

A PHARMCEUTICO ANALYTICAL STUDY OF AMAVATARI RASA - A HERBAL FORMULATION

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ABSTRACT

Ayurveda is the most ancient medical sciences which deal with the powerful medicines with the use of herbals, minerals and herbo-minerals. *Amavatari Rasa* is one of the most powerful *Ayurvedic* formulation which comes under the polyherbal formulations, it contains *Eranda moola*, *Triphala*, *Shuddha Chitraka*, *Shuddha Vatsanabha* as main ingredients and *Gomutra* as *Bhavana dravya* indicated in *SarvaVatavikara*. as it is a *Vatsanabhayukta-Kashtoushadi* and irrespective of other *Kashtoushadis* its name and its less dose indicates that it is more potent than the other *Amavataharakashtoushadhis*, assimilation in the body is much faster even though the dose is very less and it can competent with other *Amavatahara Rasaushadis*. *Amavatari Rasa* was prepared as per the classical reference as there was no analytical standards available for *Amavatari* rasa in Ayurvedic pharmacopeia of India to check its quality, in this study an effort has been made to carry out the pharmaceutico Analytical study of *Amavatari Rasa*. The result obtained will be the reference standards and can also be used for future studies on *Amavatari Rasa* standardization.

Keywords: *Amavatari Rasa*, Pharmaceutico Analytical Study

INTRODUCTION

Ayurveda is a monumental contribution of India to the world. As the name implies, *Ayurveda* (Ayuh: life, Veda: knowledge) is an organized body of knowledge of healthy living. *Rasashastra and bhaishajyakalpana* is an integral part of *Ayurveda* plays a crucial role and it is concerned with the preparation, uses, effects and mode of action of the drugs. *Khalvi Rasayanas* are the medicine prepared by specially designed grinding which acts as an elixir by preventing old age, prolonging life and cures the diseases. The specialty of *Khalvi Rasayanas* lies in binding different varieties of drugs into a single molecular form and here by minimizing the dose and more efficacious in their actions. The trituration process facilitates to fulfill the objectives. *Amavatari Rasa* comes under the *Khalvi Rasayana Kalpana*. *Amavatari Rasa* is a classical formulation, mentioned by different *Acharyas* in the management of *Amavata*. There are 5 references of *Amavatari Rasa* found in different classical texts with different ingredients, *Bhavana Dravyas, Matra, Anupana*, and indications. Among these *Amavatari Rasas* the drug selected for study from *Rasendra Chintamani* which is purely herbal, unexplored and a unique preparation mentioned in *Amavatadhikara* and for *Sarva Vata Vikaranut*. But not found as a prescribed drug. The foremost reason for this is its non-availability in the markets. As it has not been the part of the classical preparations of most manufacturing companies. *Amavatari Rasa* contains *Eranda moola, Triphala, Gomutra, Shuddhachitraka, Shuddhavatsanabha*. as it is a *Vatsanabhashodhan* and irrespective of other *kashthoushadhis* its name and its dose indicates that it is more potent than the other *amavataharakashthoushadhis*, assimilation in the body is much faster

even though the dose is very less and it can compete with other *Amavatahara Rasaushadis*. In our classics *amavata* is considered as a *yapya* diseases because of the Pharmacological activities of each ingredients of it *Amavatari Rasa* it can act on the *amavata* from its early stages and the composition is like that it can be used for long term. It acts *Deepana, Pachana, VataAnulomana, Jwaraghna, Soolahara, Shothagna, Swedajanana, Rasayana*. The quality of each ingredient of *Amavatari Rasa* is very significant on the symptoms of *Amavata*, especially *Vatsanabha* and *Eranda moola*. In addition, its convenient form of administration and dosage (1 *ratti*) will be more acceptable and will increase its usage in preventing and curing in *Amavata*. Though the raw materials such as the *Erandamoola, Triphala, Gomutra, Shuddhachitraka, Shuddhavatsanabha* are available in abundance and cost effective, the formulation somehow has not been studied in depth for its potent *Amavatahara* properties. Importance of this study is to establish a purely herbal yoga on *Amavata* that is in fewer doses.

Materials and Methods

Pharmaceutical study involved in the preparation of *Amavatari Rasa*:

1. *Vatsanabhashodhana* by *Gomutrasthapana* for 3 days under sunlight³.
2. *Chitrakashodhana* by *Churnodhakasthapana* for 1 day⁴
3. preparation of fine powder of other Ingredients.
4. preparation of homogeneous mixture of *Amavatari Rasa* ingredients.
5. *Gomutra bhavana* is done for 7 days till it becomes completely dried fine powder⁵.

