

## PHYSICO & PHYTO-CHEMICAL ANALYSIS OF RASANA GUGGULU

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Received date: 14 June 2022

Revised date: 04 July 2022

Accepted date: 24 July 2022

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### ABSTRACT

Rasna guggulu is a polyherbal Ayurvedic formulation. It is widely used for all types of vata vyadhis. An attempt had been made to investigate the Preliminary Physico & Phyto chemical of extracts of Rasna Guggulu. **Methods:** Preliminary Physico Phytochemical studies was done using standard procedure with aqueous, chloroform, ethanol, methanol and acetone extracts of Rasna Guggulu. The different extracts of Rasna Guggulu were extracted by Soxhlet apparatus (Hot percolation method). **Results:** The results of the test showed that alkaloids, carbohydrate, flavonoids, tannins, diterpenes, phenols and quinine, gum and mucilage were present and absence of Saponin. Extract values revealed the solubility and polarity particulars of the metabolites in the Rasna Guggulu. Rasna Guggulu contains the dravyas which are Vata Shamana and Shula hara. In my study I could have taken with the combination of Rasna Guggulu along with Prasaarini Taila Nasya administered in treatment of apabahuka and outcome measures will be assessed.

**KEYWORDS:** Rasna Guggulu, Physico-Phytochemical studies, Apabahuka, vatavyadhi.

### INTRODUCTION

Herbal Plants have been a chief source of medicines from thousands of years. According to the latest report of WHO, more than 80% people are completely relying on the herbal medicines. These medicinal plants are a good source of chemically diverse phytoconstituents. The phytochemical investigations of medicinal plants have shown up the diversified useful chemical entities like alkaloids, steroids, flavonoids, saponins etc. These have significant pharmacological actions in human body like anti-inflammatory, analgesics, antioxidants, antimicrobial etc.

Rasna is an Ayurvedic drug. This drug is known from the Vedic period as a major ingredient in compound formulations. Rasna is used as the appropriate choice in rheumatic complaints. Due to this superior efficacy of Rasna, Charaka includes it in the “vayasthapana varga” the group of drugs that can maintain vigour and strength. He commends that “rasna vataharanam” - best among vatahara drugs, means the right choice for rheumatic complications.<sup>[1]</sup> Pharmacological properties of Rasna like immunostimulant, anti-bacterial, anti-viral, anti-inflammatory, anticancer, antirheumatic.

Guggulu is a slow-growing, highly branched shrub or small tree, grows in the arid rocky tracts of Rajasthan, Gujarat, Madhya Pradesh and Karnataka States of India. Guggulu became one of those herbs holding huge prospects for the development of hypolipidemic and anti-atherogenic drug. pharmaceutical properties like Binding agent, Anti-obesity agent and Cholesterol-reducing agent.

Rasna guggulu one of the best in vata-kaphahara & vedanashamaka shamanaushadhi containing many vatahara dravyas assumed to be beneficial.<sup>[2]</sup>

### AIMS AND OBJECTIVES

To detail study about Physico & Phyto-Chemical analysis of Rasna Guggulu.

### MATERIAL AND METHODS

#### Source of data

1. Classical text books of Ayurveda
2. Texts books of Modern science
3. Published article from periodical journals and other magazines.

**DETAIL STUDY OF METHOD OF PREPARATION OF RASNA GUGGULU****Method of preparation:** Rasna guggulu.<sup>[3]</sup>

Taken 40gm of Rasna & 50gm of Guggulu should be mixed & pounded together with ghee and maded into pills.

➤ **RASNA:** Classical study<sup>[4]</sup>

**Botanical Name:** Alpinaia officinarum Hance**Family:** Zingiberaceae**Synonyms:** Elaparni, Yukta rasa, Sugghanda.**VERNICULAR NAMES**

Hindi: Rasna, English: Lesser galangal, Telugu: Sannarashtram

**PART USED:** Leaves, Rhizome.**PROPERTIES**

- Rasa: Tikta
- Guna: Guru
- Virya: Ushna
- Vipaka: Katu
- Karma: Vayastapana
- Dosha Karma: Kaphavatahara

**INDICATION:** Kasa, Shwasa, Hikka, Shopha, Jwara, Amavata, Shoola, Udara.**CLASSICAL CATEGORIZATION**

- Charaka Samhitha: Vayasthapana, Anuvasanopaga
- Sushruta Samhitha: Arkadi gana, Shleshmasamshamana varga

**CHEMICAL CONSTITUENTS:** Galangin, Kaempferide, Diarylheptanoids.**DOSAGE:** Powder: 5-6 gm, Decoction: 40-50 ml.

➤ **GUGGULU:** Classical study.<sup>[5]</sup>

**Botanical Name:** Commiphora mukul.**Family:** Burseraceae.**Synonyms:** Kousika, Devadoopa, Palamkasa, Pura.**VERNICULAR NAMES**

Hindi: Guggula, English: Indian Bedellium, Kannada: Kanthagana, Telugu: Guggilam etc.

