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Review Article

A CRITICAL REVIEW ON *GUGGULU* [*COMMIPHORA WIGHTII* (ARN.) BHAND.] & ITS MIRACULOUS MEDICINAL USES

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ABSTRACT

Guggulu has been a key component in ancient Indian *Ayurvedic* system of medicine. It has been used extensively by *Ayurvedic* physicians for centuries to treat a wide variety of disorders, besides its use in pharmaceutical and perfumery industries. *Guggulu* is a gum or resin extracted from the plant *Commiphora wightii* (Arn.) Bhand. (Syn. *Commiphora mukul* Hook. ex. Stocks) or *Guggulu* tree. *Guggulu* is a shrub or small tree belonging to *Burseraceae* family. *Guggulu* contains volatile oil, gum resin, gugulipids, guggulsterones, guggulsterols, mukolol and other steroids. *Guggulu* is very much used in *Ayuvedic* system of medicine as astringent, anti-septic, expectorant, aphrodisiac, carminative, anti-spasmodic, emmenagogue. In *Ayurveda*, *Guggulu* is the best among herbs that are used for *Medoroga* and *Vata* disorders. It is widely used for obesity and it is also known as fat burning agent all over the world. It helps to lower cholesterol and triglycerides level. *Guggulu* is very effective in rheumatoid arthritis, gout and sciatica. It is also one of the most important *Rasayana* of *Ayurveda*. In addition it treats sluggish liver, stimulates libido, nervous diseases, bronchial congestion, cardiac and circulatory problems, weak digestion, wounds, abscess, foetid ear, fractures, gynaecological problems and various skin diseases. *Guggulu* is a very important and trustworthy herb in *Ayurvedic* medicine. Basically it is used almost in every kind of illness due to its amazing treating power. This review is an attempt to describe the pharmacological activities of *Guggulu* and variable uses of *Guggulu* in several diseases.

KEYWORDS: *Guggulu*, *Guggul*, *Commiphora wightii*, *Commiphora mukul*, *Burseraceae*, Gum, Resin, Medicinal use, Anti-inflammatory, Obesity.

INTRODUCTION

Commiphora wightii (Arn.) Bhand. (Syn. *Commiphora mukul* Hook. ex. Stocks), with common names Indian bdellium tree, *Gugal*, *Guggul*, *Guggulu*, is a flowering plant belonging to family *Burseraceae*. The *Guggul* plant may be found from northern Africa to central Asia, but is most common in Northern India. It prefers arid and semi-arid climates and is tolerant of poor soil. It is a shrub or small tree, reaching a maximum height of 3m, with thin papery bark. *Guggul* produces a resinous sap known as gum *Guggul*. The extract of this gum, called gugulipid or guglipid, has been used in *Ayuvedic* medicine abundantly. *Guggulu* contains essential oil, resin, gum, and bitter compounds. The major chemical constituents of *gugglu* are Z- guggulsterone, E-guggulsterone, guggullignans I & II, gugglu tetrols; mukulol; allylcembrol; c-27 guggulusterols I, II, III; Z-guggulusterol; E-guggulusterol etc. These constituents are responsible for several pharmacological activities like anti-inflammatory, analgesic, cleaning of wound and healing due to its antibacterial action. *Guggulu* is a natural health product used primarily to reduce elevated blood cholesterol levels. It has been used for many years as a hypocholesterolaemic agent in India. *Guggulu* is one of the best rewarding herbs for *Vata* diseases. Various preparations of *Guggulu* used in sciatica, hemiplegia, gout, rheumatic diseases, facial paralysis etc. *Guggulu* is beneficial in cleansing and healing of wounds and to reduce oedema due to its anti-inflammatory and anti-septic properties. In digestive ailments also like anorexia, flatulence, worm infestations, piles etc, it works well.

