with mustard oil and apply against rheumatism.
- The seeds, locally called as "Balbij", are rich in mucilage and used as laxative. The infuse the seeds in hot water and take it as a cooling drink.
- The leaves are rich in mucilage and are used as demulcent tonic.
- The bark is astringent and diuretic.

2. Achyranthes aspera **Linn.**
Family : Amaranthaceae
Local name : Apamarga
Habitat : The plant grows all over India in dry region.
Morphotaxonomic Characteristics : It is an erect, small herb, 0.5-1.5 meters in height with quadrangular branches, thickened towards the tips. The leaves 2.5-10 cm long and 5-7 cm broad, rounded at the apex, elliptic obovate and pale beneath. The flowers greenish white, in slender spikes of 30-40 cm length. The fruits small, oblong and grey. The seeds solitary and grey.
Flowering and fruiting: August-December.
Phytochemical Aspects: The whole plant contains the traces of basic substances e.g. betaine. Achyranthine has been isolated from the plant. The seeds have a saponin which contains olenolic acid, glucose, galactose, rhamnose and xylose. Two Achyranthes saponins A and B have isolated.Two new saponins C and D are also isolated from fruits. Ecdysterone (polypodine A) and ecdysone from roots are isolated. In the seed-oil linoleic (4.4), behenic (1.8), arachidic (1.6), myristic (1.2) and lauric (0.4%) acids present.

Ethn Uses in Traditionally medicine

1. It is reported to be pungent, astringent, pectoral and diuretic.
2. It is used as an emmenagogue, and in piles and skin eruptions.
3. A decoction the plant is useful in pneumonia and renal dropsy.
4. The juice of the plant is used in opthalmia and dysentery.
5. It dialates the blood vessels, lowers the blood pressure, depress the heart and also increase the rate and amplitude of respiration.

6. It is used in dropsy, asthma and as a remedy for cough.
7. Roots are astringent, their paste is applied to clear opacity of cornea, and to wounds as haemostatic.
8. It is reported to be useful in cancer.
9. Aqueous extract of root is used for stones in the bladder.
10. The fruit powder was brunt with Supari (*Areca catechu*) and their smoke is inhaled via mouth in teeth pain and in pyorrhoea. About one teaspoonful root-powder is taken with a cup of water in bleeding during delivery time. Whole plant is used as germicide.

1. ***Argemone mexicana*** Linn.

Family : Papaveraceae
Local name : Pili Kateli, Pila Dhatura, Satyanasi
Habitat : Common in wastelands, along roads, railway lines. Sandy soil and well drained sunny situation are ideal for these plants.
Morphotaxonomic Characteristics : Prickly herb with yellow sap and pinnatifed and spiny leaves, leaves alternate, sessile, sharply toothed, sepals 2-3; calyx prickly glabrous; petals 4-6; flowers solitary, terminal, yellow; capsules prickly; seeds blackish brown.

Flowering and fruiting: Throughout the year.
Phytochemical Aspects: From the plant, protopine nitrate, berberine nitrate, ceryl alcohol and succinic, tartaric and malic acids, glucose and fructose isolated. A flavonoid isorhamnetin-7-diglucoside, from Flowers and isorhamenetien-3, 7- diglucoside, also from flowers. Detection of hydroxyl, epoxy and keto fatty acids in seed oil, myristic, palmitic, oleic and linoelic acids also found. Out of six alkaloids isolated, four identified as heletrine, sanguinarine, protopine and Allocryptopine, determined in leaves and roots respectively of Vietnames plant. New phenolicargemixitin-isolated from seeds and characterized. Presence of argemixtin in seeds not confirmed, luteolin and eriodictyol isolated.Protopine, allocrytopine, berberine, sanguinarine, reticuline, cheilanthifoline, scoulerine from flowering and fruiting plant.

Uses in Traditionally medicine
1. Dry and crushed flowers taken orally with water cures whooping cough.
2. Latex is applied for treatment of syphilis, rheumatic pains and cutaneous affections.
3. The paste of seeds taken with salt and Mustard oil is used as toothpaste by those suffering from pyorrhea.
4. Seed oil is used with root powder for massage in chronic skin diseases.
5. Tribals burn seed oil to collect carbon from the smoke which is applied against conjunctivitis.
6. Fresh leaves or juice is also applied in conjunctivitis; on ulcer for quick healing and against scorpion stings.
7. Leaves are rubbed on sites of irritation to cure scabies.
8. Yellow juice of stem is used twice a day for one week for healing of wounds.
9. Seeds possess an emetic quality.
10. In stomach complaints the usual dose of oil is thirty drop on a lump of sugar and its effect is perfectly magical, relieving the pain instantaneously, throwing the patient into refreshing sleep.

