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 (Emblica officinalis), Guggulu (Commpiphora mukul), Vidanga (Embelia ribes), Dantimoola (Baliospermum montanum), Guduchi (Tinospora cordifolia), Pippali (Piper longum), Trivrut (Operculina turpethum), Maricha (Piper nigrum), Shanti (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’. 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. 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. Emblica officinalis (Aamalaki)
4. Tinospora cordifolia (Guduchi)
5. Embelia ribes (Vidanga)
6. Baliospermum montanum (Dantimoola)
7. Commiphora mukul (Guggulu)
8. Piper longum (Pippali)
9. Operculina turpethum (Trivrut)
10. Piper nigrum (Maricha)
11. Zingiber officinalis (Shanti)
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 Antharquinone glycoside, chebulinic acid, chebulagic acid, tannic acid, terchebin, terchebulin, 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...
Antibacterial, antifungal, anti-inflammatory, antibacterial, antistress, anti-psoriaspic, hypotensive, indurance promoting activity, anti-hepatitis B virus activity [4].

**Ayurvedic properties**

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

**Guna:** Laghu, Raksha

**Virya:** Ushna

**Vipaka:** Madhura

**Doshaagnata:** Tridosha shamakam

Rogagnatha:
- Vatayadhi, Shotha, vedanayuktiyavikara
- Vrana, Mukhara, Kanthara, Nadidaurbalya, Mastishkaadourbalya, Nethralshishyandha, Drishtimandhya, Indriya daurbalya, Agnimandhya Shoola

2. Terminalia bellerica belongs to the family Combretaceae. Commonly called as Belliric myrobalan. Chebulagic acid, eugenol, eugenol acid (also from bark, heartwood) and its ethyl ester; protein, gallic acid (also from seed coat); fructose, galactose, mannitol, ellagic acid (also from bark, heartwood) and its ethyl ester, 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, anti-fungal, antihistaminic, activity against viral hepatitis and vitiligo, known for Purgative, blood pressure depressant, antifungal, antiarthritis, antiallergic, analgesic, antistress, antioxidant.

Ayurvedic properties

**Rasa:** Kashaya

**Guna:** Raksha, Laghu

**Virya:** Ushna

**Vipaka:** Madhura

**Doshaagnata:** Tridosha shamakam

Rogagnatha:
- Vatayadhi, Shotha, vedanayuktiyavikara
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3. Emblica officinalis belongs to family Euphorbiaceae known by Indian gooseberry [4]. 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 (in roots); potassium embelate, 4-hydroxyphorbol13-palmitate (in roots); axillarenic acid (in seeds). It has Antileukaemic, antiasthmatic, broncho-dilatory, anti-psoriaspic antibacterial, CNS stimulant, amoebicidal, antistress and endurance promoting activity [5].

Ayurvedic properties

**Rasa:** Kashaya

**Guna:** Raksha, Laghu

**Virya:** Ushna

**Vipaka:** Madhura

**Doshaagnata:** Tridosha shamakam

Rogagnatha:
- Vatayadhi, Shotha, vedanayuktiyavikara
- Vrana, Mukhara, Kanthara, Nadidaurbalya, Mastishkaadourbalya, Nethralshishyandha, Drishtimandhya, Indriya daurbalya, Agnimandhya Shoola

4. Emblica officinalis belongs to family Euphorbiaceae family [8]. The plant afforded 5 new phorbol esters belonging to diterpene hydrocarbon, tigliane skeleton viz. montanin, and 12-deoxy-16-hydroxyphorbol13-palmitate (in roots); axillarenic acid (in seeds). It has Antileukaemic, antiasthmatic, anticer, hypotensive, purgative, cathartic.

Ayurvedic properties

**Rasa:** Tikta, Katu

**Guna:** Laghu, Raksha, Teekshna

**Virya:** Ushna

**Vipaka:** Katu

**Doshaagnata:** Kaphavatashamakam

Rogagnatha:
- Shiroroga, Akshepaka, Apasmaraka, Pakshakhagata, Krimidanta, Danushshoola, Agnimandhya, Ajeerna

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

5. Embelia ribes (Vidang) belongs to family Myrsinaceae [8]. Chemical constituents are Embelin, quercitol, tannin, cerestemine, 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, antiovoluntary, antifertility, antiflammatory, hypotensive.

