

Review article

GUGGULU – AN AYURVEDIC MEDICINE

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Abstract

Guggulu is an oleogum resin that exudes spontaneously as a result of injury from the bark of *Commiphora wightii* Bhandari (Syn: *Commiphora mukul* Hook. ex Stocks or *Balsamodendron mukul* Hook. ex Stocks). In Ayurveda, guggulu enters into the preparation of several compound medicines most of which are named with the suffix 'guggulu'. It is a complex mixture of steroids, diterpenoids, aliphatic esters, carbohydrates, amino acids and variety of inorganic compounds. Traditionally it is used to treat arthritis, obesity, and other disorders. Guggul has been shown to lower cholesterol and triglycerides. It is observed that purified *guggulu* is used in different *guggulu* formulations in various disease conditions with or without specific *anupana*. The formulation concept of *guggulu* in Ayurveda is seen from Charakas period to till date. It was used for better pharmacokinetic and polyvalent effects with multiple mechanisms of drug action when combined with other herbs. In this article, an attempt was made to compile and allain the formulations of guggulu formulations in different srotas based on its Prime action along with information regarding chemical constituents, pharmacological activities, toxicity and adverse reactions of guggulu.

Keywords: Guggulu, *Commiphora wightii*, chemical constituents, pharmacological activities, adverse reactions

Introduction

Guggulu is an oleogum resin that exudes spontaneously as a result of injury from the bark of *Commiphora wightii* Bhandari (Syn: *Commiphora mukul* Hook. ex Stocks or *Balsamodendron mukul* Hook. ex Stocks). Guggul, more popularly known as Bdellium, is derived from the gummy resinous exudate of a plant closely related to myrrh that is found in arid to semi-arid areas of Northern India, Bangladesh and Pakistan [1]. The Sanskrit definition of the term "guggul" is one that protects against diseases. This attests to the wide respect and therapeutic Ayurvedic applications for this botanical, considered the most important for the removal of "ama," toxic substances which accumulate as a result of sluggish digestion [2]. Guggul is a resin, the major ingredient in joint care and immune care that has been regarded as a remedy in Ayurvedic medicine, well known for its strong immuno-modulating properties [3]. Guggul is one of the "broad spectrum" drug with a wide range of benefits. Mode of action makes this product very helpful not only in protecting against the common cold but also in various other conditions. In addition, lower cholesterol and triglycerides, while maintaining the HDL to LDL ratio has long known Guggul [4].

Review of Literature

During Vaidika kaala

Guggul is described as "Agni Sthana" and used for 'Dhupa'. In Atharva Veda, it is mentioned that Yakma and other diseases will not spread to the areas fumigated by Guggulu. 'Sayana also introduced it as a well-known 'Dhupana dravya'. It was used for the treatment of diseases of cattle [5].

During Samhita Kaala

It is observed that the internal usage of Guggul increased during Samhita period only. Acharya Charaka included Guggul in "Sangya Sthapana Maha Kashaya" (Ca: Su. 4/48) [5]. Dhupana in the treatment of Tamakaswasa (Ca:ci:17/80)[6] and in "Kashaya Skandha" (Ca: Vi.8/144) [7].

Maharishi Sushruta has described Guggul in the list of seven most important drugs for the treatment of Sthaulya (Su. 15/32) [8]. The drug is also mentioned as highly effective in the treatment of Vrana as a fumigating agent (Su. 5/18)[9], Kushtha (Chi. 9/6)[10], Vidradhi (Chi. 16/33)[11], Pratisaranartha (Chi. 22/5)[12], Shotha (Chi. 23/12)[13], Gulma (Utt. 42/63)

[14]. He has prescribed Guggul with Go-mutra in the condition of vitiated Vata with Medodhatu dominated Kapha dosha (Chi. 5/34) [15].

