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## Preparation of kamsa guggulu: An ayurvedic formulation for sciatica syndrome

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### Abstract

Guggulu kalpana is familiar pharmaceutical preparation in Ayurveda. By doing guggulu kalpana, active principles of the mixed drug powders remain for prolonged time, at the same time therapeutic value of guggulu also will be provided to the patients. Kamsa guggulu mentioned in Ayurvedic classics contain the ingredients *Haritaki* (*Terminalia chebula*), *Vibhitaki* (*Terminalia bellerica*), *Aamalaki* (*Emblia officinalis*), *Guggulu* (*Commiphora mukul*), *Vidanga* (*Embelia ribes*), *Dantimoola* (*Baliospermum montanum*), *Guduci* (*Tinospora cordifolia*), *Pippali* (*Piper longum*), *Trivrut* (*Operculina turpetum*), *Maricha* (*Piper nigrum*), *Shunti* (*Zingiber officinalis*), *Chitraka* (*Plumbago zeylanica*). In this article, Kamsa guggulu was prepared by using modern pharmaceuticals stuffs. During the method of preparation of Kamsa guggulu according to the Ayurvedic formulary of India was followed.

**Keywords:** Kamsa guggulu, pharmaceuticals, preparation

### Introduction

Gridhrasi (Sciatica syndrome) is one of the vatavyadhi having a clinical features like 'Teevra ruja' or severe pain as the important feature of *Gridhrasi* [1, 2]. Distribution of severe pain is also important feature in the diagnosis. Starting of pain from *Sphik poorva Kati Pristha* radiating to *Uru, Janu, Jangha* and *pada* in succeeding order is specific feature of *Gridhrasi* [3]. That means radiating pain from low back to lower limb in the posterior aspect, particularly posterior aspect of thigh, posterior lateral aspect of calf and dorsum of foot. For its treatment, *Gadanigraha* an ayurvedic treatise mentions Kamsa Guggulu formulation. The basic idea behind the administration of formulation has to reach a target tissue as per betterment of mankind. To achieve this, many processes were invented in a sense of manufacturing process, these are termed as Kalpanas and Upakalpanas (pharmaceutical preparation). Final product named kamsa guggulu is a active amalgamation for the treatment of Gridhrasi (Sciatica syndrome). This article highlights the different steps and stages of preparation of Kamsa guggulu.

### Materials and Method

#### Ingredients of the formulation

1. *Terminalia chebula* (*Haritaki*)
2. *Terminalia bellerica* (*Vibhitaki*)
3. *Emblia officinalis* (*Aamalaki*)
4. *Tinospora cordifolia* (*Guduci*)
5. *Embelia ribes* (*Vidanga*)
6. *Baliospermum montanum* (*Dantimoola*)
7. *Commiphora mukul* (*Guggulu*)
8. *Piper longum* (*Pippali*),
9. *Operculina turpetum* (*Trivrut*)
10. *Piper nigrum* (*Maricha*)
11. *Zingiber officinalis* (*Shunti*)
12. *Plumbago zeylanica* (*Chitraka*).

1. *Terminalia chebula* belongs to family Combretaceae, well known by name Chebulik myrobalan. Preliminary studies for photochemical screening suggests the presence of Anthraquinone glycoside, chebulinic acid, chebulagic acid, tannic acid, terchebin, tetrachebulin, Vitamin C, arachidic, behenic, linoleic, oleic, palmitic and stearic acids (fruit kernels)chebulin. *Haritaki* is one of the important herb of ayurveda having properties of

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Antibacterial, antifungal, anti inflammatory, antibacterial, antistress, antispasmodic, hypotensive, indurance promoting activity, anti hepatitis B virus activity [4].

