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A SYRVEY ON MEDICINAL PLANTS IN TORANMAL REGIONS

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ABSTRACT

The approach to new drugs through natural products has proved to be the single most successful strategy for the discovery of new drugs, but in recent years its use has been deemphasized by many pharmaceutical companies in favor of approaches based on Synonyms, Biological source, Chemical constituent's And Uses. Again with rapid industrialization of the planet and the loss of ethnic culture and customs, some of the information on ethnomedicine will no doubt disappear. An abundance of ethnomedical information on plant uses can be found in scientific literature but has not yet been compiled into a usable form. Collection of ethno medical information especially in the developing countries remains primarily an academic endeavor of little interest to most industrial groups. This article reviews include some drugs are given in this review.

KEYWORDS: ethno medical, Synonyms, Biological source, Chemical constituents.

INTRODUCTION

1. Senna leaves

Synonyms :-Senna leaf, senna folium, Tievelenysenna, Swarnmukhi

Biological Source :-Dried leaflets of Cassia senna (Cassia acutifolia) also known commercially as Alexandrian senna or khartoumsennaand Cassia angustifolia, which is commercially known as Tinnevellysenna or Indian senna. Family- Leguminosae

Chemical Constituent :-



- Dianthrone glycosides (1.5% – 3%), Sennosides A and B (rheindianthrone containing the aglycone Sennidin A and Sennidin B respectively), Sennosides C and D (glycosides of heterodianthrone rhein and aloe emodin).

- Free anthraquinones are also present and several other glycosides such as palmidin A and aloe-emodindianthrone diglycosides are also present.

- Senna also contains flavanols such as kaempferol (yellow

color) and isorhamnetin. Traces of chrysophanic acid, saponin, salicylic acid and volatile oils have also been found^[1].



Uses :-Senna is a useful laxative for either occasional use or habitual constipation. It is a popular laxative specially amongst the elderly and is devoid of the astringent after effects as observed in Rhubarb. It is reviewed to be useful during pregnancy and lactation.

2. Ashwagandha :-

Synonyms :-Ashwagandha, Asgandha, Winter cherry, Bahman, Ashwagandha, Ashwangandha, Aasoganda, Kutilad, Amurkkuralekizhangu, Ba-dzi-gandha, Asgandhvolaite.

Biological Source :- It consist of dried root's And Steam Withaniasomnifera belongs to Family- Solanaceae.

Chemical Constituent's :-Withanolides are the most important bioactive constituents of roots of Ashwagandha. Roots and leaves of type WSR evolved by Regional Research Laboratory, Jammu contains Withanolide-A as the major constituent with appreciable quantity of Withanone and traces of Withaferin-A. The root is also rich in total alkaloid (0.20 to 0.36%).

Majority of the constituents are withanolides (Steroidal lactones with ergostane skeleton) and alkaloids. These include Withanon, Withaferin A, Withanolide I, II, III, A, D, E, F, G, H, I, J, K, L, M, WS-I, P and S, withasomidienone, withanolide C , and alkaloid viz., cuscohygrine, anahygrine, tropine, pseudotropine, anaferine, isopellaterine, 3-trophyltigloate^[2].

Uses:-

The roots are the source of drug and have got a vast range of application in the treatment of different physiological disorders. The drug also holds a great promise as an adjuvant in radiation therapy treatment of cancer. The drug is classified under the group Rasayana' in Ayurveda which besides other properties, also checks aging^[3].

3. Hibiscus:-

Synonyms :- Shoe Flower, China Rose, Jaswand.

Biological Source :- It consist of fresh flower's of plant's known as Hibiscus rosa belong to Family- Malvaceae.

Chemical Constituents :-Plants contain secondary metabolites, which are organic compounds that are not directly involved in the normal growth, development, or reproductions of organisms but often play an important role in plant defenses (Harbone and Baxter, 1993).



Examples include alkaloids, glycosides, terpenoids, phenols, tannins, flavonoids and saponins (Edema and Alaga, 2012).

Continuous exposure to chemicals and contaminants leads to increase the free radicals amount and causes irreversible oxidative damage including biological damage, DNA damage, diabetes, respiratory tract disorders, carcinogenesis and cellular degeneration related to ageing (Tseng et al., 1997).

The Hibiscus genus (Malvaceae) contains several species, many of which have been used medicinally and is comprises of about 275 species in the tropics and sub-tropics and most Hibiscus species have a remarkable color pattern with the base of corolla forming a deep-colored heart (Lowry, 1976).