2. *Boerhavia diffusa* Linn.

Family : Nyctaginaceae
Local name : Satha, Sathi, Santhi, Gadhapurna, Punarnava
Habitat : Common in wastelands, very common in dry Lands.
Morphotaxonomic Characteristcs: Decumbent or diffuse, perennial, extensive
Herbs, about two feet long. Leaves appear two at one node, one smaller than the other, upper surface green and Lower surface whitish, ovate oblong. Flowers rose or pink, arise in short clusters on long axillary stalk, very small in size. Fruits obovoid, rounded above, 5 ribbed, covered with glandular hairs and with fine ridges.

Flowering and fruiting: Throughout the year.
Phytochemical Aspects: From the plant, alkaloids, sterols and steroidal compounds have been isolated.The components like β-sitosterol, α-2-sitosterol, an unidentified alcohol, palmitic acid, ester of β-sitosterol, tetracosanoic, hexacosanoic, stearic,palmitic and arachidic acids have been isolated.Hentriacontane,β-sitosterol and ursolic acid isolated from roots. B-ecdysone, triacontanol and β-sitosterol isolated from roots. Two new retenoids-boeraviones A and B isolated from roots and their structure determined. A new antifibrinolytic agent-punarnavoside isolated from roots and characterized.

Uses in Traditionally medicine

1. The decoction of roots and leaves are used as perfect medicine for night blindness.
2. The decoction of roots is used as an expectorant to cure asthma, jaundice, anaemia and stomachache.
3. It also cures dropsy and gonorrhea.
4. It is diuretic and laxative.
5. The extract of roots is taken orally in diarrhea and vomiting.
6. The plant juice is antidote to rat poisoning
7. Tender shoots are eaten as potherb.
8. About 1-2 inches root is grinded and its decoction is given empty stomach which a cup of water to cure jaundice for 7 days.

3. *Calotropis procera* (Ait.) R. Br.

Family **:**Asclepiadaceae

Local name : Madar, Aak, Aakdo, Akra

Habitat : Common in wastelands, abundant on sand dunes.

Morphotaxonomic Characteristcs

Shrubs or small tress, 6-10 feet; leaves ovate or ovate oblong; cordate at the base; corolla buds, hemispherical, segments of the corolla spreading; revolute at the margin; corona lobes glabrous, equally or longer than staminal column; umbels peduncled; follicels obovoid; flowers pale purple.

Fnwering and fruiting: Throughout the year.

Phychemical aspect: From the leaves calotropin, calatoxin, uscharin and uscharidin have been isolated from latex. Calotropin shows digitalis like action on the heart, but its action is not cumulative and is less harmful. From the flowers, cyaniding-3 rhamncglucose and new triterpenecalotropeny1acetate is isolated Lupeol is isolated from latex. Quercetin-3-runtinoside is identified in the roots, stem, leaves, flowers and latex. Voruscharin is isolated from African plant. Cardenolides contents in leaf (2.04 mg/g) and in latex (162.0 mg/g), mostly calotropagenin derived carddenolides present. From Calotropis, gigantean, two triterpene esters-3-methy1-butanoates of α-amyrin and taraxasterol isolated from latex. Calotoxin uscharin and calactin have been also identified.

Uses in Traditionally medicine

1. The plant is purgative, anthelmintic, cures Aspects leprosy, leucoderma, ulcers, tumours, piles, diseases of spleen, the liver and the abdomen.
2. The paste of fresh root or dry root with water once a day for 3 days destroy cyclops and larvae of guinea worms in the intestine itself.
3. The tribal also tie leaves on the body where the worms emerge.
4. The powder of flowers with black pepper, when taken orally, is considered very effective medicine for treatment of cough, cold, asthma, piles and gastric problems in district.
5. Milky latex is also applied against thorn pricking, snake bite, piles and to relieve the pain of joints.
6. The dry root paste is applied against scorpion- sting.
7. Oil of *Sesamum indicum* (Til) is applied on the leaves and leaves are put on the abdomen to cure stomachache, chest-ache, headache, backache etc.
8. The local Vaids prescribe one teaspoon latex with balck pepper to take orally for nine days to the patients of hydrophobia.
9. The tribals boil the dry stem bark with mustard oil and 3-4 pieces of garlic and apply this paste against rheumatic pain.
10. The people drop the juice of mature yellow leaves with a pinch of salt in the ears for few days to cure deafness.
11. The root extract is given to drink to cure diabetes and fever.
12. The twigs are sometimes used as toothbrush
13. The leaves are applied to paralysed parts, painful joints, swelling; heal wounds.
14. The dried and powdered flowers in small doses are useful in cough, cold, asthma and indigestion.
15. The fibers are extracted from its fruit and used to stuff pillow to give relief in headache. The leaves are spread on jute bed and passed by the fumes of burning coal to give instant relief in the sprain of various body parts.
16. About 2-3 buds with same amount of black pepper are given with a cup of water to cure vomiting and dysentery. When latex is applied externally over wound, it heals quickly.