#### Ayurvedic properties

Rasa: *Kashaya, Tikta, Madhura, Katu, Amla*

Guna: *Laghu, Ruksha*

Virya: *Ushna*

Vipaka: *Madhura*

Doshagnata: *Tridosha shamaka*

Rogagnata: *Vatavyadhi, Shotha, vedanayuktavikara, Vrana, Mukharoga, Kantharoga, Nadidaurbalya, Mastishkaadourbalya, Netrabhishyandha. Drishtimandhya, Indriya daurbalya, Agnimandya Shoola*

2. Terminalia bellerica belongs to the family Combretaceae. Commonly called as Belliric myrobalan. Chebulagic acid, ellagic acid (also from bark, heartwood) and its ethyl ester, gallic acid (also from seed coat); fructose, galactose, mannitol and rhamnose, B- sitosterol and bellericanin (fruits); protein and oxalic acid (seed); oxalic acid and tannins (bark); palmitic, oleic and linoleic acids (kernel and its oil). Are known for Purgative, blood pressure depressant, antifungal, antihistaminic, activity against viral hepatitis and vitiligo, antiasthmatic, broncho-dilatory, antispasmodic antibacterial, CNS stimulant, amoebicidal, antistress and endurance promoting activity [5].

#### Ayurvedic properties

Rasa: *Kashaya*

Guna: *Ruksha, Laghu*

Veerya: *Ushna*

Vipaka: *Madhura*

Doshagnata: *Tridoshashamaka*

Rogagnata: *Shotha-vedanayukta vikara, Charma roga, Granthi Visarpa,*

*Agnimandya, Shvitra, Palitya, Pratishyaya, Kasa, Shwasa, Swarabhagna, Hridroga, Vrana, Vatavyadi*

3. Emblica officinalis belongs to family Euphorbiaceae known by Indian gooseberry [6]. Chemical constituents are a good source of vitamin C; carotene, nicotinic acid, riboflavine, D-glucose, D-fructose, myoinositol and a pectin with D-galacturonic acid, phyllembic acid and phyllembin (fruits) and fatty acids (seed oil); 1,2,3, 6-trigalloylglucose, terchebin, corialgin, ellagic acid, alkaloids, phyllantidine and phyllantine (leaves & fruits).

#### Ayurvedic properties

Rasa: *Amla, Madhura, Kashaya, Tikta, Katu*

Guna: *Guru, Ruksha, Sheeta*

Veerya: *Sheeta*

Vipaka: *Madhura*

Doshagnata: *Tridoshashamaka*

Rogagnata: *Paittika vikara, Daha, Paittikashirashula, Mootravarodha, Netra roga.*

*Karma: Dahaprashamana, Chakshushya, Nadibalya, Rochana, Deepana, Anulomana, Amlatanashaka.*

4. Tinospora cordifolia (*Guduci*) belongs to Menispermaceae [7]. The alkaloids Tinosporine, tinosporon, tinosporic acid, tinosporol, tinosporide, tinosporidine, columbin, chasmanthin, palmarin, berberine, giloin, giloinisin and B-sitosterol, tembetarine, cardiofoliosides A & B. Tinosporine shows Hypoglycaemic, antihyperglycaemic, CNS depressant, antibacterial, antimicrobial, antipyretic, antiinflammatory, antiarthritic, antiallergic, analgesic, antistress, antioxidant.

#### Ayurvedic properties

Rasa: *Tikta, Kashaya*

Guna: *Guru, Snigdha*

Veerya: *Ushna*

Vipaka: *Madhura*

Doshagnata: *Tridoshashamaka*

Rogagnata: *Kushtha, Vatarakta, Netraroga, Trishna. Daha, Chhardi, Aruchi, Agnimandya, Shoola, Yakridvikara, Kamala, Amlapitta. Pravahika. Atisara, Raktatisara, Grahani, Krimi.*

5. Embelia ribes (*Vidanga*) belongs to family Myrsinaceae [8]. Chemical constituents are Embelin, quercitol, tannin, christembine, embelic acid, fatty ingredients, resinoid, volatile oil and vilangin (fruit); potassium embelate, 4-benzoquinone (plant). Presence of embelin has highlighted by the utility by action of anthelmintic, antibiotic, antitubercular, antiimplantation, antiovolulatory, antifertility, antiinflammatory, hypotensive.