**PART USED:** Olceo-resin/Gum.**PROPERTIES**

- Rasa: Tiktha, Katu
- Guna: Laghu, Ruksha, Vishada, Sookshma, Sara, Snigdha, Picchila
- Virya: Ushna
- Vipaka: Katu
- Karma: Rasayana, Vrushya, Lekhana
- Dosha Karma: Tridosahara

**CHEMICAL CONSTITUENTS**

Oleoresin- Z-Guggulsterone, E- Guggulsterone, Gum-Guggullignans 1 and 2, Guggulu tetrols, mukulol.

**DOSAGE:** 2-4 gm.**CLASSICAL CATEGORIZATION**

- Charaka Samhitha: Sanjaasthapana.
- Sushruta Samhitha: Eladi gana.
- Vagbhata: Eladi gana.

**The preliminary physicochemical screening test was carried out for Rasna Guggulu as per the standard procedures mentioned hereunder.**

**1. Loss on Drying:** An accurately weighed 1g of RASANA GUGGULU formulation was taken in a tarred glass bottle. The crude drug was heated at 1050C for 6 hours in an oven till a constant weight. The Percentage moisture content of the sample was calculated with reference to the shade dried material.

**2. Determination of total ash:** Weighed accurately 2g of RASANA GUGGULU formulation was added in crucible at a temperature 6000C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air-dried drug.

**3. Determination of acid insoluble ash:** Ash above obtained, was boiled for 5min with 25ml of 1M Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper was burnt to a constant weight in a muffle furnace. The percentage of acid insoluble as was calculated with reference to the air-dried drug.

**4. Determination of water-soluble ash:** Total ash 1g was boiled for 5min with 25ml water and insoluble matter collected on an ash less filter paper was washed with hot water and ignited for 15 min at a temperature not exceeding 4500C in a muffle furnace. The amount of soluble ash is determined by drying the filtrate.

**5. Determination of water-soluble Extractive:** 5gm of air-dried drug, coarsely powered RASANA GUGGULU was macerated with 100ml of distilled water in a closed flask for twenty-four hours, shaking frequently. The Solution was filtered and 25 ml of filtrated was evaporated in a tarred flat bottom shallow dish, further dried at 1000C and weighted. The percentage of water-soluble extractive was calculated with reference to the air-dried drugs.

**6. Determination of alcohol soluble extractive:** 1 gm of air-dried drug coarsely powdered RASANA GUGGULU was macerated with 20 ml alcohol in closed flask for 24 hrs. With frequent shaking, it was filtered rapidly taking precaution against loss of alcohol 10ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 1000C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

**Table 1: The observed values of the physic-chemical properties are given below.**

S, NO	PARAMETERS	PERCENTAGE
1	Loss on drying	12.2724%
2	Total ash value	11.3335%
3	Acid insoluble ash	2.5457%
4	Water soluble ash	6.1442%
5	Water soluble extraction	48.7669%
6	Alcohol soluble extraction	1.2340%

### Preliminary Phytochemical screening of Rasna Guggulu

The preliminary phytochemical screening test was carried out for each extract of RASANA GUGGULU as per the standard procedure mentioned here under.

**1. Detection of alkaloids:** Extracts were dissolved individually in dilute Hydrochloric acid and filtered.

**a) Mayer's Test:** Filtrates were treated with Mayer's reagent (Potassium Mercuric Iodide). Formation of a yellow colour precipitate indicates the presence of alkaloids.

**b) Dragendroff's Test:** Filtrates were treated with Dragendroff's reagent (Potassium Bismuth Iodide). Formation of a red precipitate indicates the presence of alkaloids.

**c) Wagner's Test:** Filtrates were treated with Wagner's reagent (Iodine in Potassium Iodide). Formation of brown/reddish precipitate indicates the presence of alkaloids.

