A clinical trial of *Navaka Guggulu* prepared with Fresh (*Naveena*) and Old (*Purana*) *Guggulu* on hyperlipidaemia

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Guggulu

- Well known herbal drug from vedic period.
- *Medohara Karma* of *Guggulu* in different Classics are also described.
Guggulu

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**Abstract**


**Experimental studies on the hypocholesterolemic effect of Commiphora mukul Engl. (Guggul). 1969.**

Satyavati GV, Dwarakanath C, Tripathi SN.

PMID: 23678677 [PubMed - indexed for MEDLINE]
Guggulu

- Well known herbal drug from vedic period.
- Medohara Karma of Guggulu in different Classics are also described.

ANTIARTHRITIC AND ANTI-INFLAMMATORY ACTIVITY OF GUM GUGGUL (BALSAMODENDRON MUKUL HOOK)*

By
M. L. GUJRAL, K. SAREEN, K. K. TANGRI, M. K. P. AMMA and A. K. ROY †
(Department of Pharmacology, K. G. Medical College, Lucknow University, Lucknow).
(Received on October, 3 1960)

Gum guggul is an exudate obtained by incision of the bark of the shrub Balsamodendron mukul Hook. (synonym-Commiphora mukul Engl., N. O. Burseraceae; Hindi-guggul, Sanskrit–Koushikaha, Bengali–mukul, Arabic–mokhil). It occurs as vermicular or stalactic pieces, golden yellow...
Well known herbal drug from vedic period.

Medohara Karma of Guggulu in different Classics are also described.

Cardioprotective activity of synthetic guggulsterone (E and Z-isomers) in isoproterenol induced myocardial ischemia in rats: A comparative study

Ramesh Chander, Farhan Rizvi, A. K Khanna, and Ram Pratap
Guggulu

- Well known herbal drug from vedic period.
- Medohara Karma of Guggulu in different Classics are also described.

PubMed:

**Abstract**


**Antibacterial activities** of some constituents from oleo-gum-resin of Commiphora mukul.

Saeed MA, Sahir AW

**Author information**

1Department of Pharmacy, University of the Punjab (Allama Iqbal Campus), Lahore-54000, Pakistan. moasif1605@hotmail.com

**Abstract**

The essential oil, chloroform extract and seven sesquiterpenoids compounds newly isolated from the oleo-gum-resin of Commiphora mukul exhibited a wide range of inhibiting activity against both Gram (+) and Gram (-) bacteria.

PMID: 15030926 [PubMed - indexed for MEDLINE]
• *Purana Guggulu*’ is attributed with ‘Atilekhana’ in comparison to *Naveena Guggulu*. [BP, Karpuradi Varga, 42]

• Only one work is carried out on comparison of *Naveena* and *Purana Guggulu* by Vyas Kruti et al (2013) in IPGTRA, Jamnagar.

• Study concluded that *Purana Guggulu* showed significant effect in all parameter of *Medoroga*, while *Naveena Guggulu* showed better anti-hyperlipidaemic effect.

• Possibly, this duration may not be sufficient to provide better anti-hyperlipidaemic activity.

• Looking into this, three years old sample is taken as *Purana* for further evaluation.
• Also, due to practical difficulties in preparing pills out of Gomutra shodhita Guggulu in that study, Navaka Guggulu formulation is chosen for comparative study.

• Navaka Guggulu is a well known poly herbal formulation containing Guggulu (Commiphora wightii Arn. Bhandari) as main ingredient and indicated in Medoroga (Hyperlipidaemia), Sthaulya (Obesity) and other Kaphaja roga (diseases due to Kapha).

• This formulation is reported for its anti-obesity activity.*

It has also been studied along with other drugs in Hyperlipidaemia.**

• Considering all these, attempts were made to evaluate comparative anti-hyperlipidaemic activity of Navaka Guggulu prepared with fresh (Naveena) and three year old (Purana) samples.

*Srivastav R, Dave AR, Shukla VD. A clinical study on aetiopathogenesis of sthaulya (obesity) and its management by Navaka Guggulu, AYU, 2006; 27(4):90-93

Materials & Methods

- **Drug Collection:**

  *Guggulu* was collected from naturally cultivated plants by traditional tapping method from **Dwaraka Forest Range**, Jamnagar in Dec-2010 to Jan 2011 (preserved for 3 yrs to make *Purana*) and December 2013 to January 2014 (*Naveena* sample).

  Other raw drug materials were collected from the Pharmacy, Gujarat Ayurved University, Jamnagar

- **Drug Preparation:**

  *Guggulu Shodhana* was done by *Swedana* (boiling) in *Gomutra*.