#### Ayurvedic properties

Rasa: *Tikta, Katu*

Guna: *Laghu, Ruksha Teekshna*

Veerya: *Ushna*

Vipaka: *Katu*

Doshagnata: *Kaphavatashamaka*

Rogagnata: *Shiroroga, Akshepaka, Apasmara, Pakshaghata, Krimidanta, Dantashoola, Agnimandya, Ajeerna.*

*Karma: Jantughna, Kushthaghna, Shirovirechana, Nadibalya, Deepana, Pachana, Anulomana..*

6. Baliospermum montanum (*Dantimoola*) belongs to Euphorbiaceae family [9]. The plant afforded 5 new phorbol esters belonging to diterpene hydrocarbon, tiglane skeleton viz. montanin, and 12-deoxy-16-hydroxyphorbol13-palmitate (in roots); axillarenic acid (in seeds). It has Antileukaemic, antiasthmatic, anticancer, hypotensive, purgative, cathartic.

7. Commiphora mukul (*Guggulu*) belongs to family Burseraceae [10]. Chemical constituents are Oleoresin- z-guggulsterone, E-guggulsterone. Having a properties of Hypolipidaemic, antibacterial, atherosclerotic, anthelmintic, anti arthritic, anti viral, anti inflammatory activity.

#### Ayurvedic properties

Rasa: *Tikta, Katu*

Guna: *Laghu, Ruksha, Tikshna, Vishada, Sukshma, Sara, Snigdha, Picchila.*

Veerya: *Ushna*

Vipaka: *Katu*

Doshagnata: *Vatakaphahara*

Rogagnata: *Sthoulya/Medoroga, Amavata, Vatavyadhi, Prameha, Apachi, Gandamala, Shotha.*

*Karma: Medohara, Amavatahara, Pramehahara, Bhagna sandhanakara Rasayana, Dipana, Balya,*

8. Piper longum (*Pippali*) belongs to family Piperaceae known by *Indian long pepper*. [11] *Chemical constituents* are Two alkaloids piperlongumine and piperlonguminine; major alkaloid piperine and sesamin piperidine (stem and fruits). Pippali is one of the important herb of ayurveda having a properties of Antibacterial, antiinflammatory, insecticidal,

antimalarial, CNS stimulant antitubercular, anthelmintic, hypoglycaemic, antispasmodic, anti-giardial, analeptic antinarcotic, antiulcerogenic.

#### Ayurvedic properties

Rasa: *Katu*

Guna: *Laghu Snigdha, Tikshna*

Veerya: *Anushna sheeta*

Vipaka: *Madhura*

Doshaghnata: *Kaphavatashamaka*

Rogaghnata: *Shotha, Sheetayukta vedana, Mastishka daurbalya, Vatavyadhi, Udarashoola.*

Karma: *Raktokleshaka, Medhya, Vatahara, Deepana, Vatanulomana, Shoolaprashamana.*

9. *Operculina turpetum (Trivrut)* belongs to family Convolvulaceae [12] well known by the name Indian Jalap which contain an ether insoluble glycoside - turpethin and two other soluble glycosides viz a - and B- turpethins, coumarin - scopoletin alongwith sugars (glucos rhamnose fructose), p-coumaric and saponins are the major components reported from the various parts of the plant. Turpethin shows antibacterial, antiinflammatory, cathartic, anthelmintic, cardiac depressant and spasmodic to smooth and skeletal muscles

#### Ayurvedic properties

Rasa: *Katu, Tikta, Madhura, Kashaya*

Guna: *Laghu, Ruksha, Teekshna*

Veerya: *Ushna*

Vipaka: *Katu*

Doshaghnata: *Pittakaphasanshodhana*

Rogaghnata: *Jirnanaha, Vatarakta. Amavata. Kasa, Shwasa, Shotha, Pleehavridhi, Jwara.*

Karma: *Sukhavirechaka, Bhedana, Rechana, Shothahara, Jwaraghna.*

10. *Piper nigrum (Maricha)* belongs to the family Piperaceae, well known by Black pepper [13].

The alkaloids Piperidine 1293anti-inflamma as isobutylamide of 11-(3,4-methylenedioxyphenyl) pellitorine, piperine and (2E,4E)-N-isobutyl-2,4-decadienamide (fruit). Having a properties of Antioxidant, anticonvulsant, CNS depressant, muscle relaxant, antipyretic, anti-inflammatory, hepatoprotective, antimicrobial, antiulcer, antibacterial, lipolytic, Ciclo oxygenase inhibitory activity.

