Compressive Review on Some Medicinal Polyherbal Herbs: Acacia Arabica, Butea Monosperma, Aegle Marmelos, Annona Squamosa

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Abstract **- Objective: The use of poly herbal drugs for the prevention and treatment of various health ailments has been in practice from time immemorial. *Acacia Arabica,* Butea monosperma, aegle marmelos, Annona squamosa has been reported to be effective against a variety of disease including diabetes, skin disease, anti-inflammatory, anti-allergic, anticancer, astringent, demulcent, aphrodisiac, anthelmintic, antimicrobial, antidiarrhoeal, with good nutritional value in Indian traditional medicine system. This article briefly reviews the ethanobotanical as well as medicinal uses of all medicinal plants with plant description. This is an attempt to compile and document information on different aspect of A*cacia Arabica,* Butea *monosperma,* Aegle *marmelos,* Annona *squamosa* and its potential use. More studies are needed before the pharmacological properties of *Acacia arabica* can be utilized in therapy.**

Index Terms **- Acacia arabica, Butea *monosperma*, Aegle *marmelos,* Annona squamosa, plants description, biological activities.**

INTRODUCTION

Over three quarters of the world population relies mainly on plants and plant extracts for healthcare. More than 30% of the entire plant species at one time or other was used for medicinal purposes. In India drugs of herbal origin have been used in traditional system of medicine such as Unani, Ayurveda since ancient times. The Ayurveda system of medicine uses about 700 species, Unani 700, Siddha 600, Amchi 600 and modern medicine around 30 species. The plant-based traditional medicine system continuously plays an essential role in health care. These all medicinal herbs are reported to have significant different pharmacological activities. The growing popularity of natural and herbal medications, easy availability of raw materials, cost-effectiveness and the paucity of reported adverse reaction, prompted us to formulate a polyherbal topical herbs and assess its activity.

BOTANICAL DESCRIPTION

1.Acacia *Arabica*

Sysnonyms :- Acacia nilotica, Family :- Mimosaceae Kingdom :- Plantae Order :- Fabales

Subfamily :- Fabaceae Tribe :- Acacieae Genus :- Acacia Species :- Arabica

Vernacular names :- Bengali :- Babla English :- Babul Gujrati :- Babaria Hindi :- KikarKanadi :- Gobbli Malyalam :- Karivelan Marathi :- Babhul Punjabi :- Sak Tamil:-KaruvelamTelugu:-Tuma[9].

Geoghraphical Source :-

The species is general in Africa and Asia, and occurs in Australia and Kenya. Indian gum Arabic tree is found in well watered Sahelian and Sudanian savannas to the southern Arabian Peninsula, East Africa and in the Gambia, the Sudan, Togo, Ghana, and Nigeria. It is widely cultivated in the Indian subcontinent, and also found on lateritic soil in the Himalayan foothills in India[6].

Cultivation :-*Acacia Arabica* is a tropical species found all over India and occurs from sea-level to over 2000 m altitude. Prickly Acacia germinates in rainfall in the wet season. But some seeds may still germinate up to 15 years after seed drop. Seedlings grow rapidly near water but more slowly in open grasslands. It grows in average annual temperatures range from 15–28°C, being frost sensitive when young and withstanding daily maximum temperatures of 50°C. The mean maximum temperature of the hottest month is 25–42ºC and the mean minimum temperature of the coldest month 6–23°C.

Chemical constituents :- *Acacia* species contains secondary metabolites including amines and alkaloids, cyanogenic glycosides, cyclitols, fatty acids and seed oils, fluoroacetate, gums, nonprotein amino acids, terpenes (including essential oils, diterpenes, phytosterol and triterpene genins and saponins), hydrolyzable tannins, flavonoids and strong tannins . The plant is richer source of cystine, methionine, threonine, lysine, tryptophan, Potassium, phosphorus, magnesium, iron and manganese . The plant chemical compounds like diester, pentacosane dioic acid dihexadecyl ester and is alcohol, heptacosane 1, 2, 3-triol[10]. 1) Seeds: It contain high percentage of phenolic constituents consisting of m-digallic acid, gallic acid, protocatechuic and ellagic acids, leucocyanidin, m-digallic dimer 3,4,5,7-tetrahydroxy flavan-3-ol, oligomer 3,4,7- trihydroxy flavan 3,4-diol and 3,4,5,7-tetrahydroxy flavan-3-ol and (-) epicatechol. The mature seed also contains crude protein, crude fibre, crude fat, carbohydrates, potassium, phosphorus, magnesium, iron and manganese occurred in high concentrations and it is richer source of cystine, methionine, threonine, lysine and tryptophan. Fruit also contains mucilage and saponins. 2) Pods: It contains gallic acid & its Me-este-n-digallic acid and condensed tannins. 3) Leaf: It contain apigenin, 6-8-bis-D-glucoside, rutin, 8% digestive protein (12.4% crude protein). Relative levels of tannin in different parts of plant is, deseeded pods (50%), pods (5.4%), leaves (7.6%), bark (13.5%) and twigs (15.8%). 4) Bark: It contains tannin (12-20%), terpenoids, saponins and glycosides, Phlobetannin, gallic acid, protocatechuic acid pyrocatechol, (+) – catechin, (-) epigallocatechin-5,7-digallate[4].