  *Navaka Guggulu* was prepared from each Fresh and Old samples by following reference of *Chakradutta*. 
# Navaka Guggulu

न्योषागित्रिफलामुस्तविड्डृगुगुल्लसमूः।
खादनू सर्वाङ्गस्य व्याधीनू मेदः श्लेष्मामवातजानू॥

(Chakradutta, medoroga-18/36)

<table>
<thead>
<tr>
<th>No.</th>
<th>Ingredients</th>
<th>Latin name</th>
<th>Part used</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Haritaki</td>
<td><em>Terminalia chebula</em> Retz.</td>
<td>Dried Pericarp</td>
<td>1 part</td>
</tr>
<tr>
<td>2</td>
<td>Bibhitaki</td>
<td><em>Terminalia belerica</em> Roxb.</td>
<td>Dried Pericarp</td>
<td>1 part</td>
</tr>
<tr>
<td>3</td>
<td>Amalaki</td>
<td><em>Phyllanthus emblica</em> Linn.</td>
<td>Dried Pericarp</td>
<td>1 part</td>
</tr>
<tr>
<td>4</td>
<td>Shunthi</td>
<td><em>Zingiber officinale</em> Roxb.</td>
<td>Dried Rhizome</td>
<td>1 part</td>
</tr>
<tr>
<td>5</td>
<td>Maricha</td>
<td><em>Piper nigrum</em> Linn.</td>
<td>Dried Fruit</td>
<td>1 part</td>
</tr>
<tr>
<td>6</td>
<td>Pippali</td>
<td><em>Piper longum</em> Linn.</td>
<td>Dried Fruit</td>
<td>1 part</td>
</tr>
<tr>
<td>7</td>
<td>Musta</td>
<td><em>Cyperus rotundus</em> Linn.</td>
<td>Dried Rhizome</td>
<td>1 part</td>
</tr>
<tr>
<td>8</td>
<td>Vidanga</td>
<td><em>Embelia ribes</em> Burm.</td>
<td>Dried Fruit</td>
<td>1 part</td>
</tr>
<tr>
<td>9</td>
<td>Chitraka</td>
<td><em>Plumbago zeylanica</em> Linn.</td>
<td>Dried Root</td>
<td>1 part</td>
</tr>
<tr>
<td>10</td>
<td>Guggulu</td>
<td><em>Commiphora wightii</em> (Arn)Bhandari.</td>
<td>Excaudate</td>
<td>9 parts</td>
</tr>
</tbody>
</table>
Selection of patients:

The study was conducted at IPGT & RA, Jamnagar.

The study was started after obtaining approval from Institutional Ethics Committee (PGT/7-A/Ethics/2013-2014/2753/2.14,) and registered at Clinical Trial Registry of India, ICMR, New Delhi. (CTRI/2014/07/004798)
Inclusion criteria:

- Age between 20 to 60 years.
- Elevated levels of S. Cholesterol (>200mg/dL) and/or
- Elevated S. Triglycerides (>150mg/dL) and/or
- Elevated S.LDL (>130mg/dL) and/or
- Elevated S. VLDL (>40mg/dL)*.

Exclusion criteria:

- Age of patients less than 20 years and more than 60 years.
- Any concomitant serious disorders of the liver, kidneys, heart, lungs and other organs.
- Gravid women and lactating mothers.
- Persons undergoing treatment for any other serious illness.

Type of study: Randomized Double blind study.

Grouping:

Selected patients were randomly divided into two groups. One group of patients were administered with *Navaka Guggulu prepared from Naveena sample* and the other with *Navaka Guggulu prepared from Purana sample*.

- **Dose**: 2gm twice a day.
- **Anupana**: Luke warm water.
- **Sevana Kala**: *Prabhat & Sayam* (before meal)
- **Duration**: 8 weeks
- **Follow-up**: 4 weeks
3 patient were having complain of nauseous sensation due to smell of pills so they refuse to take medicine.
3 patients quit treatment because of unknown reasons.
2 went out of station for long duration & did not return.

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of patients</th>
<th>Registered</th>
<th>Completed</th>
<th>Dropout</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40</td>
<td>37</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>41</td>
<td>36</td>
<td>05</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>81</td>
<td>73</td>
<td>08</td>
<td></td>
</tr>
</tbody>
</table>
Effect on classical symptoms