Acharya Vagbhata has described Guggulu is a drug of choice for Medoroga and Vata vikaras. He has also quoted its Medohara action along with other drugs like Shilajatu, Rasanjana and Brihat panchmula (A. H. Su. 14/23) [16]. He has also used Guggul in Sneha vyapada chikitsa (A. H. Su. 16/34) [17] and prescribed Guggulu in diseases produced due to vitiated Vata, Kapha, Medodhatu and in Amavata (A. H. Chi. 21/50) [18]. Vagbhata has also mentioned Guggul in the list of selected drugs for the treatment of diseases like Kushtha, Prameha, Shopha etc.

Acharya Vriddha Vagbhata has quoted that Guggulu was evolved as "Amrita" by Lord Vishnu during Devasur Sangrama for replenishing lost Bala, Shourya and Teja of Devas. (As. San. Utt. 49)[19].

Acharya Kashyapa has quoted Guggul in different formulations to treat various diseases. Ghrita, Taila, Avaleha, Dhoopana etc. many formulations of it are also described for the treatment of many 'Bala Rogas'.

Maharishi Bhela has prescribed Vrana ropana property of Guggulu. The Dhoomapana of Guggulu should be taken after the bath and after taking a meal.

Maharishi Harita has elaborated Guggulu in a separate chapter titled "Guggulu Kalpa" (5th Chap). Here, he has opined that Guggulu from Marudasha must be collected in Ushna Ritu and Guggulu from hilly areas must be collected in Sheeta Ritu.

In Sharangadhara Samhita many formulations of Guggulu have been mentioned. In Vati kalpadhyaya (Sha. Sam. M. Kha. 7) [20], guggulu has been suggested specifically for the Vati preparation, because it facilitates the binding capacity. Sarangadhara quoted it among the drugs to be used when they are older (Purana).

Guggulu in Nighantus & Rasa Granthas

Guggulu is not included anywhere in Maharasa, Uparasa, Sadharanarasa etc. groups in Rasa shastra. But it is quoted in Dravaka Gana and Mitra Panchaka gana as a reducing agent for different metals and minerals [21]. Rasa Ratna Samuchchaya, Rasendra Sar Sangraha, Rasa Ratnakar, Chakradatta, Yoga Ratnakar etc. have prescribed many Yogas of Guggulu for various ailments.

An elaborative description can be traced about Guggul as regards its synonyms, types, properties and uses in Dhanvantari Nighantu, Madanpal nighantu, Raj nighantu, Bhavaprakasha Nighantu, etc.

Guggulu in Different Ganas

Name of the Grantha	Gana/Varga where Guggulu is present
Caraka Samhita	Sangyasthapana, Kashaya Skandha
Sushruta Samhita	Eladi, Kaphasmari, bhedana
Astanga Sangraha	Eladigana
Astanga Hrudaya	Eladigana, Rasayana
Haritha samhita	Rasayana
Dhanvantari Nighantu	Candanadigana
Madanapala Nighantu	Karpooradigana
Kaiyadeva Nighantu	Aushadhigana
Bhava Prakasha Nighantu	Karpooradigana
Rajavallabha Nighantu	Nanoushadigana
Saligrama Nighantu	Karpooradigana
Madhava Dravyaguna	VividhaOushadhi
Nighantu Adarsha	Guduchadigana
Dravyaguna Vignan (pvsharma)	Vedeanasthapana

Types of Guggulu

In Atharva veda, it is reported that Guggulu is of following two types.

1. Nadi Sameepottha, which is found near the Sindhu River.
2. Samudra Sameepottha, this is found near the ocean [22].

Bhavaprakasha has reported the following five types of Guggulu on the basis of colour [23].

1. Mahishaksha
2. Mahanela
3. Kumuda
4. Padma
5. Hiranya

Each type has its specific colour, as Mahishaksha has the colour either of Bhringa or Anjana. Mahaneela is extremely blue in colour, Kumuda type has the colour of Kumuda flower i.e. white, the Padma looks dark red like ruby colour, while Hiranya looks like gold. However, each type of variety has been prescribed for specifically in human and animals. The Kanaka type has been told as best among all and prescribed to use as medicine in human beings. Mahishaksha can be used as medicine in humans, Mahaneela and Mahishaksha have

been told to be useful in elephants and Kumuda and the Padma has been said to be useful in horse [24]. Its

synonyms (Paryaya) are Kousika, Pura, Devadhupa and Palamkasa [25].