Leaves and flowers of selected Hibiscus species were evaluated for antioxidant, antityrosinase and antibacterial activities. Leaves of *H. tiliaceus* had the strongest antityrosinase activity and have potentials to be developed into functional food and skin care products

Uses :-

- Landscaping:-Many species are grown for their showy flowers or used as landscape shrubs, and are used to attract butterflies, bees, and hummingbirds.
- Paper:-One species of Hibiscus, known as kenaf (*Hibiscus cannabinus*), is extensively used in paper-making.
- Beverage:-The tea made of hibiscus flowers is known by many names in many countries around the world and is served both hot and cold. The beverage is well known for its color, tanginess and flavor. It is known as bissap in West Africa, "Gul e Khatmi" in Urdu & Persian, agua de jamaica in Mexico and Honduras (the flower being flor de jamaica) and gudhal in India. Some refer to it as roselle, a common name for the hibiscus flower. Roselle is typically boiled in an enamel-coated large stock pot as most West Indians believe the metal from aluminum, steel or copper pots will destroy the natural minerals and vitamins.



4. Jambul :-

Synonym :-*Syzygium cumini*, jambul, jambolan, jamblang, or jamun

Biological Source :-Icosist of fresh fruit of the plat Kow as *Syzygium cumini* belong to Family- Myrtaceae

Chemical Constituent's :-Vitamins { Thiamine (B1), Riboflavin (B2), Niacin (B3), Vitamin B6, Vitamin C } Trace metals { Calcium, Iron, Magnesium, Phosphorus, Potassium, Sodium }

**Uses :-**

All parts of the jambolan can be used medicinally and it has a long tradition in alternative medicine. From all over the world, the fruits have been used for a wide variety of ailments, including cough, diabetes, dysentery, inflammation and ringworm. It is widely distributed throughout India and ayurvedic medicine (Indian folk medicine) mentions its use for the treatment of diabetes mellitus. Various traditional practitioners in India use the different parts of the plant in the treatment of diabetes, blisters in mouth, cancer, colic, diarrhea, digestive complaints, dysentery, piles, pimples and stomachache. During last four decades, numerous folk medicinal reports on the antidiabetic effects of this plant have been cited in the literature. In Unani medicine various parts of jambolan act as liver tonic, enrich blood, strengthen teeth and gums and form good lotion for removing ringworm infection of the head^[4].

5. Bramhi

Synonym :- Bacopamonnieri, thyme-leaved gratiola, water hyssop, herb of grace,^[2] Indian pennywort.

Biological Source :- It consists of the stem of the plant known as Bacopamonnieri belonging to Family Scrophulariaceae.

Chemical Constituent's :- The best characterized compounds in Bacopamonnieri are dammarane-type triterpenoid saponins known as bacosides, with jujubogenin or pseudo-jujubogenin moieties as aglycone units. Bacosides comprise a family of 12 known analogs. Other saponins called bacopasides I–XII have been identified more recently. The alkaloids brahmine, nicotine, and herpestine have been catalogued, along with D-mannitol, apigenin, hersaponin, monnierasides I–III, cucurbitacin and plantainoside B. The constituent most studied has been bacoside A, which was found to be a blend of bacoside A3, bacopaside II, bacopasaponin C, and a jujubogenin isomer of bacopasaponin C. These assays have been conducted using whole plant extract, and bacoside concentrations may vary depending upon the part from which they are extracted. In one Bacopamonnieri sample, Rastogi et al. found this bacoside profile—bacopaside I (5.37%), bacoside A3 (5.59%), bacopaside II (6.9%), bacopasaponin C isomer (7.08%), and bacopasaponin C (4.18%).^[19]



Uses :- Bacopa has been used in traditional Ayurvedic treatment for epilepsy and asthma.^[8] It is also used in Ayurveda for ulcers, tumors, ascites, enlarged spleen, indigestion, inflammations, leprosy, anemia, and biliousness.

6. Sandalwood oil

Synonyms :-Chandan, Safedchandan, Chandana, Chadan, Igam, Chandunamu.

Biological Source :- Sandalwood oil is an essential oil obtained from the steam distillation of chips and billets cut from the heartwood of the sandalwood (*Santalum album*) tree. Sandalwood oil is used in perfumes, cosmetics, and sacred unguents belonging to Family- Santalaceae.

Chemical Constituent's :-Sandalwood oil contains more than 90% sesquiterpenicalcohols of which 50-60% is the tricyclic -santalol. -Santalol comprises 20-25%.

Uses :-Sandalwood essential oil is used in Ayurvedic medicine for the treatment of both somatic and mental disorders.^[4] A study investigating the effects of inhalation of East Indian sandalwood oil and its main compound, -santalol, on human physiological parameters found that the compounds elevated pulse rate, skin conductance, and systolic blood pressure.Sandalwood oil and -santalol have been associated with chemopreventive activity in animal models of carcinogenesis.

7. Vinca :-

Synonym :-Sadabahar, Sadaphuli.

Biological Source :-Aerial parts of *Catharanthus roseus* formerly known as *Vincarosea*. Belonging to Family- Apocynaceae.

Chemical Constituent's :-Vinca is rich in indole alkaloids particularly vincristine and vinblastine. Coupling of indole alkaloids such as catharanthine and vindoline produces the vinca alkaloids.