Vernacular Names

Table 1: Showing vernacular names of *Guggulu*

Arabic	Aflatan, Moql, Moqlearzaqi, Mukulearabi
Bengal	Gugal, Guggul, Mukul, Ranghanturb
Canarese	Guggala

Cutch	Gugal
Deccan	Gugal, Guggal, Mukul, Ranghaturb
Gujarat	Gugal, Gugali, Gugar, Guggul, Mukul, Ranghanturb
Hindi	Gogil, Gugal, Guggul, Mukul, Ranghanturb
Marathi	Guggala, Gulag, Mukul
Persian	Boejahudan
Porebunder	Gugal, Gugali, Gugar
Sanskrit	Bhavabhishtha, Bhutahara, Devadhupa, Deveshta, Dhurta, Divya, Durga, Guggulu, Jatala, Jatayu, Kalaniriyasa, Kaushika, Kumbha, Kumbhi, Kumbholu, Kumbholukhalaka, Kunti, Mahishaksha, Mahishakshaka, Marudishta, Nishadhaka, Palankasha, Pavandvishta, Pura, Puta, Rakshoha, Sarvasaha, Shambhava, Shiva, Uddipta, Ulukhalaka, Usha, Vayughna
Sind	Gugal, Guggul, Mukul, Ranghanturb
Sinhalese	Gugula, Jatayu, Javayu, Ratadummula
Tamil	Gukkal, Gukkulu, Maishakshi
Telugu	Gugul, Mahisaksh, Maisakshi.1

Guggulu is known as *Marudeshya* because it is a plant which grows in arid zone. It exudes a gum resin coming out of cavities (*Kaushika, Ulukhala, Kumbholukhala*) in form of particles (*Kananiryasa*) reddish black in colour (*Mahishaksa, Kalaniryasa*). It removes a number of ailments (*Guggulu*) particularly obesity (*Palankasa*) and is antiseptic (*Rakshoha*) as fumigation. It is also used as incense in god's worship (*Devadhupa*)[2].

Guggulu is known as *Ulukhala* because it exudes a gum-resin which comes out from cavities. The resin is the best medicine, so it is known as *Pura*. It is also known as *Durg* because it is a plant which grows in arid zone[3].

Classical Review

In *Atharvaveda* it is mentioned that *Yakshma* and other diseases will not spread to the areas fumigated by *Guggulu*. *Sayana* also introduced it as a well known *"Dhupana dravaya"*. It was used for the treatment of diseases of cattle. It is observed that the internal usage of *Guggulu* increased during *Samhita* period only[4]. *Charaka* has mentioned it in *"Sangyasthapana mahakashaya"* (Su.4/48) and in *"Kashaya Skandha"* (Vi.8/144)[5]. *Sushruta* has described *Guggulu* in *"Eladi gana"* (Su.38/24)[6]. *Vagbhata* included *Guggulu* in *"Eladi gana"*. (Su.16/37)[7]. *Sharangdhara* quoted it among the drugs to be used for *Rasayan karma*[8]. *Dhanwantari Nighantu* included it under "*Chandanadi Varga"*[9]. *Madanpala Nighantu* included it under "*Karpooradi Varga"*[10]. *Kaiydev Nighantu* has mentioned it under "*Aushadi Varga"*[11]. *Bhavprakash Nighantu* has described it in "*Karpooradi Varga"*[12]. Raj *Nighantu* included it under "*Chandanadi Varga"*[13]. *Mahaushadi Nighantu* included it under "*Chandanadi Varga*"[14]. *Shaligram Nighantu* has mentioned it under "*Karpooradi Varga"*[15].

Varities of *Guggulu*

Bhavmishra described five varieties of Guggulu - 1). *Mahishaksha* - *Mahishaksha* has the colour of honey-bee or *Anjana* (antimony sulphide). 2). *Mahanila* - *Mahanila* is similar to its name and looks like a Sapphire, a precious stone. 3). *Kumuda* - *Kumuda* resembles *Kumuda* flower (white) in colour. 4). *Padma* - *Padma* resembles *Manikya* (ruby red). 5). *Hiranya* - *Hiranya* is like gold in colour. *Mahikshaksh* and *Mahanila* varieties are beneficial to elephants, *Kumuda* and *Padma* bestow health to horses, *Hiranya* variety is best suited for humans. *Mahishaksha* is also good for humans[16].