**2. Detection of carbohydrates:** Extracts were dissolved individually in 5 ml distilled water and filtered. The filtrates were used to test for the presence of carbohydrates.

**a) Molisch's Test:** To 2 ml of plant sample extract, two drops of alcoholic solution of  $\alpha$ naphthol are added. The mixture is shaken well and few drops of concentrated sulphuric acid are added slowly along the sides of test tube. A violet ring indicates the presence of carbohydrates.

**b) Benedict's Test:** Filtrates were treated with Benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugars.

**3. Detection of saponins Foam Test:** 0.5 gm of extract was shaken with 2 ml of water. If foam produced persists for ten minutes it indicates the presence of saponins.

**4. Detection of phenols Ferric Chloride Test:** Extracts were treated with 3-4 drops of ferric chloride solution. Formation of bluish black color indicates the presence of phenols.

**5. Detection of tannins Gelatin Test:** The extract is dissolved in 5 ml of distilled water and 2 ml of 1% solution of Gelatin containing 10% NaCl is added to it. White precipitate indicates the presence of phenolic compounds.

### 6. Detection of Flavonoids

**a) Alkaline Reagent Test:** Extracts were treated with few drops of sodium hydroxide solution. Formation of intense yellow color, which becomes colorless on addition of dilute acid, indicates the presence of flavonoids.

**b) Lead acetate Test:** Extracts were treated with few drops of lead acetate solution. Formation of yellow color precipitate indicates the presence of flavonoids.

**7. Detection of diterpenes Copper Acetate Test:** Extracts were dissolved in water and treated with 3-4 drops of copper acetate solution. Formation of emerald green color indicates the presence of diterpenes.

**8. Test for Quinones:** Extract was treated with sodium hydroxide blue or red precipitate indicates the presence of Quinones.

**9. Gum and Mucilage:** To 1ml of extract add 2.5ml of absolute alcohol and stirring constantly. Then the precipitate was dried in air and examine for its swelling properties. Swelling was observed that will indicate presence of gum and mucilage.

The Preliminary phytochemical studies of aqueous extract of RASANA GUGGULU were done using standard procedures & the results were presented in tables.

**Table 2: The present study reveals that the bioactive compounds were present in all the extracts of Rasna Guggulu.**

S.No.	Phytochemicals	Test Name	H2O Extract
1	Alkaloids	Mayer's Test Dragendroff's Test Wagner Test	+ve +ve +ve
2	Carbohydrates	Molisch's Test Benedict Test	+ve +ve
3	Saponin	Foam Test	-ve
4	Phenols	Ferric Chloride Test	+ve
5	Tannins	Gelatin Test	+ve
6	Flavonoids	Alkaline Reagent Test Lead acetate	+ve +ve

7	Diterpenes	Copper Acetate Test	+ve
8	Quinones	Test for Quinones	+ve
9	Gum & Mucilage	Test for Gum & Mucilage	+ve

+ve/-ve present or absent if component tested



## DISCUSSION

- The observed values of the physico-chemical properties loss on drying (12.2724%), total value of ash (11.3335%), acid insoluble ash (2.5457%), water soluble ash (6.1442%), water soluble extraction (48.7669%), alcohol soluble extraction (1.2340%)
- In Rasna Guggulu formulation the phytochemicals properties like alkaloids, carbohydrates, phenols, tannin, flavonoids, diterpenes, quinones, gum & mucilage are positive values except saponin having the negative value.
- Rasna guggulu one of the best in vata-kaphahara & vedanashamaka shamanaushadhi containing many vatahara dravyas assumed to be beneficial.

## CONCLUSION

- Rasna having the properties of Anti-inflammatory, Antioxidant, Antibacterial, Analgesic, Laxative & Digestive.
- Rasna reduces vitiated Kapha & Vata dosha and having special action Vishaghana (Controls the poison).
- Guggulu has been used for centuries in Ayurvedic medicine, a holistic, plant-derived medical system, to treat various health conditions, such as obesity, arthritis, and inflammation.
- Guggulu have anti-inflammatory and antioxidant properties, it is a Tridosahara & used in ancient medicine to protect against a variety of diseases.
- In this preparation of Rasna Guggulu used some prakshepakara dravya like Ghee, to make guggulu & it act as digestive, and reduces Vata & Pitta doshas.

## REFERENCES

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