Other alkaloids such as ajmalicine, lochnerine and serpentine are also found.

Uses :-Vinca is useful in the herbal treatment of lymphomas. Vinblastine is used for the treatment of Hodgkin's disease and non-Hodgkin's lymphomas while vincristine is used principally in the treatment of acute lymphocytic leukaemia^[5].

8. Nutmeg :-

Synonym :-Jayphal, Muskatnussbaum, Nocemoscata.

Biological Source :- It produces two spices: mace and nutmeg. Nutmeg is the seed kernel inside the fruit and mace is the red lacy covering (aril) on the kernel. *M. fragrans* belongs to Family- Myristicaceae.

Chemical Constituents :-The commonly known phytochemical compounds of *M. fragrans* are volatile substances, terpenoids, phenolics, Asgarpanah and Kazemivash 12789 lignin compounds, protein, mucilage and starch



Alkaloids, saponins, anthraquinones, cardiac glycosides, flavonoids and phlobatanins were also detected in the aqueous extract.

Bioactive compounds including camphene, elemicin, eugenol, isoelemicin, isoeugenol, methoxyeugenol and elemicin were identified as the main constituents of *M. fragrans* seed essential oil (Chirathaworn et al., 2007). Sabinene (41.7%), α -pinene (9.4%), β -pinene (7.3%), terpine-4-ol (5.8%), limonene (3.7%), safrole (1.4%) and myristicin (2.7%) were also characterized in the essential oil of nutmeg collected from Andaman Nicobar Island (Pal et al., 2011). Sabinene (19.07%), α -pinene (18.04%), 4-terpineol (11.83%), limonene (8.32%) and β -pinene (7.92%) were identified as the major compounds of the essential oil of *M. fragrans* leaf (Zachariah et al., 2008).

Uses :-

- It is used as an aromatic, stimulant and carminative.
- It is use as Flavoring agent.
- It is use in Soap industries.
- The Fat and volatile oil of nutmeg are use in the treatment of rheumatism^[6].

9. Gunj :-

Synonym :- jequirity, Crab's eye, rosary pea, precatory pea or bean, John Crow Bead, Indian licorice, Akar Saga, gideegidee or **Jumbie** bead.

Chemical Constituents:-

Glycyrrhizin: As the roots and leaves of *Abrus precatorius* contain glycyrrhizin²³. Glycyrrhizin is an important phytoconstituent of licorice²⁴ which is widely used in the pharmaceutical and food industry. Glycyrrhizin²⁵

Abrusosides A to D and Four Novel sweet triterpene

Glycosides

In addition to abrusoside A²⁷, abrusosides B²⁸, C, and D, three further sweet glycosides based on the novel cycloartane-type aglycone, abrusogenin²⁹, were isolated from an n-butanol soluble extract of the leaves of *Abrus precatorius*³⁰. It was observed that compounds

1-4 were neither acutely toxic with mice nor mutagenic with *Salmonella typhimurium* strain.

Uses :- The seeds of *Abrus precatorius* are much valued in native jewelry for their bright coloration. Most beans are black and red, suggesting a ladybug, though other colors are available. Jewelry-making with jequirity seeds is dangerous, and there have been cases of death by a finger-prick while boring the seeds for beadwork^[7].



10. Sagargota :-

Synonym :- Kantkarej, Kantikaranja, Fever nut, bonduc nut, nicker nut, nicker seed, Kakachika, Kantakikaranja, Kantakini, karanja, Krakachika.

Biological Source :-Caesalpinia bonducella(L.) Fleming (Syn. Caesalpinia bonduc(L.)Roxb, Syn. Caesalpinia crista Linn.), belonging to the Family- Caesalpinaceae.

Chemical Constituents :-

Seed Kernel: Each and every part of the plant is claimed to possess some therapeutic properties, but seed kernel alone has been systematically studied so far.

Alkaloids: There is controversial reports exist regarding the presence of alkaloids in C. crista. Earlier workers detected an alkaloid "Natin" in the plant but could not confirm the presence 21, 22.

Uses :- Anxiolytic, antinociceptive, antidiarrhoeal, antidiabetic, adaptogenic, anthelmintic, antiestrogenic, anti-inflammatory, antimalarial, antimicrobial, antifungal, antispasmodic, antioxidant, antiproliferative, antipsoriatic, antitumor, larvacidal, muscle contractile, hepatoprotective, anticonvulsant and antifilarial activities^[8].

11. Gauva :-



Synonym :-Spanish: guayaba (fruta), guayabo (Árbol). Perulera, guayabadulce, guayabamanzana, guayabo de venado, jalocote

Biological Source :-It consist of Fresh fruit and flower of *Psidium guajava* L. Family- Myrtaceae.