Other two varieties of *Guggulu* has mentioned in the texts books of *Ayurveda*: 1). *Nava Guggulu* 2). *Purana Guggulu* The freshly collected *Guggulu* is tissue builder and aphrodisiac and if stored for more than one year, it is a depletory of tissues. The characters of fresh one are, it is oily, yellowish looks like a ripen *Jambu* fruit, fragnant and gummy in nature. *Purana* or old decayed *Guggulu* is dry, emitting bad smell, devoid of natural colour and potency.

Nav Guggulu is useful in debility, whereas the old variety - *Purana Guggulu* is salutary in obesity and diabetes[17,18].

According to *Kaiydeva Nighantu*, *Guggulu* are of five types: *Mahishaksha*, *Mahanila*, *Kumuda*, *Padma*, *Hiranaya*. *Kaiydeva* mentioned that *Guggulu* trees habituated in the *Maru bhumi pradesh* (*Vata pradhan desh*) will yield five types of gum-resin during *Grishmritu* as well as *Shaityaritu*. According to *Kaiydeva Nighantu* - *Krishna varna Guggulu* - best for *Rakta-pitta dosh Pingal varna Guggulu* - best for *Kapha-pitta dosh Sweta varna Guggulu* - best for *Vata-pitta dosh*[19].

Other five types of *Guggulu*, according to *Unani* system of medicine:

Mukle Saklabi - Brown in colour *Mukle arabi* - It is reddish brown or purpulish in colour and found in Yaman pradesh. *Mukle ajarak* - reddish in colour *Mukle Yahud* - yellowish in colour *Mukle* hindi - It is found in India[20].

Botanical Description

Guggulu [*commiphora wightii* (Arn) Bhand.] is a woody shrub or a small tree which grows to the height of 2-3 metres, much branched with characteristics silvery and paper like bark-peelings. Branches are knotty and crooked, divaricate, usually ending in a sharp spine.

Leaves: The leaves are rhomboid-ovate, 1-3 foliate, serrate-toothed in the upper part, smooth and shinning, the lateral leaflets when present less than half the size of the terminal ones.

Flowers: Flowers in the fascicles of 2-3; pedicles very short. Calyx campanulate, glandular, hairy; lobes are 4-5 in number, triangular, as long as the tube. Petals are brownish red, broadly linear, nearly thrice the length of the calyx, reflexed at the apex. Stamens are 8-10 in number, alternatively long and short, half the length of the petals. Disk, 8-10 lobed, the alternate sinuses deeper and in these are inserted the shorter stamens. Ovary oblong-ovoid, attenuated into the style.

Fruits: The fruits are small, red in colour when ripe, ovoid drupes. Each plant produces about 0.5 to 1kg of oleo-gum resin which is collected from January to March.

Gum Resin: Pale yellow to brown aromatic gum resin obtained from the bark of the plant. Agglomerated tears of resin are somewhat transparent, with waxy surface and brittle in nature. Gum-resin is thick, scented, burnt on fire, liquifies in sun heat. When dissolved in water, it turns milky white[21,22,23].

Chemical Constituents

In its chemical composition volatile oil, resins, gum and a bitter compound is found. Five types of guggul sterols, Z-guggul sterone, E-guggulsterone, guggul sterol - I, II, III, sesamine, cholesterol, mucolol and other steroids are also found. Monocyclic diterpenes- alpha - camphorene and cembrene isolated from resin; allylcembrol isolated from plant and characterized (Chem Abstr. 1972,77, 111554 t). Three new steroids - guggulsterols I,II,III are isolated from gum resin (Tetrahedron 1972, 28, 2341). Cembrene A isolated from resin and characterized (Tetrahedron 1973, 29, 341). Isolation and structure elucidation of two aliphatic tetrols - octadecan - 1, 2, 3, 4 and eicosan - 1, 2, 3, 4 - tetrol from gum resin (Tetrahedron 1973, 29, 1595). Guggulsterol VI and Z - guggulsterol isolated from gum resin (Tetrahedron 1982, 38, 2949)[24].

