ISBN 978-93-5173-179-3 ISSN 2320-7329
http://www.ayurlog.com Vol. 3 Issue: 2nd April- June 2015
Ayurlog: National Journal of Research in Ayurved Science
A Web based quarterly online published Open Access peer reviewed National E-journal of Ayurved

Standardization of Rasasindur

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Abstract:

Ayurveda is a system of Indigenous Medicine which systematizes and applies the knowledge about health and disease. After the development of Rasashastra, Ayurveda made a land mark in the history of medicine by making judicious use of Herbo-Mineral preparations in the treatment of many diseases without any untoward effects with high degree of safety and efficacy.Rasasindura[1] is a herbo-mineral preparation. It is being prepared by Kupipakva method using Kajjali prepared with ShudhaParada and ShuddhaGandhaka. GandhakaJarana plays an important role in enhancing the potency of Parada.

The current study is planned to develop the SMP of *rasasindur*which is a available reference in Ayurvedic classic i.e.*Rasamanjir(16-18)*[1].The standard study drug which is a *kupipakwarasayana* can be prepared by *sagandhasaagnimurcchana* with *samagunabalijarana*(Hg:S in 1:1 proportion) by adopting *bahirdhoompaddhati*. The traditional method of manufacturing by using *valukayantra*is selected for the preparation of *Rasasindur* with the thought it gives desired and standard yield. The study drug is subjected to various physico-chemical analytical tests during the process and after obtaining the final yield to develop the in process

Introduction:

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control and the standard of the final product.

Rasasindur is ready reference of *vajikaran* (Aphrodisiac) herbo-mineral formulation. ED is defined by a National Institutes of Health consensus panel as the inability to achieve or maintain an erection sufficient for satisfactory sexual performance (1). Worldwide estimates of ED prevalence range from 2% in men younger than 40yr to 86% in men 80yr or older[2]. The drug like sildenafil in today's era population using having side effect like pains in the muscles, bloody nose, diarrhea, difficult or labored breathing, headache, pain or tenderness around the eyes, redness of the skin, stomach discomfort. So Ayurvedic formulations are in demand to overcome the problem like impotency. But before using the drug in clinical practice it should be standardized and also its safety evaluation should be determined.

Aim:

- Standardization of*rasasindur.*

Objectives:

- To develop SMP of KMBR as per the reference of *Rasamanjiri*
- To analyze KMBR physico-chemically.

Material:

1. Shudhaparad = 1 part
2. Shudhagandhak = 1 part
3. Vatankurswaras= q.s.

Equipments:

1. Valukayantra
2. Glass bottle of matkapad
3. Sand
4. Wood
5. Lohashalaka
6. Tamra coin
7. Bhatti.

Method:

1. Purification of parad was done as per classical reference of rasatarangini.
2. Purification of gandhak was done as per classical reference of ayurvedaparakasha
3. *Shudhaparad*and *shudhagandhak*were taken in equal quantity i.e. 1:1 proportion and triturated to prepare*kajjali*.
4. This *kajjali*was then triturated 3 times with vatankurswarasand this compound was subjected on sand bath to prepare *rasasindur*for 24hr. time duration.
5. Rasasindur was subjected in mrudu, madhyam and tivraagni respectively during preparation.

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6. Intermediate shalakasanchalan was done to avoid deposition of sublimated gandhak at the neck of bottle.
7. After sidhilakshana the corking was done and tivraagni was continued for some time after that the bottle was kept for swangashita.
8. The kupi was cleaned by knife and breaked by using cloth and spirit.
9. The galastharasasindur was collected and analyzed physic-chemically.

Observation and result:

Temperature observed during preparation of *rasasindur*:

Time in hr.	*Roopa*	*Gandha*	Coin test	*Shakalasanchalan*	Temperature (°C)		
					Neck	Sand	Agni
1.	-	-	-ve	-	36	80	100
3.	-	-	-ve	-	56	110	182
6.	White fumes	Sulphur smell	-ve	✓	70	130	290
9.	Yellowish fumes	Sulphur smell	-ve	✓	88	145	410
12.	Yellowish fumes	Sulphur smell	- ve	✓	118	198	510
15.	Yellowish fumes decreased	Sulphur smell	-ve	✓	128	260	620
18.	Red flame	-	+ ve	✓	139	300	680
21.	Red flame	-		✓	159	360	727
24.	Blue flame	-	-	-	180	460	772

Organoleptic study of each batch of *rasasindur* :

Parameter	Batch-1	Batch-2	Batch-3
Shabdha	Not significant	Not significant	Not significant

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Sparsha	Smooth , rough on internal side, after trituration becomes smooth	Smooth , rough on internal side, after trituration becomes smooth	Smooth , rough on internal side, after trituration becomes smooth
Roopa	Blakish red with shining, after trituration bright red	Blakish red with shining, after trituration bright red	Blakish red with shining, after trituration bright red
Rasa	No specific taste	No specific taste	No specific taste
Gandha	No specific smell	No specific smell	No specific smell

Chemical analysis of each batch of *rasasindur*:

Parameter	Result			Mean	SD
	Batch-1	Batch-2	Batch-3		
Total ash %	1.3	2.04	2.09	± 1.81	±0.4423
Acid insoluble ash%	0.6	0.8	0.1	± 0.5	± 0.360
Water soluble ash %	0.5	0.24	0.31	± 0.35	± 0.134
Loss on drying %	0.17	0.21	0.19	± 0.19	±0.02
Loss on ignition %	91.1	95.7	92.5	± 93.1	±2.3579