Table 1: Table showing the list of Ingredients with quantity

SI no	Ingredients	Scientific name	Quantity (in parts)	SI no	Ingredients	Scientific name	Quantity(in parts)
1	<i>Eranda moola</i>	<i>Ricinus communis</i>	80gms	1	<i>Eranda moola</i>	<i>Ricinus communis</i>	80gms
2	<i>Haritaki</i>	<i>Terminalia chebula</i>	80gms	2	<i>Haritaki</i>	<i>Terminalia chebula</i>	80gms
3	<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	80gms	3	<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	80gms

Method of preparation:

Procedure: Specified quantity *Erandamoola* was taken in a clean *Khalva yantra*. To this *Haritaki*, *Vibhitaki*, *Amalaki* were added one by one and triturated with each for 1 *muhurthakaala* for homogenous mixing. To this mixture *Shudha Chitraka* is added and triturated for 1 *muhurthakaala*. Then *Shodhita-Vatsanabha* was added and triturated slowly for 1 *muhurthakaala* till the homogenous mixture of *Amavatari Rasa* is obtained. Then QS of *Gomutra* which was sufficient to immerse the powdered mixture of AVR was added and triturated well until the dry powder of AVR was obtained. The procedure was repeated for 7 days and it is stored in an airtight container.

Observations

- After adding *Gomutra* AVR colour dark Khaki changed to khaki colour.

- In the beginning for about 1 hour (after adding *Gomutra*) the *Bhavana* was easy due to liquid consistency of the contents of *khalva*.
- After 1 hour of *Bhavana* the liquid consistency changed to paste consistency and by this time the movement of *peshaniwas* not as easy as earlier. *Gomutra* smell was appreciated during *Bhavana*.
- After 3 hours of *Bhavana* almost all the *Gomutra* was absorbed and the AVR mixture turned to smooth paste and after 1 hr it turned into a semi-solid state with lumps and *Bhavana* became quite uneasy.
- After 6 1/2 hours of *Bhavana* the AVR turned into fine powder with colour of light khaki and smooth consistency.

Table 2: Showing Classical Parameters for Analysis of AVR-BB

Test	Observation AVR-BB	Observation AVR-AB
<i>Varna</i>	Dark <i>Khaki</i>	<i>Khaki</i>
<i>Rasa</i>	<i>Tikta, Kashaya</i>	<i>Tikta, Kashaya, Lavana</i>
<i>Sparsha</i>	<i>Mridu</i>	<i>Mridu</i>
<i>Gandha</i>	Characteristic	Characteristic

Table 3: Showing Results of Physical Tests of AVR-BB, AVR-AB,

Parameters	AVR-BB	AVR-AB
Loss on Drying at 105°C	6.09%	6.27%
Total ash	6.41%	16.71%
Acid insoluble ash	0.79%	1.41%
Water soluble ash	3.07%	4.37%
Alcohol soluble extractives	18.09%	13.87%
Water soluble extractives	18.38%	35.21%
pH (10% aqueous solution)	3.91+/-0.10	4.81+/-0.10

Table 4: Showing Results Chemical Tests of AVR

Sample	Sodium	Potassium
AVR-BB	0.01%	0.44%
AVR-AB	0.08%	1.21%

- SEM-EDX:

Table 5: Showing SEM-EDX Results of AVR-BB

Element	Weight%	Atomic%
C	60.66	67.92
O	37.09	31.17
Na	0.36	0.21
Mg	0.04	0.02
Cl	1.03	0.39
K	0.27	0.09
Ca	0.54	0.18

Table 6: Showing SEM-EDX Results of AVR-AB

Element	Weight%	Atomic%
C	63	73.04
O	26.21	22.81
Na	0.86	0.52
Mg	0.02	0.01
Cl	4.1	1.61
K	3.89	1.38
Ca	1.54	0.53
Zn	0.39	0.08

FTIR: XRD

Table 7: Showing Particle Size of AVR-BB, AVR-AB

EFFECTIVE DIAMETER		
Sample	Z-Average (d.nm)	Pdl
AVR-BB	938.9	0.759
AVR-AB	728.9	0.693