Macroscopic and Microscopic Features

a) Macroscopic Drug occurs in vermicular pieces of pale yellow or brown coloured mass, makes milky emulsion in hot water and readily burns, when fresh viscid and golden coloured, odour; aromatic, taste is bitter and astringent.

b) Microscopic Foreign matter Not more than 4 %; Total Ash Not more than 5 %; Acid-insoluble ash Not more than 1%; Alcohol-soluble extractive Not less than 27 %; Water-soluble extractive Not less than 53%; Volatile oil Not less than 1%, v/w.[25]

Distribution

The *Guggul* plant may be found from northern Africa to central Asia, but is most common in Northern India. It is also found in the tracts of Western India and found extensively in Rajasthan, Gujrat, and Maharashtra. It is propagated by seeds and root cuttings[26,27,28].

Cultivation

Guggulu is sought for its gummy resin, which is harvested from the plant's bark through the process of tapping. In India, *Guggulu* is cultivated commercially. It can successively be propagated by vegetative means. The rooting initiates 21 days after sprouting and 300mm, long 15 and 15mm diameter cutting gives the maximum rooting. As it is a plant of arid zone, there is no necessity of irrigation upto the middle of November except during drought. However, if there is the winter shower, there is a necessity of irrigation to plants of one to five years of age group. The plants of 6-7 years of age group require irrigation only in summer season. Irrigation can be done either by head load method or water tank method[29,30].

Endangerment and Rescue

Because of its medicinal properties, *guggul* has been overharvested in much of its habitat, and has been listed on the IUCN Red List of threatened species. Several efforts are in place to address this situation. India's National Medicinal Plants Board launched a project in Kutch District to cultivate 500 to 800 hectares (1,200 to 2,000 acres) of *Guggal*, while a grass-roots conservation movement, led by IUCN associate Vineet Soni, has been started to educate *Guggul* growers and harvesters in safe, sustainable harvesting methods[31].

Substitutes and Adulterants

Oleo-gum resin obtained from *Boswellia serrata* Roxb. (*Salai guggulu*) is the major adulterant. It is distinguished by its yellowish green, golden or milky tears, seldom amalgamated into lumps and a characteristic terpentine like odour. Gum-oleo-resin of *Commiphora myrrha* (Nees) Engl., imported from Africa and constituting the drug Hirabole or bole of commerce is sometimes mixed with *Guggulu*. Similarly, gum-oleo-resin obtained from *Commiphora roxburghii* (Arn) Engl., Occurring in

central and eastern India is sold by the name of *Guggulu*. The former is distinguished by large tears of yellowish brown colour, exposing, on fracture, a brown surface having white markings, while the latter has a bluish tinge and a feeble balasmic odour[32].

Ayurvedic Properties and Pharmacological Actions[33]

According to *Ayurveda* Literature, *Raspanchak* of *Guggulu* are

Rasa	:	*Tikta*, *Katu*
Guna	:	*Laghu*, *Ruksha*, *Tikshna*, *Vishad*, *Sukshma*, *Sara*, *Sugandhi* (*Purana Guggulu*), *Snigdh*, *Picchala* (*Naveen Guggulu*)
Virya	:	*Ushna*
Vipak	:	*Katu*
Prabhav	:	*Tridoshhar*

According to *Bhavprakash Nighantu*, *Ayurvedic* properties of *Guggulu* are: - *Guggulu* is *Vishad* (non-unctuous), *Tikta* (bitter), *Ushna Virya* (hot in potency), increases *Pitta*, *Sara* (laxative), *Kashaya* (astringent), *Katu* (pungent) in taste, *Katu* in *Vipak* (pungent after digestion), *Ruksha* (causes dryness) and *Laghu* (light). *Guggulu* is *Bhagna-sandhankrid* (Unifies fracture), *Vrishya* (aphrodisiac), *Sukshma* (enters into minute pores), *Swarya* (improves voice), *Rasayana* (rejuvenative), *Dipan* (appetizer), *Balya*, mitigates *Kapha* and *Vata*, cures *Apachi*, *Medo rog*, *Meha*, *Ashmari*, diseases of *Vata*, *Pidika*, *Granthi*, *Shof*, *Arsh*, *Gandmala*, *Krimi rog*. It mitigates *Vata* by its *Madhuraya* (sweet taste), *Pitta* by its *Kashayatava* (astringent taste) and *Kapha* by its *Tiktatvata* (bitter taste), so *Guggulu* mitigates all the *Doshas*[34].