Chemical Constituents :-

- **Carbohydrates**: arabinose, glucose, xylose
- **Fat**:
- **Proteins**: contains the amino acids alanine, glutamic acid, leucine, methionine, phenylalanine and histidine.
- **Fiber**: pectin
- **Vitamins**: Vitamin C, pantothenic acid
- **Ascorbigen**: antioxidant classified within indoles, common in cruciferous vegetables, such as broccoli, used to treat cancer and fibromyalgia.



- **Carotene:** mainly xanthophylls and carotenoids.
- **Minerals:** potassium, calcium, copper, magnesium, manganese, phosphorus, zinc^[9]

Uses :-

- **Fruit:** It is also known as guava. It is nutritionally important for being a fruit rich in vitamin C and carotene. White Guavas contain more vitamin C than pink. As food, it is consumed fresh, whole, in juices or shakes. You can also eat it cooked, in which case it has a milder flavor, in jams, preserves, jellies, syrups, cakes, etc.
- **Leaves:** They produce a black dye used for dyeing silk and cotton.
- **Wood:** It is reddish yellow, being used to make handicrafts and turnery (handles, cutlery, combs, etc.). It can also be used for firewood and charcoal. The bark is used for tanning leather, because of its high tannin content
- **Medicinal:** Guava roots, leaves and fruits are used medicinally since antiquity. Mainly for its astringent tannin content. The roots and leaves are used to treat dysentery and diarrhea^[10].

12. Amla :-

Synonym :- Arab. Amlaj Assam.Amluki.;Ayurvedic: Amalaki; Beng. Amia, Amlaki, Amla, Arnloki.;Bom. Amla, Avalkati.;Burm. Ziphayu-si; Shabju.; Engl. Emblic, Myrobalan Tree, Indian gooseberry;



Biological Source :-Amla is the dried and fresh fruit of plant, *Emblica officinalis* Gaerth.Family- Euphorbiaceae.

Chemical Constituents :-

Amla is one of the most extensively studied plants. Reports suggest that it contains tannins, alkaloids and phenols.

Fruits have 28% of the total tannins distributed in the whole plant. The fruit contains two hydrolysable tannins Emblicanin A and B, which have antioxidant properties; one on hydrolysis gives gallic acid, ellagic acid and glucose wherein the other gives ellagic acid and glucose respectively.

Its fruit juice contains the highest concentration of vitamin-C (478.56mg/100mL). Vitamin C levels are more than those in oranges, tangerines and lemons.^{24,25}. The composition of fruit pulp of *Emblica officinalis* are given following fig.

Uses :-

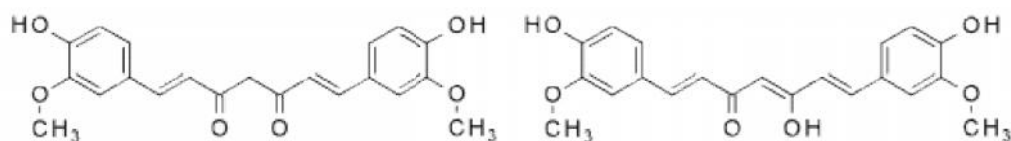
In folk medicine, the fruits, which are sour, astringent, bitter, acrid, sweet and anodyne. Exert several beneficial effects include cooling, ophthalmic, carminative, digestive, stomachic, laxative, dyspepsia, aphrodisiac, rejuvenative, diuretic, antipyretic and tonic^[11].

13. Turmeric

Synonym :-Curcuma domestica, Haldi, Halad.

Biological Source :- *Curcuma longa* is a rhizomatous herbaceous perennial plant of the ginger Family-Zingiberaceae.

Chemical Constituents :-



Curcumin keto form

Curcumin enol form

Uses :-

Culinary, Folk medicine and traditional uses, Dye^[12]

14. Jasmine

Synonym :-

- **Hindi and Marathi-** Mogra, Chamba, Bel, Motia, Mugra;
- **Sanskrit-** Mallika, Ananga, Ashtapadi, Devalata, Gauri, Mudgara, Janeshta, Gandhraj



Biological Source :- *Jasmine* is an essential oil bearing of plant *Jasminum sambac* Linn. belongs to the Family- Oleaceae.

Chemical Constituents :- It contains major phytoconstituents as alkaloids, glycosides, saponins, flavonoids and terpenoids. Mainly the Iridoid glycosides are present. These include sambacin, Jasminin, Sambacoside A (I), Sambacolingoside. Flavonoids include quercetin (II), isoquercetin (III), rutin (IV), kempferol (V) and luteolin (VI), Secoiridoid glucoside- sambacolingoside along with oleoside 11-methyl ester. Oligomeric iridoids like molihuasides A is a dimeric iridoid glycoside and Molihuasides

Uses :-

Traditional Uses-

Plant parts used: whole plant

In India, plant is traditionally used for cooling, skin disorders, leprosy, ulcers, in cases of insanity, weakness of sight and affections of mouth. Plant is used with opium for gangrenous ulcers of the gums.



Leaves

It is used in Fever, cough, indolent ulcers, skin disorders, lowering the blood glucose level .