Table 8: Showing results of Thin Layer Chromatography of AVR-BB, AVR-AB

Under Visible Light		
Rf	AVR-BB	AVR-AB
0.05	Green	Green
0.10	---	Light orange
0.13	---	---
0.23	---	---
0.31	---	Pale orange
0.34	---	---
0.44	---	---
0.62	---	---
0.72	---	---
0.82	--	---
0.85	Orange	Pale orange
0.87	---	---

Table 9: Showing results of Thin Layer Chromatography of AVR-BB, AVR-AB,

Under Long UV		
Rf	AVR-BB	AVR-AB
0.05	Fluorescent green	Fluorescent green
0.1	Fluorescent green	Bright fluorescent green
0.13	---	---
0.23	---	---
0.31	---	Light fluorescent green
0.34	---	Fluorescent green
0.44	---	---
0.62	---	---
0.72	---	---
0.82	--	---
0.85	Bright fluorescent green	Bright fluorescent green

DISCUSSION

Gomutra is a well-established Bio-Enhancer of animal origin. It increases the Bioavailability of Antimicrobial, Antifungal, and Anticancer Agents. Bioavailability is the best way to Reduce Dose, Toxicity, and Cost of Drug. Therefore, use of *Gomutra* with the core Drug is the best way to achieve this target & the *Ushna-Teeksha* properties will increase the Potency of the Formulation. When we discuss about pH is the negative logarithm of the hydrogen. The pH of AVR - BB is 3.91, AVR - AB is 4.81. Both the AVR products were found to be Acidic in nature which indicates that they can be easily absorbed in the stomach by Passive Diffusion. Acidic pH is may be due to presence of *Katu* and *Teekshna Guna Pradhana Dravya* in this Formulation. The total ash value of AVR - BB is 6.41%, AVR - AB is 16.71% which indicate that in the present study poly herbal preparation contains more amounts of Inorganic Constituents and more amounts of Organic and Bio Human available particles. Hence it can be said that the prepared AVR is within the Standard of Physical Analysis of Herbal Drugs. Acid insoluble ash value of AVR BB is 79% and AVR AB IS1.41%. It indicates that in AVR-BB, AVR -AB 99.21% & 98.59% of Drug Constituents are Acid Soluble, More the Acid insoluble ash, less the drug absorption in Acid media of stomach the slight increase in the Acid insoluble ash value in AVR -AB is due to the 7 *Bhavana* with *Gomutra*. Water soluble ash of AVR-BB is 3.07%, AVR -AB is 4.37%, it indicates

that in AVR-AB slight increase in water soluble ash than before *Bhavana* these values denote that water is not a soluble media for it. The salivary secretions, gastric enzymes play an important role in the efficacy of AVR the *Anupana Dravya Ghrita* plays an important role in the efficacy of AVR. Water soluble extractives and Alcohol soluble extractive value, Water soluble extractives of AVR - BB are 18.38% and Alcohol soluble extractive is 18.09%. Water soluble extractives of AVR - AB are 35.21% and Alcohol soluble extractive is 13.87%. Both in AVR percentage of alcohol soluble extract is less than that of water-soluble extracts, which clearly indicates presence of more amounts of water-soluble contents both preparations & the water is the best suitable media for this Formulations to exhibit its Pharmacological Actions.

When we come across with the discussion on loss on drying at 105°C, it is a physical test to detect the percentage of least moisture content and hence the shelf life of the sample. The least loss on drying at 105°C the better will be the drug. In the present study AVR-BB, AVR-AB, possessed 6.09 %, 6.27% loss on drying at 105°C. Because of the organic material processing there was 0.18% hike in the loss on drying in AVR - AB when compared to that of AVR-BB is due to the *Bhavana Dravya Gomutra*.

Discussion on Particle Size by ZETAPALS:

Particle size is one of the factors which will affect dissolution and absorption of drugs. Particle size and surface area are inversely proportional to each other, as

particle size decreases surface area increases. This leads to increase in Dissolution Drug and Rapid Absorption is a measure of the rate of solution. Mean Particle size of AVR - BB is 938.9, AVR -AB is 728.9 The Particle Size of the final products of AVR is reduced due to the *Bhavana Samskara* so as reduction in particle size will lead to better Absorption and Bioavailability of the Drug

Discussion on Elemental Analysis:

It is a physical test to detect the percentage Sodium & Potassium values: Percentage of Sodium in AVR-BB is 0.01%; AVR-AB is 0.08%, Percentage of Potassium in AVR-BB is 0.44%, AVR-AB is 1.21%, The increase in Sodium and Potassium values seen in AVR-AB is due to the 7 days *Bhavana* with *Gomutra*.