Rasapanchaka [26]					
Rasa	Guna	Virya	Vipaka	Karma	Indications
Tikta Kashaya Katu	Laghu Ruksha Visada Sara Sukshma	Usna	Katu	Vrushya swarya Rasayana Dipana Kapha-vatahara Pittala Bhagnasandhanakrut	Vrana Apachi Vataroga Medoroga Premeha Kusta, Amavata Sotha, Krimi Granthi Gandamala

Apathya

During the administration of Guggulu, the patients should be advised not to take Amla rasa, Tikshna guna predominant drug and diet. Should also not drink Madya and to avoid Ajirna bhojana, Maithuna, Vyayama, Atapa sevana and Krodha [27].

Side effects

On improper use, it gives a bad effect to livers and lungs. Long term and higher dose administration of Guggulu may lead to Timira, Mukhasosa, Klaihya, Krisata, Murcha, Sauthilya and Roukshata [28].

Sodhana (Purification process) of Guggulu

Different shodhana processes are described for the various drugs in our classics. For the Shodhana of Guggulu, Gomutra, Godugdha, Triphala kasaya, vasa kasaya/svarasa and Nirgundi svarasa with Haridra churna are used as media reported in Ayurvedic Pharmacopoeia of India, Part II, Volume, II; 2008:277 [29].

Chemical constituents

Srotas	Guggulu
Rasavaha srotas	Yogaraja guggulu, vatari guggulu, shiva guggulu, simhanada guggulu, vyadhi sardula guggulu, swayambhu guggulu, erandadi guggulu, dwatrimisiko guggulu, Hritkyadi Guggulu
Raktavaha srotas	Amruta guggulu, rasabhra guggulu, kaisora guggulu, punarnava guggulu, nava karshika guggulu, ekavimsati guggulu, Loha guggulu Samshakara guggulu
Rasa-Rakta vaha srotas	Rasa guggulu, varadi guggulu, saptanga guggulu
Mamsavaha srotas	Kanchanara guggulu,
Medovaha srotas	Navaka guggulu, Amrutadhya guggulu, Erandadi Guggulu, Dasanga Guggulu
Asthivaha srotas	Laksha guggulu, abha guggulu
Majjavaha srotas	Trayodasanga guggulu, pancha tikta ghrita guggulu, panchamruta loha guggulu,

It consists of guggulu sterone, guggulu tetrols, mukulol etc. [30].

Scientific classification [31]	
Kingdom	Plantae - plants
Subkingdom	Tracheobionta – Vascular plants
Superdivision	Spermatophyta – Seed plants
Division	Magnoliophyta – Flowering plants
Class	Magnoliopsida – Dicotyledons
Subclass	Rosidae
Order	Sapindales
Family	Burseraceae – Frankincense family
Genus	<i>Commiphora</i> Species; <i>Commiphora wightii</i> (Arnott.) Brand

Guggulu is used as an important ingredient that was used in the formulations that are used in the treatment of all srotas. An attempt is made to list out guggulu formulations in different srotas based on its Prime action.

	Abhayadi guggulu, Adityapaka guggulu
Sukravaha srotas	Mahayogaraja guggulu
Mutravaha srotas	Gokshuradi guggulu
Purishavaha srotas	Navakarshika guggulu, sapta vimsati guggulu, Triphala Guggulu
Swedavaha srotas	Shadashati Guggulu

