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PREPARATION AND ANTI-MICROBIAL STUDY OF KASASHWASAVIDHUNANO RASA IN-VITRO

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ABSTRACT:

Kasashwasavidhunano Rasa is a drug used in Respiratory disorders in the Indian System of Medicine. It is an herbomineral formulation made up of Parad, gandhak, yavakshara, ruchaka lavana, and maricha churna by triturating in Tulsi patra Swarasa and indicated in Shwasa, Kasa. This action of Kasashwasavidhunano Rasa may be due to its antimicrobial activity so the in vitro antimicrobial activity was assessed by the Agar Disc Diffusion method concerning streptococcus pneumonia and Morxella catarrhal. **Objective:** To prepare and evaluate the antimicrobial effect of Kasashwasavidhunano Rasa. **Method:** Kasashwasavidhunano Ras was prepared using the reference of Yogratnakar. Parada (Mercury) and Gandhak (sulfur) were purified and then triturated to form Kajjali. Then raw drugs of maricha were converted into powder form, and all the ingredients i.e. kajjali, maricha churna, yavakshar, ruchaka lavana were mixed and triturated with the help of Tulsi swaras. The final product was in churna from which it was dried and stored. The antimicrobial activity of Kasashwasavidhunano Ras against streptococcus pneumonia and morxella catarrhal bacteria was evaluated using the agar cup diffusion method. **Result:** Kasashwasavidhunano Ras shows a significant antibacterial spectrum against streptococcus pneumonia and morxella catarrhal. **Conclusion:** This study shows that Kasashwasavidhunano Ras has antimicrobial potency and it can be clinically used for infectious respiratory disorders.

KEYWORDS: Kasashwasavidhunano Rasa, Herbomineral formulation, antimicrobial activity, antibacterial activity, respiratory disorders.

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INTRODUCTION:

Kasa is Pranavaha Stroto adusthijanya Vyadhi. It is one of the independent diseases. Cough occurs due to irritation of respiratory mucosa and the mechanism of the respiratory system helps to bring out secretion from trachea and bronchi. Recurrent attacks make one suffer and may have adverse effects on day-to-day life. Cough occurs in association with acute upper respiratory infection, acute pharyngitis, acute bronchitis, and chronic sinusitis, all of which rank among the top 10 reasons for visiting family physicians ⁽¹⁾. Kasa is caused by to vitiating of Tridoshas (Three body constituents). The vitiating Prana Vayu along with Udana Vayu further gets aggravated in association with other Doshas and expelled abruptly with a, coughing sound" like the broken bronze vessel, called Kasa ⁽²⁾. The Yogratnakar mentions a unique formulation known as Kasashwasavidhunano Rasa. This is prepared of shuddha Parad (purified

mercury), shuddha Gandhak (purified sulfur), Yavakshar, Rochak Lavana (sauvarchal lavan), and Maricha churna triturated with Tulsi swaras. This kalpa is used in respiratory disorders like kasa (cough) and shwasa (dyspnoea). ⁽³⁾ These conditions affect people of all ages and can lead to significant morbidity and mortality, especially in individuals with weakened immune systems and lungs who are particularly vulnerable to viral or bacterial respiratory infections. Unfortunately, many human pathogens have become resistant to synthetic drugs. While there are reports on the proven antimicrobial activity of ayurvedic plants, very few studies have been conducted on herbomineral formulations. This topic was chosen for the study, and streptococcus pneumoniae and morxella catarrhalis were selected for the present investigation as they are commonly found in infectious conditions.

Materials and methods: Ingredients of Kasashwasavidhunano Rasa are listed below in

Table 1. All the ingredients were purchased from the local market:

SR.NO	Ingredients	Latin Name	Part Used	Quantity
1.	Shuddha Parada	Hydrargyrum	-	1 Part (20gm)
2.	Shuddha Gandhak	Sulfur	-	2 Parts (40g)
3.	Yavakshar	Hordeum vulgare	Whole Plant	3 Parts (60gm)
4.	Ruchaka lavana	Sodium chloride	-	4 parts (80g)
5.	Marich Churna	Piper nigrum	Fruit	5 parts (100gm)
6.	Tulsi (Bhavana Dravya)	Ocimum sanctum	Leaves	q.s

Method of preparation:**1)Parada Shodhan(Purification of Mercury)⁽⁴⁾:**

Ashuddha Parada was taken in Khalva Yantra with an equal quantity of Sudha and triturated for 3 days.



Then it was washed with water and filtered with 2 layered cotton cloth and Parada will be separated.



Again, the mercury was triturated with an

equal quantity of Rasona Kalka and half a quantity of Saindhav till it became black.