Discussion on SEM-EDX:

SEM-EDX study reveals the accurate elemental analysis of the sample, this study of elements enables us to explore Major, Minor and Trace elements. SEM-EDX study reveals Major, Minor & Trace elements. The percentage of elements present in AVR-BB is C-60.66%, O-37.09%, Na-0.36%, Mg-0.04%, Cl-1.03%, K-0.27%, Ca-0.54. The percentage of elements present in AVR-AB are C- 63%, O- 26.21%, Na- 0.86%, Mg- 0.02%, Cl- 4.1%, K- 3.89 %, Ca- 1.54%, Zn-0.39%. The percentage of Carbon has been increased in AVR-AB compared to AVR-BB it may be due to the addition of organic material. The reduction in Oxygen percentage gradually in AVR-AB compared to AVR-BB may be due to the Oxidation Process. In *Amavatari Rasa* the other minor elements like K, Ca, Na, Cl, and Mg may be due to the *Bhavana* of AVR with *Gomutra*. The percentage of Cl, K, Ca have been increased in AVR-AB compared to AVR-BB it may be due to the 7 *Bhavanas* with *Gomutra* as mentioned earlier *Gomutra* is Mineral Rich containing many Elements. Variation in the percentage of elemental composition also occurred due to heterogeneity of the sample, a factor that cannot be ruled out. The above change in the percentage of elements may be due to the heat treatment, which causes breaking of bonds and the formation of new bonds resulting in the increase and decrease of other elements. The obtained peaks of AVR-BB, AVR-AB were compared with the

standard peaks. It showed the presence of different functional groups like Amine, α , β -unsaturated ketone, Amide, Alkene, Aromatics, Acid, Alcohol, Alkane, Carbonyl, Alkyl halide, Ester, and Ether. This shows the presence of organic compounds in the drug. Under visible light in AVR- BB 2 bands were observed at Rf values 0.05, 0.85 and colour of the bands Green, Orange respectively. In AVR- AB 4 bands were observed at Rf values 0.05, 0.10, 0.31, 0.85 and colour of the bands Green, Light orange, Pale orange, Pale orange respectively. Under Long UV in AVR- BB 3 bands were observed at Rf values 0.05, 0.10, 0.85 and colour of the bands fluorescent green, fluorescent green, Bright fluorescent green respectively. In AVR- AB 5 bands were observed at Rf values 0.05, 0.10, 0.31, 0.34, 0.85 and colour of the bands fluorescent green, Bright fluorescent green, Light fluorescent green, fluorescent green, Bright fluorescent green respectively.

Under visible light 2 extra bands were observed in AVR after *Bhavana* & in Under Long UV 2 extra bands were observed in AVR after *Bhavana* which indicates that the phytoconstituents are added after *Bhavana*. In present study TLC of the drug mixture is compared with the final product. The final product shows the presence of various herbal ingredients present in the formulation and hence shows that the preparation is not adulterated.

REFERENCES

1. Acharya Dhundhuk Nath. Rasendrachintamani. With "Siddhiprada"- Hindi translation. By Prof. Siddhi Nandan Mishra, First edition, Varanasi-1, Chaukhambaorientalia; 2000. 9th chapter, Amavatadhikara, verse 3, 255pp.
2. Sri Madhavakara. Madhava Nidanam with the Sanskrit commentary Madhukosa by Vijayarakshita & Srikantha Datta Edited with Vimala-Madhudhara Hindi commentary & Notes by Dr. Brahmananda Tripathi. Varanasi: Chaukhamba Surbharati Prakashan; volume1 25th chapter, verse 6 570-577pp.
3. Sri Sharma Sadananda. Rasa Tarangini. Edited by Pandit Kashinath Shastri. 11th Edition. Varanasi: Motilal Banarasidas Publication; 1979. 24th Taranga, Verse 575, 753 pp.

4. Anonymous. The Ayurvedic formulatory of India. 2nd Edition. New Delhi: The Controller of publications civil line; 2003. Part-1, Shodana Prakarana 40,369pp.
5. Kaviraj Govind Das Sen. Bhaishajya Ratnavali Edited with 'Sidhiprada' Hindi commentary by Prof. Siddhi Nandan Mishra, Varanasi: Chaukhamba Surbharati Prakashan; 2009. 4th Chapter, verse 61, 74pp.

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