Guggulu acting on rasavahasrotas						
Guggulu yoga	Ref	Dravyas	Phala-shruti and karma	Yoga type	Matra	Anu-pana
Yogaraja guggulu [32]	Chakra-dutta (B.R) Amavata Volume – 2, page 311	Citraka, pippali mula, yavani, karavi, vidanga, ajamoda, jeeraka, cavya, saindava, gokshura, triphala, yavakshara, talisapatra, guggulu	Amavata, krimi, dusta vrana, pliha, gulma, udara, anaha Agnikrut, tejovridi kara, balavridi kara, sandhi, majjagata vata	vati	½ to 1 gm	
Vatari guggulu [33]	Bhaisajya ratnavali Amavata Vol. 2, pg 311	Eranda taila, shuddha parada, guggulu, triphala, shuddha gandhaka	Amavata, kati sula, gridrasi, khanja, pangu, vata - rakta, shotha, daha, krostuka sirsam	vati	1-2 gm	Ushna-toya
Shiva guggulu [34]	Rasendra sara sangraha (B.R) Amavata volume2 page 316	Triphala, eranda taila, sudda guggulu, gandaka, powder of rasna, vayu vidanga, maricha, danthi, jata mamsi, devadaru, sunti	Amavata, katisula, gridrasi, krostruka sirsha	vati	1gm	Usna jala
Simhanada guggulu [35]	Cakra dutta (B.R) Amavata volume2 page316	Kasaya of triphala, saugandika churna, kousika, eranda taila	Diseases of vata, pitta, kapha, khanja, pandu, swasa, kasa, kusta, vatarakta, gulma, sula, udara, amavata, Abhyasa of this medicine leads to jara, palita nasanam	Vati		
Vyadhi sardula guggulu [36]	Bhaishajya Ratnavali Amavata Volume 2 page 314	Triphala, sarsapa taila, shuddha guggulu, trikatu, musta, Vidanga, guduchi, chitraka, danti, cavya, Surana, Shodhita bija of jati phala, parada, gandhaka, lauha, Abraka bhasma	Arsas,ashamari, mutra kricha, siro ruja, mutra krichra, amla pitta, kasa, swasa, daha, udara, bhagandara, sotha, Antravridi, timira, sleepada, kamala, Pliharoga, sula, gulma, Janu janga supta padagata vata, katigraha, Visesa phala sruti – ama vata	Vati	12gms	Usna Jala
Swayambhu guggulu [37]	Bhava prakash Madhyama khanda – kushta chikitsa	Bakuchi Shilajeet, Guggulu, Swarna Makshika Bhasma, Lohabhasma, Sravani,	Kushtha, vatarakta, switra, pandu, udara, prameha, gulma, vali-palita	vati	1 gm/ day	Gomutra

	Sloka 69-73	Triphala, Karanja, Khadira, Trivrit, Danti, Musta, Vidanga, Rajani, Kutajatwak Nimba, Chitraka, Araghwadha				
Erandadi guggulu [38]	Chikitsa sara sangraha vata vyadhi Sloka no 220	Erandamula, sahadhara, musta, duralabha, yavani, devadaru, katuka, shati, panchakola	Sarva vata vikara, pachana, deepana, laghu, amavata, sophahara, srotagata kapha nashanam	vati	1 gm / day	
Dwatrinshak Guggulu [39]		Shunthi, Pippali, Maricha, Amalaki, Haritaki, Bibhitaki, Mustaka, Vidanga, Antravidhi, Guda krimi, Chavya, Chitrakamula, Vacha, Pippalimula, Hauber, Devdaru, Tumburu phala, Pushkar mula, Kushtha, Parshavshula, Hrid roga, Ativisha, Haridra, Daruharidra, Krishan, Jirak, Jirak, Tejpatra, Yawasa, Gajpippali, Saindhav lavana, Shuddha Guggulu	Ama nashaka, Udavarta, Antravidhi, Guda krimi, Bhutounmada, Anaha, Unmada, Kushtha, Parshavshula, Hrid roga, Ativisha, Haridra, Daruharidra, Krishan Gridhrasi, Hanusthambh, Pakshaghata, Aptantrak, Shotha, Atiugra pleeha	Vati	1 Kola	
Hritkyadi guggulu [40]		Haritaki, Sunthi, Vidharamula, Shuddha Guggulu, Erand taila	Amavata, Vatavyadhi, Pristhashula, jhanga sula Koshthabadhta	Vati	750 mg to 3 gm	Usnau-daka dugdha
Guggulu acting on raktavahasrotas						
Amruta guggulu [41]	Bhava prakasa, Bhaisajya ratnavali Vata rakta – page 255	Amruta, guggulu, triphala, Varshabhu, water, danti, kana, chitrakamula, visva, guduchi, tvak, Vidanga, trivrit	Amla pitta, vata rakta, kustam, arsas, mandagni, prameha, dustavrana, amavata, bhagandara, vata roga	Vati	1-5 gms	
Rasabhra guggulu [42]	Bhaisajya ratnavali Vata rakta – page 256	Shuddha parada, shuddha gandaka, abhraka bhasma, guggulu, triphala, trikatu Danti, guduchi, nagakesara, vidanga	Vatarakta, mahodara, 18 types of kushta, krimi roga, ashamari, kamala, bhagandara, guda bhramsa, sweta kushta, apchi, pama, gandamala, kandu, vicharchika, charma-keela, maha dadru	Vati	1gm	Amruta kashaya
Kaisora guggulu [43]	Bhaisajya Ratnavali Vata rakta – page 258	Guggulu, hareetaki, amalaka, vibheetaki, guduchi, Tripha churna, trikatu churna, vidanga, trivrit, danti	Ekadoshaja, dwi dosaja, tridosaja, upadrava yukta vata rakta, vrana, kasa, kushta, gulma,	Vati	1-5gm	Yusha Jala