Root

Root material in combination with other drugs is applied as external poultice in Sprains and fractures.

Flowers

The flower is bitter, pungent, cooling, cures “tridosha”, biliousness, itching sensation, useful in diseases of the eye, ear and mouth, acting as tonic to the brain, purgative, allays fever, very good in toothache, suppurations, in diseases of blood, diseases of mouth, indolent ulcers, abdominal distention, and diarrhea^[13].



15. Henna

Synonym :- Mehendi.

Biological Source :- Henna consists of fresh or dried leaves of plant *Lawsonia – inermis* Lam. belonging to Family-Lythraceae.

Chemical Constituents :- The active constituents of the leaf is lawsone (0.5 - 1.0%). Other constituents are 5 – 10% gallic acid, white resin, sugars and tannin and xanthenes are the other contents of the leaves. Lawsone, the main colouring constituent is said to be a degradation product of primary glycoside hennoside A, B and C.



Uses :-

Arthritis: Henna oil is used for rheumatic and arthritic pains. Ground leaves are applied to sore flints to ease rheumatism. The juice of the medicinal plant can be applied to the skin for headaches, and the henna oil is applied to hair to prevent it from graying. **Dysenter, Liver Disorders, Baldness, Prickly Heat, Headaches, Feet Burning Sensation, Skin Disease^[14].**

16. Parijatak

Synonym :- Marathi- Paarijat Hindi- Harsinghar, Shefali. Sanskrit- Parijat English- Coral jasmine, Night flowering jasmine, Queen of the night, Sad tree.

Biological Source :- Nyctanthes means night flowering (ar-BOR-TRIS-tis) meaning sad tree belonging to Family- Oleaceae.

Chemical Constituents :- The leaves & seeds contain iridoid glycosides. The other constituents reported from the leaves are mannitol, beta-amyrin, beta-sitosterol, hentriacontane, benzoic acid,

astragalin, nicotiflorin, oleanolic acid, nyctanthic acid friedelin&lupeol.

The seed contain polysaccharides glycomannan^[15].



17. Shatavari

Synonym :-Shatamuli.

Biological Source :- The shatavari mostly comprises of the dried roots and the leaves of the naturally occurring plant known as *Asparagus racemosus* Will, belonging to the Family- Liliaceae.

Chemical Constituents :- shatavari contains foursteriodalsaponins usually designated as shatavarin I-IV present collectively to the extent of 0.2%; however, shatavarin I is the major glycoside present.

Uses :-

1. The roots are employed mostly as galactogogue to promote the flow of milk.
2. The roots are used invariably as tonic and diuretic.
3. The steroidal saponinShatavari-I is reported to exert antioxytotic activity.
4. The roots are extensively employed as a medicinal oil for the control and management of Nervine disorders and rheumatism.
5. In the Ayurvedic System of Medicine it is widely used both in threatened abortion and safe delivery because of its distinct uterine blocking activity^[16].

18. Aloe

Synonym :- Aloe, Musabbar, Kumari.

Biological Source :-Aloes is the dried juice of the leaves of Aloe barbadensis Miller, known as Curacao aloes belonging to Family- Liliaceae.

Chemical Constituents :-Aloe contains two classes of Aloins: (1) nataloins, which yield picric and oxalic acids with nitric acid, and do not give a red coloration with nitric acid; and (2) barbaloins, which yield aloetic acid (C₇H₂N₃O₅), chrysammic acid (C₇H₂N₂O₆), picric and oxalic acids with nitric acid, being reddened by the acid. This second group may be divided into a-barbaloins, obtained from Barbados aloes, and reddened in the cold, and bbarbaloins, obtained from Socotrine and Zanzibar aloes, reddened by ordinary nitric acid only when warmed or by fuming acid in the cold. Nataloin forms bright yellow scales. Barbaloin forms yellow prismatic crystals. The plant produces at least 6 antiseptic agentssuch as lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulphur^[17].

Uses:-



Helps digestion: Drinking *Aloe vera* juice naturally allows the body to cleanse the digestive system. It encourages the bowels to move and helps with elimination if a person is constipated. And if you have diarrhea, it will help slow it down.

Increases energy levels: Our diets include many substances which can cause fatigue and exhaustion. Taken regularly, *Aloe vera* juice ensures a greater feeling of well-being, allowing energy levels to increase and also helps maintain a healthy body weight.

Builds immunity: It is especially great for those who have chronic immune disorders like polysaccharides or fibromyalgia since the polysaccharides in *Aloe vera* juice stimulate macrophages, the white blood cells that fight viruses^[18].

Detoxifies: *Aloe vera* juice is a great natural aid to detox. With our stressful lives, the pollution around us and the junk foods we eat, we all need to cleanse our systems from time to time. Drinking *Aloe vera* juice provides a fantastically rich cocktail of vitamins, minerals and trace elements to help our bodies deal with these stresses and strains every day.