4. *Datura innoxia* Mill

Family : Solanaceae
Local name : Dhatura, Dhaturo
Habitat : Common in wastelands.
Morphotaxonomic Characteristics : Shrubs clothed with erect glandular hairs. Leaves ovate, sinuate toothed. Flowers white solitary, axillary. Capsules armed with weak spines.
Flowering and fruiting: Throughout the year.
Phytochemical Aspects: The seeds oil contains oleic (64.51), linoleic (18.87) and saturated (16.60%) acids. A new tropane alkaloid-datumetine isolated from the leaves. Atropine and scompolamide are also isolated. Isolation of new with an oliodedaturilin from fresh leaves. From the whole plant, daturamelins A and B have been also isolated. Isolation of withametelin and isowithametelin is isolated from the leaves

Uses in Traditionally medicine
1. Seeds and leaves are smoked to cure asthma.
2. Juice of seeds is also taken to cure asthma.
3. Juice of fresh plant is used for the treatment of hydrophobia and malarial fever.
4. A poultice made from flowers is applied to wounds to reduce pain.
5. Leaves are also applied on boils and ulcers.
6. Leaves boiled in cow milk are applied to boils, abscesses and guinea worm wound.
7. The paste of mature fruit in mustard oil is applied to cure swellings.
8. The whole plant is antiseptic, narcotic and sedative.
9. The poultice of leaves check inflammation of breast caused by excessive formation of milk.
10. Roots are used as tooth-brush to cure toothache.
11. Tribals apply leaf-juice to hairs as a preventive for early greying.
12. Some tribals remove all the seeds from the fruit and a live sparrow is kept in fruit cavity for 24 hours. Now the fruit is roasted along with bird and both are given to eat to the asthma patients.

7. ***Solanum surattense*** Burm. f.
Family : Solanaceae
Local name : Bhurhingari, Ringani, Kantkari
Habitat : Common in wastelands.
Morphotaxon Morphotaxonomic Characteristcs :
Prostrate, prickly herb, diffuse, Bright green, perennial, woody at the base. Leaves ovate or elliptic in outline, Sinuate or sub pinnatified, obtuse or subacute, stellately hairy on both surfaces (especially beneath). Flowers in few flowered, extra axillary cymes or inflorescence sometimes reduced to a single flower, axis of cyme 6-15 cm long. Calyx 7-8 mm long, densely having, Prickly, tube 2-3 mm long. Corolla bluish purple 2.5-3.2 cm in diam, lobes 6-12 mm long, deltoid acute green and stellate hairy outside. Stamens 2 mm long, glabrous, anthers 8-19 mm long, yellow, oblong, lanceolate, slightly curved. Fruit a berry, globose, yellow when ripe.
Flowering and fruiting: Throughout the year.

Phytochemical Aspect
A glucoalkaloid termed solanocarpine is found in the fruits. Asterol known as carpesterol and solanocarpidine are also present. Potassium nitrate, a fatty acid, a resinous and phenolic substance, diosgenin and sitosterol are present. Dry fruits contain traces of isochlorogenic, neochronogerlic chronogenic and caffcic acids. Solasodine, solasonine, solamargine and β-solamargine are present in fruits of Nepalese plant. Quercetin isolated together with apigenin and sitosterol.

Uses in Traditionally medicine
1. The roots, seeds and flowers are all used in indigenous medicines.
2. Leaves are applied as such to relieve muscular pain.
3. The juice of leaves with black pepper is given to cure rheumatism and locally called “Mahuri” which is given to cure vomiting.
4. Dry fruits are smoked to cure cough, jawache and toothache or chew the seeds for this purpose.
5. Extracts of roots are taken to cure cough, asthma and pain in the chest.
6. Dry fruits are collected and soaked in mustard oil and then burned in clay pot.
7. The fumes are inhaled to cure toothache and pyorrhea.
8. The decoction of plant are taken with Tulsi to cure bronchitis.