			swayathu, udara, panduroga, vibhanda, prameha pidaka			
Punar-nava guggulu [44]	Bhaisajya ratnavali Vata rakta – page 258	Root of Punarnava, Eranda, Sunthi, jala, Suddha Guggulu Erandataila, Trivruth, Danti, Guduchi, triphala, Trikatu, Bhallataka, Swarnamakshika	Vatarakta, Vriddhi, Gridrasi, Amavata in Jangha, uru, Prusta, Trika, Vasti	Vati	12gms	
Nava-karshaya guggulu [45]	Cakradatta, Bhaisajya Ratnavali Visarpa Vol.3 Page143	Amruta, Vasaka, Patola, Musta, Saptaparna, Khadira, Leaves of Nimba, Haridra, Daru Haridra	Visha, Visarpa, Asthadasha Kusta	Vati		
Vranaari Guggulu [46]	Bhaisajya Ratnavali Vispotha Vol.3 page 151	Pippali, Suddha Guggulu, Triphala, RasaSindhura	Sarva Vrana	Vati	1/2gm	
Eka Vimshatika guggulu [47]	Bhaisajya Ratnavali Kushta Volume3 page 77	Citraka, Triphala, Trikatu, Vacha, Kusta, Devadaru, Chavya, yavasaka, Guggulu Ghrita	Astadasha Kusta, Krimi, Dusta Vrana, Grahani, Arsas, Mukhaamaya, Galaroga, Bhagna, Gridrasi, Gulma	Vati	2gms	
Loha guggulu [48]	Bhaisajya Ratnavali Netra roga Vol.3 pg.297	Loha bhasma, madhuka, triphala, pippali, guggulu	All Shukla gata roga	vati	500 mg to 1 gm	Ghrita or madhu
Samsharkar Guggulu [49]	Bhava Prakasha Vataraktadhikara 29, pg 304-320	Yavakshara, Devdaru, Saindhav lavana, Shunthi, Maricha, Pippali, Ajmoda, Rajyakshma, Vishamjawar, Haridra, Haritaki, Bibhitaki, Amalaki Shvet jirak, Krishana jirak, Vidanga, Chitraka, Guggulu, Sharkara, Ghrita	Vatarakta, Udar vikara, Bhagandar, Pleeha, Rajyakshma, Vishamjawar, Garvish, Sampuran Vrana, Shwetkustha, Darun Chitraka, Guggulu, Sharkara, Ghrita chitvibhram roga, Gridhrasi, Arsha roga, Agnimandhya, Kosthgata maharoga	Vati	4 to 12 Masha	
Guggulu acting on rasa-raktavahasrotas						
Rasa guggulu [50]	Bhaisajya ratnavali Upadamsha chikitsa vol.3– page 22	Hingulottha parada, sarkara, guggulu, ghrita	Upadamsha, kushtha	Vati	12 gm	Jala
Varadi guggulu [51]	Bhaisajya ratnavali Upadamsha chikitsa vol.3–	Triphala, nimba, arjuna, ashwatha, khadira, asana, vasaka, guggulu	Upadamsha, dushtavrana, asruk dosha hara	vati	12 gm	Ushna jala