Reduces inflammation: It improves joint flexibility and helps in the regeneration of body cells. It strengthens joint muscles, which therefore reduces pain and inflammation in weakened or aged joints.

Medicinal Uses: Scientific evidence for the cosmetic and therapeutic effectiveness of *Aloe vera* is limited and when present is frequently contradictory. Despite this, the cosmetic and alternative medicine industries regularly make claims regarding the soothing, moisturizing and healing properties of *Aloe vera*, especially via Internet advertising.

19. Guggul

Synonym: -Indian bdellium tree, Gum guggul, commiphora

Biological Source :- Guggul is the oleo-gum-resin obtained by making deep incisions at the basal part of stem bark of *Commiphora wightii* belonging to Family- Burseraceae.

Chemical Constituents :-

The gum resin portion of guggul contains steroids, diterpenoids, carbohydrates, and aliphatic esters, but the resin does not contain cinnamic acid, benzoic acid or their esters. Guggul contains Z-guggulosterone, E-guggulosterone and 3 new sterols.

Uses :-

- It is used as anti-inflammatory, anti-rheumatic, hypolipidemic and hypo-cholesteremic drug.
- It lowers low density lipoprotein and supports weight control.



- Guggulip develop from commiphoramukul is an anti hyperlipidemic product.

20. Lemon Grass

Synonym:-East Indian Lemon-Grass Oil, Indian Melissa Oil, Gavaticaha.

Biological Source :-The lemon grass oil is volatile oil obtained by steam distillation from the leaves and aerial parts of the plants *Cymbopogon citratus* belonging to Family- Graminae.

Chemical Constituents :-Lemon grass oil chiefly contains citral, in addition to methylheptenol, nerol, citronellal, dipentene and geraniol^[19]

Uses :-

In the folk medicine of Brazil, it is believed to have anxiolytic, hypnotic, and anticonvulsant properties, but at least one study has found no effect on humans. In traditional medicine of India the leaves of the plant are used as stimulant, sudorific, antiperiodic, and anticatarrhal, while the essential oil is used as carminative, depressant, analgesic, antipyretic, antibacterial, and antifungal agent^[20].

citratus was used as an inexpensive remedy for the treatment of oral thrush in HIV/AIDS patients.

21. Ber

Synonym:-Ber, Chinese Apple, Jujube, Indian plum and Masau

Biological Source :- Ber also known *Ziziphus mauritiana*, is a tropical fruit tree species belonging to the Family- Rhamnaceae.

Chemical Constituents :-

Carbohydrates 17gm, Fat 0.07m, Protein 0.8gm, Vitamine [B1- 2%, B2- 2%]

Uses :-

- The fruits are applied on cuts and ulcers; are employed in pulmonary ailments and fevers; and, mixed with salt and chili peppers, are given in indigestion and biliousness. The dried ripe fruit is a mild laxative.
- The seeds are sedative and are taken, sometimes with buttermilk, to halt nausea, vomiting, and abdominal pains in pregnancy. They check diarrhea, and are poulticed on wounds.
- Mixed with oil, they are rubbed on rheumatic areas. The leaves are applied as poultices and are helpful in liver troubles, asthma and fever and, together with catechu, are administered when an astringent is needed, as on wounds.



- The bitter, astringent bark decoction is taken to halt diarrhea and dysentery and relieve gingivitis^[21].

22. Tulsi

Synonym:-

Holy basil, Tulsi तुलसी (Hindi, Tamil, Telugu), Trittavu (Malayalam), Tulshi (Marathi)

Botanical name: *Ocimum tenuiflorum*

Biological Source :- Tulsi consists of fresh and dried leaves of *Ocimum sanctum* Linn. belonging to Family- *Lamiaceae*.

Chemical Constituents :- A variety of biologically active compounds have been isolated from the leaves including ursolic acid, apigenin and luteolin.

Uses:-

- **Respiratory benefits of tulsi**
- **For asthma and bronchitis:-** The leaves of the Tulsi are effective expectorants and promote the release of mucus in bronchitis and asthma, thus, facilitating breathing. A decoction made of Tulsi leaves, honey and ginger is effective for asthma, bronchitis and influenza.
- **For cold and flu:-** Chewing the leaves of the Holy basil helps relieve symptoms of cold and flu.
- **For sore throat:-** Boil a few leaves of Tulsi in about half a litre of water. Drink this Tulsi tea or use it as a gargle at least three times a day. You can also add cloves to this decoction for more benefits.
- **Relieves fever:-** The antimicrobial properties of the Tulsi leaves make it an excellent treatment for fever. As we know, fever is not a disease by itself. In fact, it is caused by infections caused due to viruses, bacteria, fungus, protozoa or due to allergens
- **Beneficial for the kidneys:-** Tulsi juice and honey taken regularly for 6 months may help in expelling a kidney stone that is smaller than 5mm through the urinary tract.
- **Effective for skin disorders:-** The juice of the Tulsi plant may help in the treatment of skin diseases such as ringworm and leucoderma. Tulsi leaves can be applied as poultice on the infected area to cure skin diseases.
- **Cardiovascular benefits:-** It may reduce blood cholesterol levels and have benefits for the heart. Its antioxidant properties protect the heart from free radical damage. Regular intake of Tulsi tea also reduces high blood pressure^[22].