- Both groups were also seen to exhibit statistically highly significant results against Skhudraswaswa and Sada.
- The above findings are consistent with the Ama Pachana, deepana, Lekhana, laghavakara, vatakaphahara properties of the drug which result in the reduction of sada, Kshudra Shvasa and nindradhikya.
## Effect on biochem & haematological parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>A (n=37)</th>
<th>B (n=36)</th>
<th>Parameters</th>
<th>A (n=37)</th>
<th>B (n=36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBS</td>
<td>0.16↓</td>
<td>3.35↓</td>
<td>Uric acid</td>
<td>27.30↓</td>
<td>0.61↓</td>
</tr>
<tr>
<td>Blood urea</td>
<td>8.45↑</td>
<td>0.44↑</td>
<td>S.calcium</td>
<td>0.49↓</td>
<td>0.51↓</td>
</tr>
<tr>
<td>S.Creatinine</td>
<td>1.72↑</td>
<td>3.21↓</td>
<td>WBC</td>
<td>4.46↑</td>
<td>3.32↑</td>
</tr>
<tr>
<td>SGPT</td>
<td>13.22↓</td>
<td>25.47↓</td>
<td>neutrophills</td>
<td>0.87↑</td>
<td>1.63↑</td>
</tr>
<tr>
<td>SGOT</td>
<td>13.11↓*</td>
<td>17.72↓*</td>
<td>lymphocyte</td>
<td>1.68↓</td>
<td>6.34↓</td>
</tr>
<tr>
<td>t. Protine</td>
<td>2.20↓*</td>
<td>1.37↓</td>
<td>eosinophil</td>
<td>0.00</td>
<td>3.82↓</td>
</tr>
<tr>
<td>Albumin</td>
<td>1.89↑</td>
<td>1.50↑</td>
<td>monocyte</td>
<td>0.00</td>
<td>2.24↓</td>
</tr>
<tr>
<td>Globulin</td>
<td>7.65↓**</td>
<td>2.33↓*</td>
<td>Hb%</td>
<td>0.74↓</td>
<td>0.33↓</td>
</tr>
<tr>
<td>Alkaline phosphate</td>
<td>2.10↓</td>
<td>1.09↓</td>
<td>PCV</td>
<td>0.48↓</td>
<td>0.85↓</td>
</tr>
<tr>
<td>Bilirubin (T)</td>
<td>2.50↓</td>
<td>4.97↓</td>
<td>RBC</td>
<td>0.11↑</td>
<td>0.80↓</td>
</tr>
<tr>
<td>Bilirubin (D)</td>
<td>1.96↑</td>
<td>8.58↓</td>
<td>platelets</td>
<td>0.52↓</td>
<td>2.66↑</td>
</tr>
</tbody>
</table>
Effect on biochemical parameters (in %)

<table>
<thead>
<tr>
<th></th>
<th>S.Cholesterol</th>
<th>S.Triglyseride</th>
<th>S.HDL</th>
<th>LDL</th>
<th>VLDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>-8.94</td>
<td>-22.76</td>
<td>-4.67</td>
<td>-6.28</td>
<td>-23.1</td>
</tr>
<tr>
<td>Group B</td>
<td>-4.58</td>
<td>-17.26</td>
<td>-4.56</td>
<td>-1.31</td>
<td>-17.76</td>
</tr>
</tbody>
</table>

- Group A showed Highly significant decrease in S.Cholesterol, and significant decrease in S.Triglyseride and VLDL level, whereas Group B significantly decreased S.Tryglyseride and VLDL
Overall effect of therapy

A(n=37) & B (n=36)
Unveiling of Blinding

After completion of study duration, data was subjected to relevant statistical tools and then Blinding of the Groups were opened.

**Group A**: *Navaka Guggulu* prepared from *Purana* Sample

**Group B**: *Navaka Guggulu* prepared from *Naveena* Sample
Discussion

• Group A showed significant effect to reduce symptoms, which may be due to Old sample of Guggulu that is accredited with great scrapping (Atilekhaniya) property than Fresh Guggulu.
• Appetite was found insignificantly increased in group A inferring appetizer property Guggulu.
• On comparison, both groups showed anti-hyperlipidaemic effect.
• Guggulsterone-E and Z is claimed as bioactive compounds of Guggulu which shows anti hyperlipidaemic effect. In analytical study, both groups found to contain Guggulusteron-E and Z.
• Effect in lowering S. Cholesterol, S. Triglyseride and VLDL found more in group A.
• It may be due to more concentration of Guggulsterone-E in Purana Guggulu.
# Mode of action of *Navaka Guggulu*

Mostly combination of *Katu-Rasa, Laghu, Ruksha Guna and Ushna-Virya, Katu-Vipaka Pradhana* drugs in *Navaka Guggulu* having all the properties to break down pathogenesis of hyperlipidaemia.

<table>
<thead>
<tr>
<th>properties</th>
<th>action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katu rasa</td>
<td>Sneha, Meda, Kleda Upashoshaka, Deepana, Pachana. Hence it may digest the Ama &amp; reduce the increased Kleda in the body.</td>
</tr>
<tr>
<td>Laghu, ruksha &amp; tikshna Guna</td>
<td>Reduction of over nourished Dhatu by Lekhana Karma. Kledashoshana &amp; medahara karma</td>
</tr>
<tr>
<td>Ushna veerya</td>
<td>Improves jatharagni &amp; dhatvagnimandhya by its deepana, Ama pachana and kapha vatahara properties</td>
</tr>
<tr>
<td>Katu vipaka</td>
<td>causes Dhatu Kshaya and reduces excessive Meda Dhatu</td>
</tr>
</tbody>
</table>

These qualities are beneficial in lowering the lipid profile in the registered patients.
Conclusion

*Navaka Guggulu* formulation poses anti-hyperlipidaemic activity and also beneficial in weight reduction. Use of three year old *Guggulu* can give better effect in comparison to freshly collected *Guggulu*. 
Acknowledgement

Guide—Prof. P.K. Prajapati
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Gujarat Ayurveda University
Thank you