



## In Recent era: Indication of Guggulu (*Commiphora wightii*) IN Human disorders

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### KEYWORDS :

At the time of Globalization, the developing country like India & China is known for its Traditional Medicine. Traditional Medicine of India is known as a Ayurveda by most of the people.

Ayurveda is the ancient Indian System of Health Care & Longevity. Ayurvedic treatment of a disease consists of salubrious use of **drugs**, diets, and certain practices. Medicinal preparations are invariably complex mixtures, based mostly on **plant products**. Many Indian medicinal plants have come under scientific scrutiny since the middle of the nineteenth century, although in a sporadic fashion. With the gradual coming of age of chemistry and biology, disciplines central to the study of biologic activities of natural products, many Ayurvedic plants have been reinvestigated.

Guggulu occupies a pivotal position in Ayurvedic texts as well as in alleviating the sufferings of ailments humanity in modern era.

#### Guggulu has dynamic medicinal properties as in 'Arthavaveda' it is mentioned that:-

'As ("Yakshma" (disease), it cannot appear in sun light. Guggulu is the best medicine for it, because it develops through the rays of hot sun on specific circumstances.' (Arthavaveda: Ka. 19, Su. 38)

#### Source of Guggulu:-

*Commiphora wightii* Engl. (synonyms: *Commiphora mukul* and *Balsamodendron mukul*), is a small tree of the Burseraceae fam-

ily that is indigenous to India. It grows wild in the semi-arid states of *Rajasthan, Gujarat, and Karnataka* in India. According to Bhavprakash Nighantu five type of Guggulu is found. Only "Hiranyanamak Guggulu" is beneficial in Human disorder.

The classical treatise of Ayurvedic Medicine: (Maharishi Sushrut, Acharya Charak, Acharya Vagbhatt & various Nighantu), is described the use of Guggulu on wide variety of conditions. Like:- Medohar (Anti-Obesity), Hridaya (Antihypertensive, Hypolipidemic, Atherosclerosis), Vatajit:- Sandhivata (as in Osteoarthritis), Rasayan (antioxidant), Granthi (Nodular-cyst), Sothhar (Anti-inflammatory), Gand (Hypothyroidism) Prameh (Diabetes), Krimighan (antibiotic), Bhagandra (Fistula), Switra (Leucoderma), Kasa (Cough), Swarya (Speech fluency), Arbuda (Tumour), Udar Roga (Disease of Abdomen), Deepan (Appetizer) etc.

In recent era scientists are tried to re-establish Guggulu's properties on their parameters. Extensive scientific researches have been done on *Commiphora mukul* (wightii) resin & its active ingredient which is reported by various scientific journals & Internet websites. Its various products are also available at the market of various countries as a medicine. Here some established properties of Guggulu by Modern Researches w.s.r to Ayurvedic references are tabulated below -:

SN	Karma of Guggulu	Reference in Ayurvedic texts	Properties	Researches done by scientists
1	Sopha-gghan	Sushrut S.Ci.5/45, Kaideva Ni.Ous.v.-419, Mahaousadha Ni.-12, Madanpal Ni.-48	Anti-inflammatory	1. Oleresin is found anti inflammatory properties compared to Hydrocortisone & Butazoladin against Brownlee's formaldehyde-induced arthritis in albino rats(Gujral et al; 1960) 2. Two compound of Guggulu as a antiinflammatory on in Carrageenan –induced rat paw edema modle by M.S. Baugal, H.Srinivasa, N.S. Kanaki, M. Rajani. B.V. (PERD) Centre Thaltej Ahmedabad
2	Medohar	Sushrut S.Ci.5/41, Charak S. Su 25 Kaideva Ni.Ous.v.-419, Mahaousadha Ni.-12, Priya Ni.-78	Reduce obesity	1. Effects of a standardized Guggulsterone phosphate supplement on body composition in overweight adults: a pilot study. <i>Curr Ther Res</i> 1999;60:220-227. by Antonio J, Colker CM, Torina GC, et al 2. Conceptual and methodologic challenges of assessing the short-term efficacy of Guggulu in Obesity: data emergent from a naturalistic clinical trial. <i>J Postgrad Med</i> 1995;41(1):5-7. 3. In humans, three months of Guggul treatment resulted in lower levels of total cholesterol (average 24 percent) and serum triglycerides (average 23 percent reduction) in the majority of patients. (Health centre .com)
3	Rasayan	Sushrut S.Ci.5/41, Sodal Ni. Guna S./ Chandanadi V./363, Kaideva Ni.Ous.v.-419, Madanpal Ni.-48	Anti-oxidant	1. Describes the Antioxidant and Cancer chemopreventive roles of <i>Commiphora mukul</i> . The invention relates to a composition and method for products extracted from <i>Commiphora</i> species. by Sabinsa Corporation Patent # 6,436,991 2. Hypolipidemic and Antioxidant effects of <i>Commiphora mukul</i> as an adjunct to dietary therapy in patients with Hypercholesterolemia. <i>Cardiovascular Drugs Ther</i> 1994;8(4):659-664. by Singh RB, Niaz MA, Ghosh S.
4	Gand	Kaideva Ni.Ous.v.-419, Madanpal Ni.-48	Hypo-thyroidism	1. Guggulu ( <i>Commiphora mukul</i> ) potentially ameliorates Hypothyroidism in female mice. <i>Phytother Res.</i> 2005 Jan;19(1):78-80. 2. Guggulsterones are reported to stimulate the Thyroid, which might tend to have a beneficial effect on holesterol for people with underactive Thyroid glands. (Health centre .com)
5	Sandhi vata (Vatajit)	Sushrut .Ci.5/41, Charak S. Su 25 Kaideva Ni. Ous.v.-419, Mahaousadha Ni.-12, Priya Ni.-78	In Osteo-arthritis	1. Guggulu appears to be a relatively safe and effective supplement to reduce symptoms of OA.: an outcomes study. By Singh BB., Southern California University of Health Sciences, USA. <i>Altern Ther Health Med.</i> 2003 May-Jun;9(3):74-9 2. Usefulness of Guggul ( <i>Commiphora mukul</i> ) for osteoarthritis of the knee:an experimental case study. <i>HealthMed</i> 2001;7(2):120,112 114 by Singh BB, Mishra L, Aquilina N et al