- **Beneficial for the nerves and brain:**-Tulsi acts a nerve tonic and improves brain functioning. It improves concentration and sharpens memory
- **Oral and dental Benefits:**-The antibacterial properties of the Holy basil keep your mouth and teeth free from bacteria. Tulsi juice works as an excellent mouth freshener, prevents bad breath, and cures ulcers in the mouth. Instead of chewing the leaves, use Tulsi tea for promoting oral and dental health since the mercury in the leaves may damage your teeth.
- **Beneficial as an eye wash:**-Regular consumption of Tulsi may protect your eyes from various diseases such as glaucoma and macular degeneration. It also soothes the eyes and reduces strain caused due to constant computer use.
- **Good for headaches:**-Applying a poultice of pounded Tulsi leaves on the forehead helps relieve headache caused due to heat, stress and eye strain. You can also drink Tulsi tea to relieve migraine and other stress headaches.



23. Rauwolfia

Synonym:-Chhotachand, Serpgandha, Serpentina root

Biological Source :-Rauwolfia consists of dried roots of the plant known as Rauwolfia Serpentina Benth, belonging to Family- Apocyanaceae.



Chemical Constituents :-

Rauwolfia serpentina, commonly known as or Indian Snakeroot or *Sarpagandha*, contains a chemicals, corynanthine, deserpidine, lankanescine, rauwolscine, reserpine, reserpiline, isoreserpiline, isoreserpiline, serpentinine, and yohimbine

Uses :-

Reserpine is an alkaloid first isolated from R. serpentina and was widely used as an antihypertensive drug. It had drastic psychological side effects and has been replaced as a first-line antihypertensive drug by other compounds that lack such adverse effects, although combination drugs that include it are still available in some countries as second-line antihypertensive drugs^[23].

24. Nirgudi

Synonym:-Hindi-nirgundi; Marathi- nirgudi

Biological Source :-It consists of fresh or dried leaves of plant known as *Vitex negundo* belonging to Family- Lamiaceae.

Chemical Constituents :-

The principal constituents the leaf juice are casticin, isoorientin, chrysophenol D, luteolin, p-hydroxybenzoic acid and D-fructose. The main constituents of the oil are sabinene, linalool, terpinen-4-ol, -caryophyllene, -



guaiene and globulolconstituting 61.8% of the oil. *In vitro* and animal studies have shown that chemicals isolated from the plant have potential anti-inflammatory, antibacterial, antifungal and analgesic activities^[24].

Uses :-

- *Vitexnegundo* is used for treating stored garlic against pests and as a cough remedy in the Philippines.
- Roots and leaves used in eczema, ringworm and other skin diseases, liver disorders, spleen enlargement, rheumatic pain, gout, abscess, backache; seeds used as vermicide.
- It is also used to control population of mosquitoes.
- In the USA, hardiness zone 6–9, its purple flowers bloom most of the summer and it is a popular plant visited by bees and butterflies.

25. Pimpal

Synonym:- Marathi: Pipal, Pimpal, Pippal, **Hindi:** Pipala, Pipal, **Sanskrit:** Pippala, **English:** Pipal tree, **Gujrati:** Pipro, Jari, Piparo, Pipalo



Chemical Constituents :-

The stem bark of *F. religiosa* are reported phytoconstituents of phenols, tannins, steroids, alkaloids and flavonoids, -sitosteryl-D-glucoside, vitamin K, n-octacosanol, methyl oleanolate, lanosterol, stigmasterol, lupen-3-one. The active constituent from the root bark *F. religiosa* was found to be -sitosteryl-D-glucoside, which showed a peroral hypoglycemic effect in fasting and alloxan-diabetic rabbits and in pituitary-diabetic rats. The fruits contain 4.9% protein having the essential amino acids, isoleucine, and phenylalanine. The seeds contain phytosterolin, -sitosterol, and its glycoside, albuminoids, carbohydrate, fatty matter, coloring matter, caoutchoue 0.7–5.1%. *F. religiosa* fruits contain flavonols namely kaempeferol, quercetin, and myricetin. Leaves and fruits contain carbohydrate, protein, lipid, calcium, sodium, potassium, and phosphorus. The aqueous extract of dried bark of *F. religiosa* has been reported to contain phytosterols, flavonoids, tannins, furanocoumarin derivatives namely bergapten and begaptol^[25].