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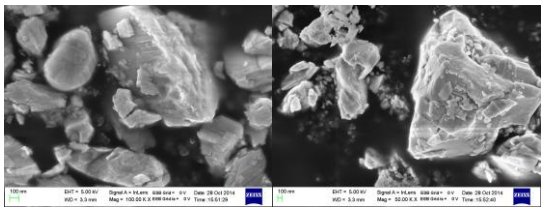
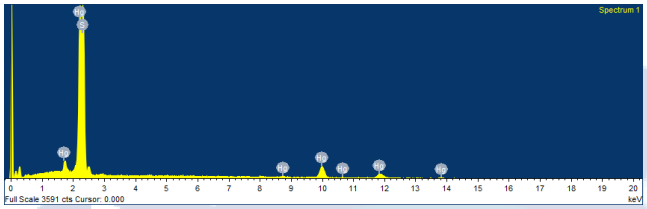
SEM analysis of *Rasasindur*



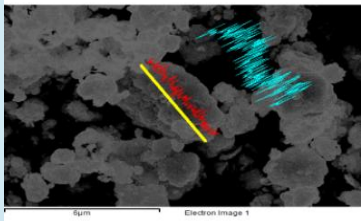


(under X 100000 magnification) (under X 50000 magnification)

EDX of *Rasasindur*

Spectrum processing :

Peaks possibly omitted : 0.139, 0.261, 0.459, 0.550, 8.040 keV



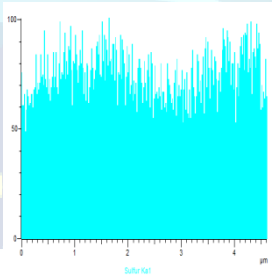
Processing option : All elements analyzed (Normalised)

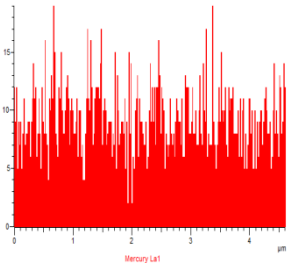
Number of iterations = 2

Standard : S FeS2 1-Jun-1999 12:00 AM

Hg HgTe 1-Jun-1999 12:00 AM

Elements	Weight %	Atomic %
SK	15.87	54.12
Hg M	84.13	45.88
Totals	100.00	





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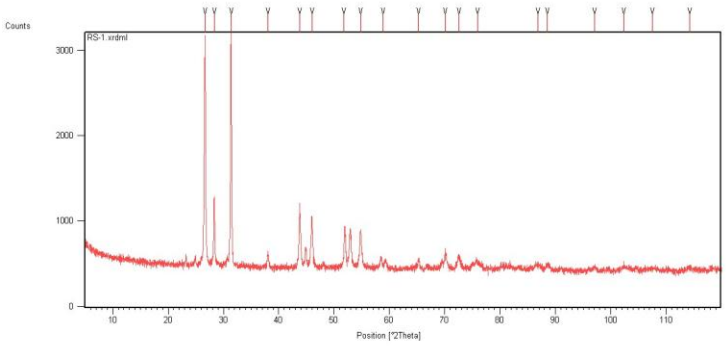
XRD analysis of Rasasindur:



Peak list:

Pos [^{0}2Th.]	Hight [cts]	FWHM [^{0}2 Th.]	d- spacing	Rel. Int. [%]
26.63	1566.92	0.8029	3.34669	100.00
28.3294	410.38	0.5353	3.15041	26.19
31.3484	1475.52	0.5353	2.85356	94.17
38.0309	102.42	0.8029	2.36612	6.54
43.7144	444.84	0.8029	2.07077	28.39
46.0339	416.27	0.8029	1.97169	26.57
51.7800	280.67	1.0706	1.76559	17.91
54.7904	362.01	0.5353	1.67549	23.10
58.8384	45.85	1.6059	1.56951	2.93
65.2860	79.32	0.8029	1.42924	5.06
70.0492	144.17	0.8029	1.34326	9.20
72.5322	128.36	0.8029	1.30328	8.19
75.9519	75.07	1.0706	1.25288	4.79
86.8072	47.82	1.0706	1.12196	3.05
88.5629	54.07	0.5353	1.10420	3.45
97.0535	38.57	0.8029	1.02892	2.46
102.3950	50.47	1.0706	0.98926	3.22
114.2412	30.96	1.9584	0.91722	1.98

ICP-AES analysis of Rasasindur:

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Rasasindur	Elements detected (qualitative)						
	Al	Ba	Ca	Cr	Cu	Fe	Hg
	0.029	0.00018	0.078	0.0003	0.00068	0.0087	79.97

	Mg	Mn	Na	Ni	S	Sr	Zn	Ti
	0.0017	0.0006	0.0073	ND	7.93	ND	ND	ND

Discussion and conclusion:

1. During preparation of *rasasindur* seven *matakapad*bottle with *valukayantra* was used. Due to this seven matakapad the bottle sustain the heat during process. The purpose of using sandbath was it radiates the uniform and steady heat to the bottle throught the process.
2. *Shalakasanchalan* was done during procedure to avoid the bursting of bottle due to condensation of *gandhak* at the neck.
3. In quantitative ICP-AES analysis of the*rasasindur* the % of Hg 83.23% and S 8.44% were evident which indicates sublimation of gandhak during rasasindurpreaparation.
4. The XRD analysis of *rasasindur* shows HgS with hexagonal crystal structure, having primitive lattice.
5. As the *agnisanskar* increases, bonding between Hg and S become more and more stronger and the compound become more stable, which indicates the importance of *jaranasanskara*
6. The standardization of rasasindur through modern parameter gives an easy acceptance of the rasaushadhies and can remove the negative propaganda about medicine containing parad.

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Cite this article:

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Ayurlog: National Journal of Research in Ayurved Science-2014; 3(2): 1-8