	page 22					
Saptanga guggulu [52]	Bhaishajya ratnavali vrana shotha Vol. 2 pg 758	Triphala, trikatu, shuddha guggulu, goghrita	Nadi vrana, dushta vrana, shola, bhagandara	vati	1 gm	
Guggulu acting on mamsavahasrotas						
Kanchanara guggulu [53]	Bhaishajya Ratnavali Galaganda Vol. 2 page 721	Kanchanara, trikatu, triphala, varuna, hingula, guggulu Triphala Kashaya	Galaganda, apachi, arbuda, granthi, vrana, gulma, kushtha, bhagandara	vati	500 mg	Munditaka/ khadira/ haritaki kashayam or ushna udaka
Guggulu acting on meda-vahasrotas						
Navaka guggulu [54]	Bhaishajya Ratnavali Medoroga volume 2 pg 559	trikatu, triphala, musta, vidanga, guggulu	Medoroga, sleshma roga, ama vata	Vati	500 mg – ½ gm	Madhu
Amrutadya guggulu [55]	Bhaishajya Ratnavali Medoroga volume 2 pg 560	Amruta, truti, vaya-vidanga, kutaja, triphala	Prameha-pidaka, sthoulya, bhagandara	Vati	1 gm	Madhu
Dashanga Guggulu [56]	Bhavaprakasha Stholyadhikara 39:30-31	Shunthi, Maricha, Pippali, Haritaki, Guggulu Bibhitaki, Amalaki, Musta, Vidanga,	Medroga, Kapharoga, Aamroga, Vata roga	vati	—	—
Guggulu acting on asthi-vahasrotas						
Laksha guggulu [57]	Bhaishajya Ratnavali Bhagna-roga vol 2 Pg 775	Laksha, asthisamhara, kukubha (arjuna), shwagandha, nagabala, guggulu	Bhagna, asthi ruja	Vati	500 mg	
Abha guggulu [58]	Bhaishajya Ratnavali Bhagna-roga vol 2 Pg 775	Abha, triphala, trikatu, guggulu, ghrita	Bhagna, sandhi prasadana	vati	1 gm	
Guggulu acting on majja-vahasrotas						
Trayodasanga Guggulu [59]	Bhaishajya Ratnavali VATA VYADHI Vol 2 Pg 148	Abha, ashwagandha, hapusha, guduchi, satavari, gokshura, vridhadaru, rasna, satahva, shati, yavani, nagara, kaushika, sarpi	Katigraha, gridhrasi, bahustambha, prushthashoola, hanu-janu graha, pada-shoola, sandhi shola, Asthi- snayu-majja-koshtha gata vata	Vati	1-3 g	Sura/ yusha/ Madhya / koshna jala/ ksheera/ mamsa rasa
Pancha tikta ghrita guggulu [60]	Bhaishajya Ratnavali Kushtha vol 3 Pg 98	25 kalka dravyas (consisting of shuddha bhallataka and guggulu) + Pancha tikta dravyas	Vishama – atiprabala vayu naasha, sandh-asthi-majja gata vata, kushtha, abruda, nadi-	vati	6 – 12 gm	Ushna ksheera/ jala