26. Jack Fruit

Synonym:-

Biological Source :-Jack Fruit is a species of tree in the *Artocarpus* genus of the mulberry belonging to Family- Moraceae



Chemical Constituents :- The chemical composition of the starch content in the seed showed protein (7.98% soft and 5.56% hard) and lipids levels (0.59% soft and 0.24% hard) similar to those reported by Silveira(2002) for protein (5.07% soft and 5.50% hard) and lipids (0.52% soft and 0.23% hard) in jackfruit preparation containing seeds and residue. The starch isolated from jackfruit seeds showed for soft and hard varieties, respectively, 2.75 ± 0.10 and 2.86 ± 0.10 of moisture, 0.37% of lipids (for both), 1.53% and 0.62% of protein and 0.16% and 0.07% of ash.

Uses :-

- Ripe jackfruit is naturally sweet with subtle flavoring. It can be used to make a variety of dishes, including custards, cakes, or mixed with shaved ice as *esteler* in Indonesia or *halo-halo* in the Philippines. In India, when the jackfruit is in season, an ice cream chain store called "Naturals" carries jackfruit flavored ice cream.
- Ripe jackfruit arils are sometimes seeded, fried, or freeze-dried and sold as jackfruit chips^[26].
- The seeds from ripe fruits are edible, are said to have a milky, sweet taste, and may be boiled, baked, or roasted. When roasted, the flavor of the seeds is comparable to chestnuts. Seeds are used as snacks either by boiling or fire roasting, or to make desserts. For making the traditional breakfast dish in southern India: *idlis*, the fruit is used with rice as an ingredient and jackfruit leaves are used as a wrapping for steaming. Jackfruit *dosas* can be prepared by grinding jackfruit flesh along with the batter

27. Sagavan :-

Synonym:-tekku, *thekku*,

Biological Source :-It is a tropical hardwood tree of species *Tectona grandis*. The species is placed in the family Lamiaceae.

Chemical Constituents :- The delimitation of heartwood was made visually on each wood disk, and samples were taken at different position sevenly distributed along the radius from pith to bark: three samples in the heartwood (inner, middle, and outer positions) and two samples in the sapwood. Wood samples were ground and sieved, and the 40–60 mesh fraction was kept for analysis. Standardized Technical Association of the Pulp and Paper Industry (TAPPI) methods were used^[27].

Uses :-It is used in the manufacture of outdoor furniture, boat decks, and other articles where weather resistance is desired. It is also used for cutting boards, indoor flooring, countertops and as a veneer for indoor furnishings.

28. Ashoka tree :-

Synonym:-Sanskrit:-ashoka, Sita-ashoka, **Hindi:-** sitaashoka,ashok

Biological Source :-It is a plant belonging to the Caesalpinioideae subfamily of the legume family^[29].

Chemical Constituents :-The bark contains tannin, catechol, sterol and organic calcium compounds. Its methanol fraction contains haematoxylene, tannin, and water-soluble glycoside. The latter has glucose, galactose and mannose as sugars.

Uses :-

1. Traditional system of Indian Medicine shows it to be effective against cases like Uterine fibroids, Dysmenorrhea, Hemorrhoids and Leucorrhoea. It is the plant that is helpful for combating a great number of Gynecological disorders.
2. In general Saracaasoca is considered as best female tonic.
3. Diuretic, tonic, cooling, aphrodisiac and the dried fruits are used in cases of spermatorrhoea, phosphaturia, diseases of genito-urinary tract such as dysuria, gonorrhoea, chronic cystitis, calculus affections, urinary disorders, incontinence of urine, gout and impotence also in uterine disorders after parturition.
4. The seeds are strengthening and the ash of plant is good for external application in rheum-arthritis.



29. Bael

Synonym:-Bael, Bengal quince, golden apple, stone apple, wood apple, bili

Biological Source :-is a species of tree native to India. It is present throughout Southeast Asia as a naturalized species belonging to Family Rutaceae

Chemical Constituents :-

1. Traditional system of Indian Medicine shows it to be effective against cases like Uterine fibroids, Dysmenorrhea, Hemorrhoids and Leucorrhoea. It is the plant that is helpful for combating a great number of Gynecological disorders.
2. In general Saracaasoca is considered as best female tonic.



3. Diuretic, tonic, cooling, aphrodisiac and the dried fruits are used in cases of spermatorrhoea, phosphaturia, diseases of genito-urinary tract such as dysuria, gonorrhoea, chronic cystitis, calculus affections, urinary disorders, incontinence of urine, gout and impotence also in uterine disorders after parturition.
4. The seeds are strengthening and the ash of plant is good for external application in rheum-arthritis.

Uses :-

The fruit is eaten fresh or dried. If fresh, the juice is strained and sweetened to make a drink similar to lemonade. It can be made into sharbat (Hindi) or *Belapana* (Oriya: ବେଲପାନା) or *belpana* (Bengali: বেলেপানা), a refreshing drink made of the pulp with water, sugar, and lime juice, mixed, left to stand a few hours, strained, and put on ice. One large bael fruit may yield five or six liters of sharbat^[30].

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