9. The roots are collected to cure hernia. Roots are thoroughly washed in water and a paste of root-bark is prepared and applied on of swollen part of abdomen and testicles.
10. The affected organs are gently warmed for 5 minutes. This produces an immediate effect and when the swollen organs regain normal size and shape, the paste is removed, otherwise it may prove harmful to the patient.
11. Local Vaids prescribe the root powder of white flowered from with honey to eat for about a month after meal to the women to increase fertility and chances for early pregnancy.
12. The plant if dipped in water overnight and decoction is given to the patient's cures syphilis.
13. The flowers are crushed and given orally with water to cure diarrhea in children. It is reported that root-paste if taken orally causes abortion of up to 3 months old foetus.
14. Stem, flowers and fruits are bitter, carminative and useful in burning feet and in cases attended with vesicular watery eruptions.
15. The buds and flowers with salt solution are good for watering eyes.

5. ***Tecomella undulata*** **(Sm.) Seem.**
Family : Bignoniaceae
Local name : Rohida, Rohira, Rohiro
Habitat : Common in sandy habitats.
Morphotaxonomic Characteristics: A medium sized tree with drooping branches and simple leaves. Branches Glabrous, minutely hairy when young. Leaves simple, usually subopposite, oblong, apex obtuse, emarginated, Margins entire. Inflorescence usually in few flowered cymes, arranged in racemose manner, terminating branches. Flowers yellow-orange.
Fruit: a capsule linear, curved; seeds wrinkled at the apex
Flowering and fruiting: January – April
Phytochemical Aspects:
A new glucosidetecomin-isolated from bark and its structure determined. Lapachol, veratric acid, sitosterol, dehydrotectol, a wax alcohol ferulate, n-triacontanol and tecomelloside isolated from heart-wood and bark. Rutin, quercetin, luteolin-7-glucoside and β-sitosterol isolated from flowers. A new iridoid glucoside 6-0-veratryl cataposide isolated. Tectol and dehydro- αlapachone isolated from roots. From the leaves, n-alkanes, n-Octacosanol, stigmasterol, cam-pesterol, α-amyrin and oleanolic acid isolated. A new chromone glucoside-undulatoside isolated and characterized. Another new chromone glucoside undulatoside B isolated from bark along with β-sitosterol glucoside. Isolation of a new irridoid glucoside-undulatin and its structure determined.

Uses in Traditionally medicine
1. The people of desert chew the bark of tender branches to cure syphilis in males; the ladies, however, are not given this treatment since it may result in abortion.
2. They also take powder of root bark with honey or sugar and milk before sleeping at night to the women to cure leucorrhoea.
3. The paste of stem bark with vegetable oil is applied over eczema.
4. In case of old eczema, the inner bark of stem is placed in an earthern pot,The mouth of pot is sealed keeping a hole in the centre, the pot is placed upside down over the fire, the fluid that comes out through the fire, the fluid that comes out through the hole of lid is collected and applied on the eczema.
5. The local Vaids prescribe seed-powder with pure "Ghee" to apply on abscesses.
6. The vapours of crushed leaves are inhaled to cure cough by the tribals.
7. They also prepare a remedy for inducing abortion by powdering its roots with the roots of Sapindus emarginatus (Ritha) and take it orally for 2-3 days.
8. The twigs are used as tooth brush.

9. ***Tephrosia purpurea*** (Linn.) Pers.
Family : Fabaceae
Local Name : Biyani or Sarphanko
Habitat : It is found on sand dunes throughout. The area, rarely dense, also occurs on open wastelands and fields.
Morphotaxonomic Characteristics : A much branched, erect perennial herb, 6-8 dm high. Stem more or less hairy with adpressed hairs. Leaves upto 13 cm long, stipules 7-9 mm long, lanceolate, linear-subulate, etect or reflexed, hairy, triangular, leaflets 7-13, 1.8-2.5⁁0-5.2cm, oblanceolate, apex mucronate, sub-coriaceous, both sides grey-green, glabrous above, adpressedly pubescent beneath. Flowers reddish-purple, on terminal or Leaf opposed peduncles, latter 7.5-15 cm long, laxly 6-25 flowered, pedicels 8 mm long, bracts linear, 2-4 mm long. Calyx 4 mm long, teeth lanceolate-acuminate, exceeding the tube in length. Corolla 8 mm long, deep