Then the mixture was to be carefully washed till Shuddha Parada was obtained.

2)Gandhak Shodhan (Purification of Sulfur)⁽⁵⁾:

Goghruta and Ashuddha Gandhak were taken in an iron vessel and heated till they melted



Then it was filtered into a vessel containing

cow's milk with the help of cotton cloth and then washed with water.



This procedure was repeated three times with different milk each time.

After this Shuddha Gandhak will be obtained.

3) Kajjali Nirman⁽⁶⁾:

1 Part of Shuddha Parada and 2 parts of Shuddha Gandhak were added in khalva yantra.



The mixture was triturated till it became black

This black-colored powder with no shiny particles in it is called as 'kajjali'.

4) Preparation of kshar-

1) Yavakshar Nirman⁽⁷⁾-

The Pachanga of yava was collected in the appropriate season including all the pachanga (root, stem, leaves, flowers, and fruits).



The plant was entirely dried under the sun.



The completely dry plant was burnt into ash in the vessel till it turned white.



When cool on its own, the ash was taken in a bigger stainless-steel vessel.



Then it was added with 8 times of water, macerated well, and left undisturbed overnight.



The next morning the supernatant water was filtered for 7 times through a clean cloth.



The final filtrate was placed over mild fire till evaporate the liquid part.



The fine white powder (yavakshar) left at the base of the vessel was collected and stored.

5) Churna⁽⁸⁾ preparation of herbs-

a) Maricha⁽⁹⁾ Churna:

Raw Maricha was collected



And turned into powder form separately



It was sieved by mesh size number 85



stored in an airtight container

6) Preparation of Tulsi⁽¹⁰⁾ swaras⁽¹¹⁾:

Wet and clean tulsi leaves were taken in khalva yantra



it was grounded till Kalka (paste form) is obtained



Kalka was taken in clean cloth



and squeeze out all the swaras from the Kalka in a clean container



And the obtained swaras were used in the trituration of the drugs.

7) Churna Nirman: After completing the Bhavana (trituration) of Tulsi swaras, fine powder (churna) of 300 grams was obtained, dried, and stored in an airtight container.

F. Preparation of Kasashwasavidhunan rasa:

Kasashwasavidhunan rasa will be prepared as described in Yogratnakar – kasachiktsa Kajjali, Yavakshar, Ruchaka lavana, and Maricha churna will be taken in Khalva

Yantra



all the ingredients will be mixed properly



Bhavana of tulsi swaras will be given



The prepared formulation (Kasashwasavidhunano rasa) will be stored in an airtight container.

- The Kasashwasavidhunano Rasa antimicrobial activity was assessed in the National Facility for Biopharmaceuticals lab in Matunga, Mumbai.

Test organisms

- 1) Streptococcus pneumoniae (MTCC 655)
- 2) Moraxella catarrhalis (ATCC 25238)

Antimicrobial activity was done using the Agar cup diffusion method.

1. The test organism was grown in Mueller Hinton broth, providing an incubation period of 48hr and then used for the study,

Sr.No.	Sample	Zone of Inhibition(mm)	
		MTCC 655	ATCC 25238
1	Kasashwasavidhunano ras	20	22
2	NC (St. Distilled water)	-	-
3	PC (chloramphenicol)	21	27

DISCUSSION:

Kasashwasavidhunano rasa prepared by Parada, Gandhaka, Yavakshara, Rochaka lavan, and Maricha by triturating in tulsi patra Swarasa. Mercurial products show synergistic action when combined with other Plants, metals, and minerals. Kajjali enhances drug properties. Maricha is ushna, Tikshna, kaphaghna and acts as a kasahara and shwasahar. T is kaphaghna and dipan. Ajaa kshir is laghu, ushna, kasahar and shwasaha.

CONCLUSION:

Results and findings suggest that Kasashwasavidhunano Rasa has excellent potential as an antimicrobial activity against Streptococcus pneumoniae and Moraxella catarrhalis, and it can be used to treat infectious respiratory disorders.

2. The optical density of the bacterial culture was adjusted using 0.5 McFarland standards (10 cfu/ml) and the cell suspension was mixed to homogeneity to give a final density of 1×10^8 CFU/ml then taken ahead for checking the antimicrobial activity using agar cup diffusion method.

3. Each plate contained three samples. 0.1ml volume of each sample was loaded into the wells and the plate was incubated at room temperature for 30°C for 48hr.

Result: In the present study Kasashwasavidhunano Rasa was tested for its antimicrobial Activity against Streptococcus pneumoniae and Moraxella catarrhalis along with the standard drug Chloramphenicol and distilled water

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