Ayurvedic properties

**Rasa:** Tikta, Katu

**Guna:** Laghu, Raksha, Teekshna

**Virya:** Ushna

**Vipaka:** Katu

**Doshaagnata:** Kaphavatashamakam

Rogagnatha:
- Shiroroga, Akshepaka, Apasmaraka, Pakshakhagata, Krimidanta, Danushshoola, Agnimandhya, Ajeerna

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

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

Ayurvedic properties

**Rasa:** Tikta, Katu

**Guna:** Laghu, Raksha, Teekshna, Vishada, Sukshma, Sara, Snigdha, Picchila

**Virya:** Ushna

**Vipaka:** Katu

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, Raksha, Tikshna, Vishada, Sukshma, Sara, Snigdha, Picchila

**Virya:** Ushna

**Vipaka:** Katu

**Doshaagnata:** Vatakaphahara

Rogagnatha:
- Sthoulya/Medoroga, Amavata, Vatayadhi, Pramehahara, Apachi, Gandamala, Shotha, Yakridvikara, Hridroga, Vatavyadi, Vatakaphahara, Pramahara, Bhagya sandhanakara Rasayana, Dipana, Balya

8. Piper longum (Pippali) belongs to family Piperaceae known by Indian long pepper. [11] Chemicalalconstituents 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, antiflammatory, insecticidal,
antimalarial, CNS stimulant antitubercular, anthelmintic, hypoglycaemic, antispasmodic, anti-giardial, analgetic antinarcotic, antiulcerogenic.

**Ayurvedic properties**

**Rasa:** Katu  
**Guna:** Laghu Snigdha, Tikshna  
**Veerya:** Anushna sheeta  
**Vipaka:** Madhura  
**Doshaghnata:** Kaphavatashamaka  
**Rogaghnata:** Shotha, Sheetayukta vedana, Mastishka daurbalya, Vatavyadh, Udarsheela.  
**Karma:** Raktotkleshaka, Medhya, Vatahara, Deepana, Vataanaloma, Shoolaprasamhama.

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

**Ayurvedic properties**

**Rasa:** Katu, Tikta, Madhura,Kashaya  
**Guna:** Laghu, Raksha, Teekshna  
**Veerya:** Ushna  
**Vipaka:** Katu  
**Doshaghnata:** Pittakaphasangshodhana  

10. Piper nigrum (Maricha) belongs to the family Piperaceae, well known by Black pepper [13].  
The alkaloids Pircide 1293nt-inflamma as isobutilamide of 11-(3,4-methylenedioxyphenyl) pellitorine, pierpine and (2E,4E)-N-isobutil-2,4-decadienamide (fruit).Having a properties of Antioxidant, antiinflamnsant, CNS depressant, muscle relaxant, antiptypic, anti-inflammatory, hepatoprotective, antimicrobial, antulcer, antibacterial, lipolytic, Ciclo oxy gene inhibitoty activity.

**Ayurvedic properties**

**Rasa:** Katu  
**Guna:** Laghu, Teekshna, Raksha  
**Veerya:** Ushna  
**Vipaka:** Katu  
**Doshaghnata:** Kaphavatashamaka  
**Rogaghnata:** Shhtra, Kilasa, Pama, Tarunyapidaka, Shothvedanalukta, Timira, Praityshaya kasa Shhwa, Hikka, Mootakrichchhra, Dhwajabhangha, Rajorodha, Kusht. Charnaroga,  
**Karma:** Rakotkleshaka, Lekhana, Utejaka, Nadibalya, Naditutnejaka, Lalasravajana, Kushthagha, Jwaraghna, Vishamajivara pratibandhaka, Avrishta, Srotashodhana.

11. Zingiber officinalis (Shunti) belongs to family Zingiberaceae [14]. Chemical constituents are Heptane, octane, camphene, Bpinene, sabinene, myrecene. It has Anti inflammatory, hypolipidaemic, antiatherosclerotic, antiemetic, antioxidant, antibacterial, antitumoural, hypoglycaemic, inotropic, inhibition in prostaglandin release (dose dependent). Having the properties like Antipyretic, appetiser,  
uterotic, antibacterial.

**Ayurvedic properties**

**Rasa:** Katu  
**Guna:** Laghu, Raksha, Teekshna  
**Veerya:** Ushna  
**Vipaka:** Katu  
**Doshaghnata:** Vatakaphashamaka, Pittavardhaka.

12. Plumbago zeylanica (Chitraka) belongs to the family Plumbaginaceae [15]. Plant contains number of naphthoquinone derivatives viz.chloroplumbagin, isozeylinone, drooserone, plumbag acid, plumbazeylanone, naphth and isoshinanoine are known for antipyretic, appetiser,  
uterotic, antibacterial, antifungal, antitumour, hepatoprotective anticancer (plumbagin), anticoagulant, cytotoxic, appetiser and CNS depressant.

**Ayurvedic properties**

**Rasa:** Katu  
**Guna:** Laghu, Raksha, Teekshna  
**Veerya:** Ushna  
**Vipaka:** Katu  
**Doshaghnata:** Vatakaphashamaka, Pittavardhaka.

**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**

**Extracto-**To aqueous extraction. (Fig16)  
**Vacuum concentrator-** To concentrate the aqueous decocation. (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)  
**Packaging 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 prashtha purified guggulu (fig 7) paka with 1 drona jala has been prepared, kept for 1 night and mixed with
triphala 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

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

Kamsa Guggulu Ingredients

Fig 1: Haritaki
Fig 2: Vibhitaki
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
References


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