		Kashayam	vrana, bhagandara, gandamala, all jatrurdhwa rogas, rajayakshma, hridroga, vata-rakta, etc			
Aditya-paka guggulu [61]	Chikitsa sara sangraha Vata vyadhi Vol1 Sloka 216	Triphala, pippali, tvak, ela, guggulu, dashamula kashayam	Sandhigata Vata, Asthigata Vata, Majjagata Vata / Majjagata vikara, Vata Vyadhi	vati		Mamsa rasa or ushna udaka
Pancha-amruta loha guggulu [62]	Bhaishajya Ratnavali mastishka roga samanya chikitsa Vol. 3 Pg 682	Shuddha parade, abhraka, suvarna makshika, rajata, loha, guggulu	Mastishka sambhava gada, Snayugata rogas	vati	2 gm / day Masha matra	
Abhayadi guggulu [63]	Bhaishajya Ratnavali mastishka roga samanya chikitsa Vol. 3 Pg 682	Abhaya, amalaki, draksha, shatahv	Mastishka rogas, Rogas which are snayu sambhava		2 pala	Madhu or ushna jala
Guggulu acting on shukra-vahasrotas						
Mahayogaraja guggulu [64]	Bhaishajya Ratnavali Vata vyadhi Vol.2, Pg 149	Panchakola, ajamoda, hingu, jiraka dwaya, indrayava, renuka, vacha, triphala, guggulu, rajata, vanga, loha, abhraka, naga, mandoora, rasa sindura, ghrita	Tridosha haram, vataroga, kushta, udavarta, vatarakta, aruchi, retodosha, rajodosha, vandhyatva	vati	4 gm	Rasnadi kwath-vata roga, kakoladi kashaya-pitta roga vata rakta, aragwadha di ganakapha roga daru-haridra kashaya-prameham adhumedoroga, gomutra-pandu, nimba kashaya-kushta, amruta kashaya vatarakta pippali kashaya-sula and shotha, triphala

						kashaya- akshi roga, punarnava kashaya- udara-roga
Guggulu acting on mutra-vahasrotas						
Gokshuradi guggulu [65]	Saragdhara samhita (m.k) 7 /84-87	Gokshura, guggulu, triphala, trikatu, musta	Niramavastha amavata, mutraghaata, mutrakricchra, mutrasmari, prameha, vata vyadhi, vatarakta, shukra dosha	vati		Ushna- jala/ punarnava asava/ dasham- oola- rishta
Guggulu acting on purisha-vahasrotas						
Triphala guggulu [66]	Sharangdhara Samhita madhyamakha nda 7/82-83	Triphala, pippali, guggulu	Bhagandara, shotha, gulma, arshas	vati	As per once agni	
Nava- karshaya guggulu [67]	Bhaishajya Ratnavali Visarpa Volume3 Page143	Amruta, Vasaka, Patola, Musta, Saptaparna, Khadira, Leaves of nimba, Haridra, Daru Haridra	Visha, Visarpa, AsthaDasha Kusta	Vati		
Sapta- vimshati Guggulu [68]	Bhaishajya Ratnavali (Bhagandara chikitsa) volume 3 pg 9	Trikatu Triphala, Vidanga, Amruta, Chitraka, Shati, Ela, Pippalimoola, Hapusha, Suradaru, Tumburu, Pushkara, Chavya, Haridra, Daruharidra, Vida lavana, Sauvarchala Lavana, Yava kshara, Sarjika Kshara, Saindhava, Gajapippali	Kasa, Shwasa Shotha, Arsha, Bhagandara, Hrit shola, Kushta, Parshwashoola, Kukshi, Vasti, Guda ruja, Ashmari, Mutrakrichra, Antravruddhi Krimi, Anaha, Unmada, Udara, Chira Jwara, Kshaya upahata chetasa, Nadivrana, Dushtavrana, Prameha, Shleepada	vati	12 gm	Honey
Guggulu acting on sweda-vahasrotas						
Shadshiti Guggulu [69]	Yogaratnakara	Katsaraiya, Jawasa, Ativisha, Devdaru, Kantkari, Vrihati, Chavya, Vasa, Pippali Mustaka, Vach, Dhanyak, Shatavari, Haritaki, Shunthi, Guduchi, Gokshura, Jwara, Gulf roga, Jaanu Aragvadh, Karchur, Punarnava, Kutaki, Piplamool, Brahmadandi, Vidarikand,	Vata roga, Samavata, Niramvata, Dwandaja roga, Kaphaj roga, Rajyakshma, Agnimandya, Dhatugata Jwara, Gulf roga, Jaanu Murva, roga, Ururoga, Kati roga, Prishtha roga, Udar roga, Hrid roga, Kukshigat roga, Paksahghat, Ans roga, Hanu roga, Karn roga, Bhru roga, Lalaat	Vati	1 Karsha	Madhu Ghrita