Pharmacological action :-Antimicrobial, Antihypertensive, Antimutagenic, Antibacterial, Antifungal, Antiviral, Antidiabetic, Antioxidant, Antidirrhoel, Antiplsmodial, Antiinfertility, Antihelmintic, Anti-inflamamtory, Milk production, Cytotoxic activity[8].

Medicinal use :-All parts of these tree have been used in medicinal purpose for centuries. It has been used in an Ayurvedic medicine for more than 3000 years due to its its medicinal properties. The leaves, fruits, seeds, bark, pods, roots all parts of plant has been used in Indian Ayurvedic system and is now being used in pharmaceutical and cosmetics industries.

2 *Butea monosperma*

Sysnonyms :- Butea frondosa RoxbFamily :- Fabales Kingdom :- PlantaeOrder :- Fabales

Tribe :- PhaseoleaeGenus :- Butea Species :- Butea monosperma

Vernacular names :-

Bengali :- PalasEnglish :- Parrot tree Gujrati :- Khakra Kannada :- Muttug Hindi :Palaash

Malyalam :- Shamata Marathi :- PalashTamil :- ParasuTelugu :- Madugu

Geoghraphical Source :- Asia: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Java, Laos, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam. India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Dadra-Nagar-Haveli, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu-Kashmir, Karnataka, Kerala, Madhaya Pradesh, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal[11].

Cultivation :-The Butea monosperma plants are sowing of the Soil type: It grows on a wide variety of soils including shallow, gravelly sites, black cotton soil, clay loams, and even saline or waterlogged soils. Seedlings thrive best on a rich loamy soil with pH 6-7 under high temperature and relative. Up to 1500 m, Mean annual temperature Mean annual rainfall: 450-4500 mm.

Chemical constituents :-The main phytoconstituents of *B. monosperma* are presents in 1) flowers: butrin (1.5%), butein (0.37%) and butin (0.04%) Triterpene, isobutrin, coreopsin, isocoreopsine sulphurein, monospermoside (butein 3-e-D-glucoside), isomonospermoside, chalcones, aurones, flavonoids like palasitrin, prunetin and steroids are other phytoconstituents present in the flowers. The bark contain kino-tannic acid, gallic acid and pyrocatechin. The plant also contains palasitrin, and major glycosides as butrin, alanind, allophanic acid, butolic acid, cyanidin, histidine, lupenone, lupeol, (-)-medicarpin, miroestrol, palasimide and shellolic acid[1].

Pharmacological action :- Antimicrobial, Antiasthamatic, Antibacterial, Anticonvulsant, Antioxidant, Antidysentery, Antipyretc, Antiulcer, Antitumor, Antifungl, Astringent, Antihepatotoxic, Appetizer, Carminative, Stomach disorder, Cough and Cold.

Medicinal use :-All parts of these tree have been used in medicinal purpose for centuries. It has been used in an Ayurvedic medicine for more than 3000 years due to its its medicinal properties. The leaves, fruits, seeds, bark, pods, roots all parts of plant has been used in Indian Ayurvedic system and is now being used in pharmaceutical and cosmetics industries.

3. Annona *Squamosa*

Sysnonyms :- Annona glabra Family :- Annonaceae Kingdom :- Plantae Order :- Magnoliales Subfamily :- Fabaceae Tribe :- Abrae Genus :- Annona Species :- Squamosa

Vernacular names :- Bengali :- Ata phol English :- Sugar apple Gujrati :- Sitaphal Hindi :- Seetaphal Kanadi :- Sita phala Malyalam :- Buah nona Marathi :- Sitaphal Punjabi :- Sharipha Tamil:- SitapalamTelugu:-Sita phalamu.

Geoghraphical Source :-Annona squamosa is native to the tropical Americans and West Indies, Bahamas, Bermuda.