purple. Style glabrous, stigma penicillate. Pods 3-4 × 0.4-0.5 cm, slightly recurved, Glabrous or softly pubescent, 5-6 seeded.
Flowering and fruiting: July to December.
Phytochemical Aspects: The roots, leaves a seeds contain tephrosin, deguelin and quercetin. The roots contain isotephrosin and rotenone. In the roots and leaves, 2.5% rutin is found. Purpurin, a flavonone has been isolated from the seeds, as also 8-substituted flavonoid and 3-substitued oxygenatec chalcones. Octacosanol, sitosterol β-D-gluco-pyranoside and a flavones glycoside have been isolated from the whole plant. Caffeic acid isolated from dormant seeds; rutin, β-sitosterol and lupeol isolated from leaves; delphinidin chloride and cyaniding choloride isolated from flowers. Purpuritenin A and B and purpureamethide isolated from seeds. A new β-hydroxychalcone- purpurenone isolated from roots and its structure established.

Uses in Traditionally medicine
1. The infusion of leaves and seeds is applied to the eyes in ophthalmia and leucoma by tribes.
2. The seeds are taken orally to extricate corns from intestine by the nomadic tribes.
3. The seeds are considered to be anthelmintic; a blood purifier and to cure"Dhamasia" (cough with black Phlegm) - a common disease in rural areas.
4. The paste of leaves is made with the Leaves of *Cannabis sativa* (Bhang) on bleeding and painful piles.
5. The tribes consider leaf-juice effective in leprosy and decoction of roots to hydrocele.
6. Pills of powdered root-bark is made with black pepper to cure obstinate colic.
7. The tribals chew the roots to cure toothache and drop the sap of roots in the earache
8. Twigs are used as toothbrush.

10. ***Tribulus terrestris*** Linn.
Family : Zygophyllaceae
Local name : Goksura, Gokhru
Habitat : The plant occurs throughout India.
Morphotaxonomic Characteristics : It is prostrate spreading herb, densely covered with minute hair. The shrub is annual or perennial and thrives in moist soil. The leaves in opposite and pairs, 5- 8 cm long, compound and the leaflets 4-7 pairs are 8-12 mm long. The flowers are bright yellow, leaf-opposed, solitary, 1-15 cm in diameter, the fruits very Characteristic, are globose, consisting five woodycocci, each with two, paired sharp spines. seeds, numerous, within each coccus.
Flowering and fruiting: August-December.
Phytochemical Analysis:
From the fruits and leaves, flavonoid components like kaempferol, kaempferol-3-glucoside, and a new acylated kaempferol-3-glucoside is isolated. Other components like hecogenin, steroid sapogenins and neotigogenin are also reported.The bigger variety of Goksura is botanically components known as *Pedalium murex*. Disogenin, gitogenin and chlorogenin isolated; kaempferol, is 3-glucoside, its 3- rutinoside and tribuloside from fruits and leaves.

Uses in Traditionally medicine
1. The leaves are used in stomachic problems.
2. The root is credited with aperiant and tonic properties.
3. The fruits are used for treatment of calculous, affections and painful micturition.
4. It is useful in urinary calculi (stones).
5. It is useful in diabetes.
6. It is used diuretic and aphrodisiac.

Ethno botanic investigations plants and their uses in traditional medicine are graining great importance these days because a number of those plants from the traditional medicine have provided valuable drugs to the modern medicines. Prime examples are *Abutiton indicum* (linn.) sweet, *Achyranthes asper* linn. *Aloe barbadenisis* mill. *Argemone mexicana*, *Catharanthus roseus, Evolvulus alsinoides, Calotropis procera, Citrullus colocynthis, Cleome gynandra* linn., *Ricinus Cummunis* linn. Etc.

Majority of medicinal plants are used in the form of juice, powder, decoction or paste and herbal products as well. The mixture of different plant's parts is also used for preparing herbal medicines. Decoctions were common method for preparation of drug remedies are used in the form of juice, powder, decoction or paste. People in the vicinity of the always use these medicinal plants to cure the disease like fever, cold and cough, skin disease, dysentery, pain, diarrhea, wounds, snake bite, insect bite, asthma, burn and other disorders. *Sida cordifolia, Physalis minima, Boerhavia diffusa, Citrullus colocynthis, Aloe vera, Cocculus hirsutus,*

Tinospora cordifolia, Vernonia cinerea, Cassia occidentalis, Aspargaus racemous, etc. are important ethno-medicinal plants

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