		Gorkhmundi, Palash, Ajmoda, Kakadsinghi, Rudraksh, Musli, Renuka, Kakoli, Yavani, Trivrit, roga, Karn roga, Bhru roga, Danti, Chitrakamula, Talamakhana, Yavasa, Vrihat Panchmool, Veertaru, Jayaphala, Ela, Mutrakricha, Shula, Nagkesar, Twak, Chirayata, Kesar, Lavang, Indrayan, Haridra, Saindhava	roga, Netra Roga, Shankha roga, Prameha, Mutrakricha, Shula, Adhyaman, Ashmari, Medogatvata, Napunsakata			
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Discussion

In almost all Guggulu formulations triphala and trikatu are the ingredients. Trikatu is a combination of Pippali, Maricha and Sunthi. Pippali is vata kaphahara [70], na pittavardhaka. Maricha is Pramathi oushadha and Kaphavata hara [71]. Sunthi is vatakapha hara [72]. All are having katu rasa, which have the Svabhavika karma of dilation of channels (Margan vivrinoti) [73]. The presence of piperine which was a great Bio-enhancer phytochemical promotes the bio-availability of the drug. Many physiological effects of black pepper, its extracts, or its major active principle, piperine, have been reported in recent decades. Dietary piperine, by favourably stimulating the digestive enzymes of the pancreas, enhances the digestive capacity and significantly reduces the gastrointestinal food transit time. Piperine's bioavailability enhancing property is also partly attributed to increased absorption as a result of its effect on the ultrastructure of the intestinal brush border [74].

Triphala is a unique combination of Haritakai, Amlaki and Vibhitaki, which holds the properties of Rasayana etc [75]. Triphala consists of tannic acid as a chemical constituent. It shows a peculiar pharmacological effect on the human gut. Inhibitory effect of tannic acid to the growth of intestinal bacteria may be due to the strong iron binding capacity of tannic acid [76]. Chebulagic acid induces many chemical reactions and derives the effect of decreased blood sugar [77] there by facilitating the drug absorption.

Guggulu acting on rasavahasrotas is katurasa usnavirya pradhana oushadhas. They were dhatvagni-deepaka amapachaka. Guggulu acting on raktavahasrotas are tiktapradhana raktaprasadaka pittahara by nature. Guggulu acting on mamsavahasrotas is Kashaya

katu rasa pradhana. Guggulu acting on medovaha Kashaya Tikta katu rasa pradhana dravyas are used. Guggulu with Tikta kashaya Madhura rasa dravyas are used in Asthivahasrotas. Guggulu along with dravyas which are suksma, tiksna processed with Yogavahi drugs like ghrita, parada etc which enhances the penetration are used in Majja and sukrovaha srotas. Guggulu along with deepana, pachana, vatanulomaka & kshara yukta oushadhas are used for Purishavahasrotas.

Conclusion

Although in sastra guggulu had been used in multi-dimensional ways in most of the disorders related to different srotas, recent researches are mostly aimed at Anti-inflammation and Hypolipidemic activity of guggulu. Further researches are required for guggulu in combination with other drugs to elicit fruitful results in clinical practice for the benefit of mankind.

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Article received on March 28, 2019; Accepted on April 6, 2019

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