According to *Raj Nighantu*, *Guggulu* is *Katu* (pungent), *Tikta* (bitter) in *Rasa* (taste) and *Ushna* (hot) in *Virya* (potency). *Guggulu* is extremely beneficial in the diseases of *Vata* and *Kapha doshas* and *Kasa rog* (cough). It also cures the *Krimi rog*, *Vata rog*, *Udar rog*, *Pliha rog*, *Shoth* and *Arsh*. It has a special potency as a rejuvenative (*Rasayan*)[35].

Purification of *Guggulu*

Traditionally *Guggulu* is purified in *Triphala kvatha* for 3 hours (in *Dola Yantra*) and then fried with ghee before administered internally. According to *Nighantu Ratanakar* decoctions of *Guduchi*, *Triphala*, and Cow's milk are to be used for purification[36].

Research Studies

Anti-inflammatory and Anti-arthritic activity

- Oleoresin was found to be highly potent anti-inflammatory agent, as compared to hydrocortisone and butazoladin against Brownlee's for maldehyde-induced arthritis in albino rats (Gujral et al; 1960)[37].
- Oleoresin fraction possesed significant anti-arthritic and anti-inflammatory activities, the minimum effective dose being 12.5mg/100g body weight. Only the acidic fraction showed significant activity while the monoacid and solid fractions were inactive. (Santhakumari et al; 1964)[38].
- The Steroidal compound isolated from PE extract possessed significant anti-inflammatory activity on carrageenin-induced rat-paw oedema (Arora et al; 1971, 1972)[39,40].

Antifertility activity

- Oleoresin of gum *Guggulu* is found to cause also a reduction in the weight of the uterus, ovaries and cervix with a concomitant increase in their glycogen and sialic acid levels, thereby showing that it might be useful as an antifertility agent (Amma M.K.P. et al; 1978)[41].

Anti-atherosclerotic activity

- Effect of gum *Guggulu* was observed on serum cholesterol, fibrinolytic activity and platelet adhesive index in healthy individuals (group I) and in patients of CAD (group II) for a period of 30 days. Serum fibrinolytic activity improved by 22% and 19% at the end of 24hrs, as after 30 days it was 40% and 30% in group I &II respectively. Platelet adhesive index showed 22% and 19% after 30 days in group I and group II respectively. Serum cholesterol did not decrease significantly (Bordia & Chutanni, 1979)[42].

Anti-obesity activity

- Crude *Guggulu* was found to reduce the body weight of hydrogenated ground-nut oil treated rabbits (Satyavati et al; 1969 b)[43].
- Preliminary clinical trials on 22 patients of hypercholestrolaemia associated with obesity, IHD, HTN, DM etc. *Guggulu* crude was administrated orally (6.12mg in three divided doses for 15 days to one month. A fall in total serum cholesterol and serum lipid-phosphorus was found in all the cases treated with *Guggulu*. The body weight of 10 patients of obesity also found to be reduced significantly (Satyavati, 1966)[44].

Hypolipidemic/ Hypocholesterolaemic activity

- Crude *Guggulu* was reported to possess highly encouraging hypolipaemic activity in rabbits (Satyavati, 1966)[44].
- Anion exchange property detected by means of chloride retention and bile acid

sequestrating activity in the oleoresin fraction hypocholesterolaemic activity (Satyavati et al; 1969)[45].