#### Ayurvedic properties

Rasa: *Katu*

Guna: *Laghu, Teekshna, Ruksha*

Veerya: *Ushna*

Vipaka: *Katu*

Doshaghnata: *Kaphavatashamaka*

Rogaghnata: *Shwitra, Kilasa, Pama, Tarunyapidaka, Shothavedanayukta, Timira,, Pratisyava kasa Shwasa, Hikka, Mootrakrichchhra, Dhvajabhanga, Rajorodha, Kushtha. Chamaroga,*

Karma: *Raktokleshaka, Lekhana, Uttejaka, Nadibalya, Nadiuttejaka. Lalaravajanaka, Kushthaghna, Jwaraghna, Vishamajwara pratibandhaka, Avrishya, Srotashodhana.*

11. *Zingiber officinalis (Shunti)* belongs to family Zingiberaceae [14]. Chemical constituents are Heptane, octane, camphene, Bpinene, sabinene, myrcene. It has Anti

inflammatory, hypolipidaemic, antiatherosclerotic, antiemetic, antioxidant, antibacterial, antitumoural, hypoglycaemic, inotropic, inhibition in prostaglandin release (dose dependent). Having the properties like Antipyretic, appetiser, uterotonic, antibacterial.

#### Ayurvedic properties

Rasa: *Katu*

Guna: *Laghu, Ruksha, Teekshna*

Veerya: *Ushna*

Vipaka: *Katu*

Doshaghnata: *Vatakaphashamaka, Pittavardhaka.*

Rogaghnata: *Shotha, Switra, Shleepada Amavata, Nadidaurbalya, Vatavyadhi, Agnimandya.*

Karma: *Lekhana, Visphotajanana, Uttejaka, Madaka, Deepana, Pachana, Pittasaraka, Grahi, Garbhasravakara, Vajikarana, Swedajanana, Jwaraghna, Katupaushtika, Rasayana.*

12. *Plumbago zeylanica (Chitraka)* belongs to the family Plumbaginaceae [15]. Plant contains number of naphthoquinone derivatives viz. chloroplumbagin, isozeylinone, droserone, plumbagic acid, plumbazeylanone, naphtha and isoshinanoione are known for antipyretic, appetiser, uterotonic, antibacterial, antifungal, antitumour, hepatoprotective anticancer (plumbagin), anticoagulant, cytotoxic, appetiser and CNS depressant.

#### Ayurvedic properties

Rasa: *Katu*

Guna: *Laghu, Ruksha, Teekshna*

Veerya: *Ushna*

Vipaka: *Katu*

Doshaghnata: *Vatakaphashamaka, Pittavardhaka*

Rogaghnata: *Shotha, Switra, Shleepada Amavata, Nadidaurbalya, Vatavyadhi, Agnimandya, Ajirna, Rajorodha, Prasutivikara, Makkallashoola, Kushtha, Vishmajwara, Jeernajwara.*

Karma: *Lekhana, Visphotajanana, Uttejaka, Madaka, Deepana, Pachana, Pittasaraka, Grahi, Krimighna, Garbhasravakara, Vajikarana, Swedajanana, Jwaraghna, Katupaushtika, Rasayana.*

#### Collection and authentication of raw drugs

The above mentioned drugs were collected from Sri Dharmasthala Manjunatheshwara Pharmacy, Kuthpady, Udupi, Karnataka, India.

#### Apparatus used for preparation of Kamsa Guggulu

Extractor-To aqueous extraction. (Fig16)

Vacuem concentrator- To concentrate the aqueous decoction. (Fig 17)

Spray dryer- To dehydrate the aqueous extract. (Fig 18)

Capsule filling machine under controlled ambience- for filling the powders into capsule. (Fig 13)

Packing Machine. (Fig 19)