6	Hridya	Sushrut S.Ci.5/40	Anti-hypertensive Hypo-lipidemic, Anti-ischemic, Athero-sclerosis, In Blood -Pressure, Reduce Cholesterol, In	<ol style="list-style-type: none"> <li>1. It was more than forty years ago that Dr G. V. Satyavati, first reported the Hypolipidemic action of Guggul in a doctoral thesis submitted to the B.H.U. Dr Satyavati tried Guggul on Hypercholesterolemic rabbits, their obesity reduced as well.</li> <li>2. Guggul also protects the heart: In animals challenged with drugs that damage heart tissue, Cardiac enzymes did not change significantly when the experimental animals were pretreated with Guggul. (Health centre .com)</li> <li>3. Pharmacological and Clinical studies of Guggulu (Commiphora wightii) in Hyperlipidaemia/Lipid Metabolism by Central Council for Research in Ayurveda and Siddha</li> <li>4. Use of Pushkar-Guggul, an indigenous Antisclerotic combination, in the management of Ischemic Heart disease. Int J Pharm 1993;31(2):147-160. by Singh RP, Singh R, Ram P, et al.</li> <li>5. Rhabdomyolysis caused by Commiphora mukul, a natural lipid-lowering agent. Ann Pharmacother 2004;Jul-Aug, 38(7-8):1222-1225. by Bianchi A, Cantu P, Firenzuoli F, et al.</li> <li>6. Gugulipid, a new Hypolipidaemic agent, in patients of acute Ischaemic Stroke: effect on clinical outcome, platelet function and serum lipids. Asia Pacif J Pharm 1997;12:65-69. by Gaur SP, Garg RK, Kar AM, et al.</li> <li>7. The data were re-analyzed from by JAMA in August of 2003, it was discovered that Guggulu was able to lower fasting blood sugar, blood pressure, insulin levels, and Guggulu had anti-inflammatory activity, reducing the levels of C-reactive protein.</li> <li>8. The combination of Antioxidant (LDL oxidation) and lipid-lowering properties of Guggul and Guggulsterone makes them especially beneficial against Atherogenesis. 2004 Feb;172(2):239-46.</li> <li>9. The National Chemical Laboratory (Pune, India) in collaboration with the pharmacology team of the Central Drug Research Institute (Lucknow, India) isolated and chemically characterized the Hypolipidemic compounds of the Oleogum resin of Guggul</li> </ol>
7	Granthi	Sushrut S.Ci.5/41, Kaideva Ni.Ous.v.-419, Madanpal Ni.-48, Mahaousadha Ni.-12	Nodulo-Cystic Acne	20 patients with Nodulocystic Acne were randomly given either 500mg of Tetracycline or doses of Gugulipid with 25mg Guggulsterone. Both groups produced a progressive reduction in lesions. Those on Tetracycline showed a 65.2% reduction compared with a 68% reduction with the Gugulipid. The three-month follow-up showed relapses in 4 cases of Tetracycline and 2 cases of the Gugulipid patients. Bianchi A, Cantu P, Firenzuoli F, et al.

In Ayurvedic texts it is also mentioned that if Guggulu is not used properly than it may create adverse effect on the body. Like in Bhavprakash Nighantu, it is said that during ingestion of Guggulu there is a specific life style we have to follow it. ie. :-

*"Amlam tishnamjeernashcha vyavaaym shrammtapam*

*Madhaym rosam tyajetsamyaga gunarathi purasevakah"*

#### (Bh.Pr.Ni.-Kapuradi /45)

It means to get better result of Guggulu; one should restrict use of Amla rasa, Tikshan, Ajiranakarak Dravya in Food, Exercise, Drinking Alcohol, anger, and Exposure at Sunlight.