- Crude drug as well as its two fractions (alcohol soluble and alcohol insoluble) were found to cause a significant fall in serum cholesterol and serum turbidity with a concomitant increase in the coagulation time and prothrombin time. The alcohol insoluble fraction was slightly more potent in this respect than alcohol soluble fraction as well as crude *Guggulu* (Sastri, 1967; Tripathi et al; 1968)[46].
- PE fraction A (petrol-soluble), B (alkali washed neutral portion) and C (petrol-insoluble) were given to 8 week old male white leg horn chicks for 2-3 weeks in hypercholesterolaemia induced by atherogenic diet. All fractions lower the serum cholesterol, but fraction A is most potent and B is the least potent (Mehta et al; 1968; Mehta & Malhotra, 1970)[47].
- Alcohol extract and two pure fractions (a terpenoid and a steroid) isolated from the PE extract showed that the steroid fraction was highly potent as hypolipaemic agent lowering the serum cholesterol by 69.3% as well as the c/p ratio. The alcohol extract could lower the cholesterol by 59.2% whereas the Terpenoid lowered it by 54.3% (Malhotra et al; 1970)[48].
- The alcohol extract of *Guggulu* when orally administrated to Indian domestic pigs kept on standard atherogenic diet over a period of six weeks effectively reduced the total serum cholesterol and also serum beta-lipoprotein fraction and significantly altered the lipoprotein ratio (Khanna et al; 1969)[49].
- The steroidal compound isolated from fraction A of PE extract reduced the lipid content (Viz., total lipids, cholesterol, TG and phospholipids) of both hepatic and aortic tissues. The response was doses-dependent and the maximum effect was noted at 10mg/kg (Malhotra & Ahuja, 1972)[50].
- Fraction A of PE extract of *C. mukul*, effectively lowered serum lipids, cholesterol, phospholipids and triglycerides in monkeys fed with cholesterol diet (Das et al., 1973)[51].
- Alcoholic extract (25-50 mg/kg orally), reduced serum cholesterol level in normal and hyperlipaemic rats and rabbits. Further, a resin fraction, a pure steroid and fraction F isolated from crude extract showed hypocholesterolaemic effect on normal and triton-induced hyperlipaemic rats (Kapoor and Nityanand, 1971, Nityanand and Kapoor, 1971)[52,53].

Medicinal Uses

The "*Niryasa*" means gum-oleo resin, of the *Guggulu* plant is used for medicinal purpose, both internally as well as externally[54].

***Sthaulaya* (Obesity)**

- In obesity, use of *Rasanjana*, *Brahat Panchmula*, *Guggulu*, *Shilajatu* and *Agnimantha* is beneficial[55].
- In case obesity has set in, one should use regularly *Shilajatu*, *Guggulu*, *Gomutra*, *Triphala*, *Lauha-Bhasma*, *Rasanjana*, honey, barley, *Mudga*, *Kodrava*, *Shyamaka*, *Vanakodrava* etc. which are rough and reduce fat[56].

Udararoga

- One should use *Guggulu* as *Shilajatu* is used i.e., use of *Guggulu* with milk is beneficial in *Udar* rog[57].
- Use of *Shilajatu*, *Gomutra*, *Guggulu*, *Triphala*, and *Snuhi* latex alleviates *Udararoga*[58].

***Shotha* (Oedema)**

- One should use *Guggulu* with *Gomutra* or decoction of *punanava*[59].
- *Guggulu* or *Haritaki* should be used with *gomutra*[60].
- *Guggulu* destroys oedema taken with decoction of *Punarnava*, *Devdaru shunthi* or *Gomutra* or *Dashmula* decoction[61].
- Those suffering from oedema should use *Guggulu* with *Go-mutra* or *Pippali* with milk or *Haritaki* or *Shunthi* mixed with jaggery[61].

Vatavyadhi

- Use of all *Rasayanas* particularly of *Shilajatu* and *Guggulu* with milk is beneficial[62].
- *Guggulu* is the best remedy for *Vata* covered by *Medas*[63].
- *Gridhasi* (Sciatica): *Rasna* 40 gm and *Guggulu* 200 gm are pounded with ghee and made into pills. It alleviates sciatica[64].
- *Krostushirsha* (arthritis of knee joint): In *Krostushirsha*, *Guggulu* or *Guduchi* with *Triphala* decoction; or castor oil or *Vriddhadaruka* with milk should be taken[65].

Urustambha

- *Guggulu* with *Gomutra* is a good remedy for *Urustambha*[66].
- In *Urustambha*, one should take *Shilajatu* or *Guggulu* or *Pippali* or *Shunthi* with *Gomutra* or decoction of *Dashmula*[67].