#### Method of Preparation

- Kamsa Guggulu were prepared by using different parts of medicinally important herbal drugs such as in (Table no- 1) 100 *Haritaki* fruits (fig 1), 200 *Vibhitaki* (fig 2), 400 *Amalaki* (fig 3) (fruits coarse powder has been taken. First 1 *prastha* purified *guggulu* (fig 7) paka with 1 *drona jala* has been prepared, kept for 1 night and mixed with

triphal powder, Both triturated firmly and kept for few hours until the mixture gets dried, then put in extractor for the aqueous extraction, then add all the fine powders of Vidanga (Fig 5), Danti (Fig 6), Triphala, Guduchi (fig 4), Pippali (fig 8), Trivruth (fig 9), Trikatu [Shunthi (fig 11), Maricha (fig 10), Pippali (fig 8)], Chitrakamoola (fig 12) 24 gms each until the mixture gets dried and then concentrate the aqueous decoction in vacuum concentrator and dehydrate the aqueous extract through spray dryer obtain granules which are then compressed in a capsule filling machine machine under controlled ambience each capsule weighing 500mg and packed in an plastic socket, each socket contains 100 capsules and labelled for the same as Kamsa guggulu.

**Precautions to be taken**

1. All the ingredients should be powdered separately.
2. Capsule should be immediately packed air tight after capsule filling, as it may catch moisture.
3. The capsules which are not packed airtight lose their potency in 6 months while well packed and preserved powders may be kept active for 2 years.

**Duration of preparation- 7 days**

**Discussion**

Sciatica syndrome is a major public health problem affecting a large number of individuals of all ages. Globally, As an illness low back pain is second just common to the regular cold with 70 – 80% of the population encountering low back agony sooner or later of time. The signs and symptoms of Gridhrasi explained in Ayurvedic classics resemble Sciatica syndrome. Guggulu Kalpana is most predominately used form of Ayurvedic preparation and rate of drug absorption is fast.

**Conclusion**

Different pharmaceutical techniques are scientifically designed by ancient Ayurvedic scholars. Guggulu Kalpana is most predominately used form in Ayurvedic preparation. Samskara is a process in which the quality of raw drug is converted according to requirement of the formulation. Guggulu kalpana in capsule form is a convenient form to prescribe in required amount and palatability is more. Ayurveda is principle among the traditional health practice in the world hence traditional inspired practical approach should be made in preparing prime quality preparations.

**Table 1:** Ingredients of Kamsa Guggulu

S.L NO:	Ingredient	Botanical Name	Part Used	Proportion
1.	Haritaki	Terminalia chebula	Fruit pulp	100 num's
2.	Vibhitaki	Terminalia bellerica	Fruit pulp	200 num's
3	Aamalaki	Emblica officinalis	Fruit pulp	400 num's
4	Guggulu	Commiphora mukul	Resin	1prastha (768gm)
5	Jala			1drona (12kg288gm)
<i>Prakshepaka dravyas</i>				
6	Vidanga	Embelia ribes	Fruit	Half pala (24gm)
7	Dantimoola	Baliospermum montanum	Root	Half pala (24gm)
8	Haritaki	Terminalia chebula	Fruit pulp	Half pala(24gm)
9	Vibhitaki	Terminalia bellerica	Fruit pulp	Half pala(24gm)
10	Aamalaki	Emblica officinalis	Fruit pulp	Half pala(24gm)
11	Guduci	Tinospora cordifolia	Stem	Half pala(24gm)
12	Pippali	Piper longum	Fruit	Half pala(24gm)
13	Trivrut	Operculina turpetum	Root	Half pala(24gm)
14	Maricha	Piper nigrum	Fruit	Half pala (24gm)
15	Pippali	Piper longum	Fruit	Half pala(24gm)
16	Shunti	Zingiber officinalis	Root	Half pala(24gm)
17	Chitraka	Plumbago zeylanica	Root	Half pala(24gm)

**Kamsa Guggulu Ingredients**



**Fig 1:** Haritaki



**Fig 2:** Vibhitaki





**Fig 3:** Amalaki



**Fig 4:** Guduchi



**Fig 5:** Vidanga



**Fig 6:** Danti Moola



**Fig 7:** Guggulu



**Fig 8:** Pippali



**Fig 9:** Trivruth



**Fig 10:** Maricha



**Fig 11:** Shunti



**Fig 12:** Chitraka Moola



**Fig 13:** Capsule filling machine



**Fig 14:** Kamsa Guggulu Capsule



**Fig 15:** After complete preparation



**Fig 16:** Extractor





**Fig 17:** Vacuum concentrator



**Fig 18:** Spray Dryer



**Fig 19:** Packing machine

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