**Over dose of Guggulu** may causes, symptoms like Klaihya, Shosa, Timira, Karshya, Prameha, and Atisara. As per Priya Nighantu:-

*"Atimaatra pryuktastu kurute vividhan gadaana*

*Klaihyaasyashosatimir kasharyamohaatisaarkaan"* (Priya Ni - 80)

Like Ayurvedic text, modern scientist also find Guggulu's adverse effects.

#### **Guggulu's adverse effect-**

##### **A. Penile Dysfunction (Klaihya):-**

South Carolina scientists conducted a study of more than 3,200 healthy men between the ages of 25 and 83. The men with total cholesterol over 240 mg/dl had close to double the risk of penile dysfunction as men with readings of 180 mg/dl. Also those with HDL readings of 60 mg/dl or greater were less likely to develop penile dysfunction than the men with less than 30 mg/dl HDL.

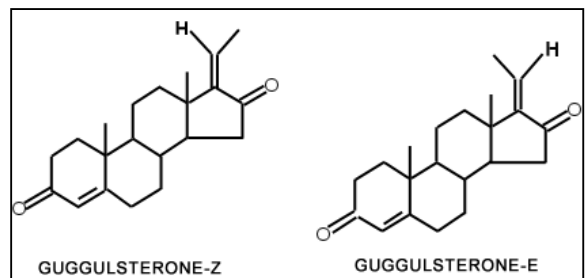
##### **B. Dermatological Hypersensitivity:-**

Guggulipid for the treatment of hypercholesterolemia: a randomized controlled trial JAMA. 2003 Aug 13; 290(6):765-72.:- Double-blind, randomized, placebo-controlled trial using a parallel design, conducted March 2000-August 2001 INTERVENTION: Oral, 3 times daily doses of standard-dose Guggul (1000 mg), high-dose Guggul (2000 mg), or matching placebo. CONCLUSIONS: Despite plausible mechanisms of action, Guggul did not appear to improve levels of serum cholesterol over the short term in this population of adults with hypercholesterolemia, and might in fact raise levels of LDL-C. Guggulipid also appeared to cause a Dermatologic Hypersensitivity reaction in some patients.

#### **C. Drug Interactions:-**

Guggul and Prescription Drugs:-The Journal of Pharmacology and Experimental Therapeutics, August 2004. Guggul may interfere with many prescription drugs, including the popular Anti-Cholesterol drugs called Statins. In a preliminary study, Guggulsterone, the active ingredient in the herbal remedy Guggul, causes changes in human and rodent cells that induce the body to break down many drugs, including cancer drugs and AIDS medications. Guggulsterone likely affects other drugs because it binds to a protein known as pregnane X receptor (PXR). Some anticancer drugs, such as cyclophosphamide, need to be broken down by PXR to become active. Guggulsterone may interfere by augmenting that process, thereby raising levels of the drugs in the body. Moreover, Guggulsterone appears to also turn some other drugs, such as acetaminophen, into toxic compounds. Guggulsterone has been used for years, and is likely safe if people are not taking any prescription medications. However, guggulsterone should be used cautiously by people who take prescription drugs.

*(Many scientist gets these adverse effects on Guggulu's active ingredient as the bioactive compound. ie. - E & Z Guggulsterones.*



**Beside these bio-active ingredients number of other inactive terpenoids is also found in Guggulu. It is further documented that the biological activity of the E- & Z- Guggulsterones is enhanced if the Guggulsteron not separated from the other inactive terpenoids. )**

#### **Some product of Guggul available in market:-**

- Gugulipid® Granules, Granules, Soft Extract products from Sabinsa
- "Guggul Lip" from "Tattva's Herbs" Natural Nirman
- Morpheme "Shuddha Guggulu" (Guggul Extract)
- Guggul (6% Guggulsterones E & Z), 60 Vcaps- Nature's way
- Gugulmax - 1000 mg 50 caps
- Guggul Lipid Extract, 60 caps: W
- Guggul Cholesterol Compound™, 42 tabs: W

**Conclusion:-**

With above description, it is concluded that Commiphora wightii is significant contribution of Ayurveda to the modern medicine. Above mention researches shows that Guggulu is well established drug by modern scientist as Anti-inflammatory, Anti-obesity, Anti-oxidant, Hypo-thyroidism, Anti-hypertensive, Anti-athero-scleroti, Hypo-lipidemic, Anti-ischemic etc. But yet there is some uses of Guggulu are left for analysis by modern science

modern scientists also find that its adverse effects like penile dysfunction, drug interaction, skin hypersensitivity mentioned in ayurveda

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