Cultivation :- The Annona squamosa plants are sowing of the Soil type: It grows on a wide variety of soils including shallow, sandy, deep black soil. Tropical subtropical climate with summer tempretures from 25^0c (77^0F) to 41^0c(106^0F) and mean winter tempretures above 15^0c(59^0F)[7].

Chemical constituents :- Annona suamosa leaf containing Anonaine, anolobine, aporphine, corydine,isocorydine, norisocorydine, glaucine,liriodenine, norlaureline, norushinsunine, reticuline, roemerine, samoquasine A, annosqualine.

Pharmacological action :- Antimicrobial, ,Anti-head lice effect, Antibacterial, Insecticidal, Pesticidal, vasorelaxant activity, Antifertility activity, Antipyretc, Antiulcer, Antitumor, Antifungl, Antiplatelet, Antiviral, Anhelminitic, Antiplasmodial, Mollusicidal activity, Anti-allergic activity[12].

Medicinal use :-All parts of these tree have been used in medicinal purpose for centuries. It has been used in an Ayurvedic medicine for more than 3000 years due to its its medicinal properties. The leaves, fruits, seeds, bark, pods, roots all parts of plant has been used in Indian Ayurvedic system and is now being used in pharmaceutical and cosmetics industries.

4.Aegle *Marmelose*

Sysnonyms :- Aegle *Marmelos* Family :- Rutaceae Kingdom :- Plantae Order :- Sapindales Subfamily :-

Aurantiodeae Tribe :- Abrae Genus :- Aegle Species :- Aegle marmelos

Vernacular names :- Bengali :- Bel English :- Stone apple Gujrati :- Bili Hindi :- Beal Kanadi :- bael Malyalam :- Pokok maja batu Marathi :- Kaveeth Punjabi :- Khandbahale Tamil:-Vilva maramTelugu:- Maredu.

Geoghraphical Source :- Aegle Marmelos is native across Indian subcontinent and Southeast Asia and also cultivated throughout Sri-Lanka, Tamilnadu, Thailand, Malesia Pakistan, Bangladesh, Nepal, Vietnam, Laos, Cambodia,Thailand, Indonesia, Malaysia, Tibet, Sri Lanka, Java, Philippines and Fiji. In India it is found in Sub-Himalayan tracts from Jhelum eastwards to West Bengal, in central and south India[3].

Cultivation :- The Aegle marmelos plants are sowing good sandy loam soil, sunny situation,warm humid climateare suitable for cultivation of this plants. The tree grows wild in dry forests on hills and plains, also in mixed deciduous and dry dipterocarp forests. It grows up to an altitude of 1, 200 m where the temperature rises to 48.89º C in the shade in summer and descends to -6.67º C in the winter, and prolonged droughts occur. It will not fruit where there is no long, dry season as in southern Malaysia[7].

Chemical constituents :- Tannins, Limonene, Aegelin, p- Cymene Phellandrene, Cineole, Skimmianine, Marmelosin, Marmesinin, Rutin, Sitosterol-D-glucoside, Marmeline, Y-Sitsterol, flavones, lupeol, eugenol, citral, Glycoside, Oisopentenyl, Citronellal, Cuminaldehyde phenylethyl cinnamamides, Alloimperatorin, Imperatorin Scoparone, Scopoletin, Glutamic acid, Glycine, Lysine, Magnesium compounds, Phenylalanine, Proline, Skimmin, Umbelliferone, Xanthotoxol, Essential oil: D-limonene, A-D-phellandrene, Cineol,
Citronellal, Citral, P-cyrnene, Cumin aldehyde[2].

Pharmacological action :- Antimicrobial activity, Anti-microfilarial activity, Anticancer and antiproliferative activity, Antihyperglycimic activity, Cardioprotective activity Activity in ulcerative colitis, Antifertility effect, Antidiarrheal activity, Antiviral activity, Anti-inflammatory activity, Antioxidant activity, Radioprotective activity, Nephro protective activity Immunomodulatory activity, Wound healing activity, Anti asthmatic effect, Antianxiety and antidepressant effect[4].

Medicinal use :-All parts of these tree have been used in medicinal purpose for centuries. It has been used in an Ayurvedic medicine for more than 3000 years due to its its medicinal properties. The leaves, fruits, seeds, bark, pods, roots all parts of plant has been used in Indian Ayurvedic system and is now being used in pharmaceutical and cosmetics industries.

CONCLUSION

The present literature review signifies the botanical classification, detailed study in pharmacological activity, medicinal uses, enlist all phytoconstituents present in all polyherbal medicinal plants. This ancient tree is economically, medicinally and environmentally important. Broad spectrum of biological activites is reported from several parts of the tree. This review will be useful to research community to contribute in developing scientifically validated herbal products from this trees.

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