***Amavata* (Rheumatoid arthritis)**

- One should use regularly *Haritaki*, *Guggulu*, and *Shilajatu* with go-mutra[68].

- Intake of *Guggulu* with equal quantity of *Trikatu*, *Chitraka*, *Musta*, *Triphala*, and *Vidanga* destroys all disorders caused by *Medas*, *Kapha* and *Amavata*[68].

***Vatarakta* (Gout)**

- The diseases can be controlled by regular use of *Shilajatu*, *Guggulu* and honey[69].
- Use of all *Rasayanas* particularly of *Shilajatu* and *Guggulu* with milk is beneficial[70].

***Vidradhi* (Abscess)**

- The patient should use *Shilajatu*, *Guggulu*, *Shunthi*, and *Devdaru* with decoction of the group of drugs according to (predominance of) *Dosha*[71].
- In all types and conditions of abscess, *Guggulu* should be used with suitable decoctions (according to *Dosha*). Similarly should be used *Shilajatu*[72].
- In abscess caused by *Vata*, *Guggulu* or castor oil should be taken[73].
- In case of *Kaphaja Vidradhi*, one should take *Guggulu* with decoction of *Triphala*, *Shigru*, *Varuna*, *Dashmula* or with *Gomutra*[74].

Wound

- *Guggulu* and *Triphala* is one of the great combinations in treating, orally, the non-healing chronic wounds[75].
- Anti-inflammatory and antiseptic properties of *Guggulu* are beneficial in cleansing and healing of wounds and to reduce oedema. For such, the paste of its gum is applied in the cases of gout, rheumatic joints, glandular swelling and even piles[76].

***Vriddhi rog* (Scrotal enlargement)**

- One should take *Guggulu* or castor oil with *Gomutra*. By this chronic scrotal enlargement caused by *Vata* is destroyed[77].

Foetid ear

- Fumigation with *Guggulu* is a good remedy[78].

Bronchial asthma

- *Shallaki*, *Guggulu*,*Aguru* and *Padmaka* mixed with ample ghee is used for fumigation[79].

Amlapitta

- Use of *Guggulu* with decoction of *Vasa*, *Nimba*, *Patola*, *Triphala* and *Guduchi* controls *Amlapitta* having predominance of *Kapha*[80].

Apathya

According to *Bhavmishra* those who consume *Guggulu* should avoid *Amla dravaya*, *Tikshna dravaya*, *Ajirna bhojan*, *Vyavaya, Shrama*, *Atapa sevan*, *Madya*, *Rosha*, to be benefited properly[81].

Side Effects of *Guggulu*

According to *Priya nighantu*, excess dose of *Guggulu* leads to *Klaivaya* (impotency), *Mukhshosh* (dryness of mouth), *Timira* (cataract), *Krishta* (loss of weight), *Murcha* (vertigo) and *Atisara* (dysentery) etc. *Guggulu* should not be used in patients with above complaints[82].

Vriddha Vaghbhata described that about 1 Tula (100 *Palas*) of *Guggulu* may be consumed for *Rasayan* purpose. If administered in extensive quantities side effects like: *Timira* (cataract), *Klavaiya* (impotency), *Krishta* (weight loss), *Murcha* (syncope), *Shathilya* (laxity of tissue), *Roukshya* (dryness) may develop[83].

Ayurvedic* Preparations of *Guggulu

Triphala guggulu, *Yogaraj* and *Mahayogaraj guggulu*, *Chandraprabha vati*, *Simhanada guggulu*, *Gokshuradi guggulu*, *Kanchanara guggulu*, *Amritadi guggulu*, *Lakshadi guggulu*, *Kaishora guggulu*, *Navaka guggulu*, *Satdharana yoga*[83,84].

CONCLUSION

From this paper it is concluded that, *Guggulu* is one of the oldest and most famous herb in *Ayurvedic* medicine. *Guggulu* is a multi-purpose drug and because of its magical properties, it is very beneficial in so many diseases. *Guggulu* has several uses which are supported by various researches done by researchers throughout the world. These findings could open a new window on the use of this plant in *Ayurveda*.

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