

ANALYSIS OF RASA SINDOORA BY NAMBURI PHASED SPOT TEST (NPST)

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ABSTRACT

Introduction: *Rasa Sindoora* (Red Sulfide of Mercury) is a herbomineral preparation and a well-known *Kupipakwa* Rasayana kalpana. An equal ratio of *Shodhita Parad* (Purified Mercury) and *Shodhita Gandhaka* (Purified Sulphur) was used to prepare *Rasa Sindoora*. The form of preparation which was considered by *Rasa Acharya* to know the effect of minimizes dose for therapeutic purpose. To analyze the medicine the best way is to standardize it and after that analyse with standard and sophisticated instrumental techniques. **Aims:** To ensure and assess the quality of *Rasa Sindoora* through Namburi Phased Spot Test (NPST) analysis. **Material and Method:** To assess the quality with the standard monograph of NPST - 3 Papers of Potassium Iodide, Potassium Bromide and *Haridra* were prepared and identify the changes on all three papers by the action of prepared solution of *Rasa Sindoora* in freshly prepared aqua regia. **Result:** All three papers of Potassium Iodide, Potassium Bromide and *Haridra* showed a positive result in all three phases on comparing with the standard of NPST monograph.

Keywords: *Rasa Sindoora*, *KupipakwaRasayana*, Namburi Phased Spot Test (NPST).

INTRODUCTION

Rasa Sindoor is a *Kupipakwa Rasayana*. The form of preparation, which was considered by *Rasa Acharya* to know the effect of minimizes dose for therapeutic purpose. *Rasa Sindoor* is a metallic preparation and used in various disorder with different *Anupana*. To reanalyze the medicine the best way is to standardize it and after that analyse with standard and sophisticated instrumental techniques. NPST is one of the analytical techniques with the standard monograph of metallic preparation that shows the authenticity of material and quality of a particular compound. The standard monograph of NPST was accepted by CCRAS.

Material and Methods

- Prepared *Rasa Sindoor*
- Required Regents for NPST

 1. 5 N HNO₃
 2. HCL

❖ Paper required for NPST

1. Potassium Iodide Paper- Prepared by impregnation of Whatman paper (No. 1) in 10% Potassium Iodide solution for two min. and dried under shade.
2. Potassium Bromide Paper- Prepared by impregnation of Whatman paper (No.1) in 10% Potassium Bromide solution for two min. and dried under shade.
3. *Haridra* Paper- 50 gm of crushed *Haridra* mother tuber was allowed to infuse for 48 hrs in 50 ml of alcohol and decanted. The whatman paper was impregnated with this extract and dried under shade.

Preparation of *Rasa Sindoor*: In the present study, 3 samples of *Rasa Sindoor* were prepared in the pharmacy of Pt. Khushilal Sharma Govt. Ayurvedic College, Bhopal. *Rasa Sindoor* prepared with *Samguna Kajjali* (equal ratio of *ShodhitaParad* and *Shodhita-Gandhaka*)^{1,2,3}*Rasa Sindoor* preparation was concluded based on three batches in which each batch of 200 gm of *Kajjali* was subjected to the following intermittent heating pattern that was mild heat (100-250⁰C) for 4 hrs, Moderate heat (250-450⁰C) for 4 hrs and strong heat (450-650⁰C) for 4 hrs. The average yield was 104.66 gm i.e. 52.33%. In three consecutive batches of *Rasa Sindoor*, the average yield was 104.66 gm in an average time of 12.53 hrs. In each batch *Rasa Sindoor* obtained was 103,106, 105 respectively.

Method of NPST:⁴

Firstly, prepare Aqua regia with 5N HNO₃ and HCL in the ratio of 1:3. Put 1 gm RS in test tubes then add 2ml of freshly prepared aqua regia in a test tube and left the test tube undisturbed for 30 min. as proper reaction take place inside a test tube. After that gently heat the test tube for a minute and placed it undisturbed for 48 hrs. In between this period, test tube shakes for some time. After 48 hrs clean the solution taken from the test tube and pour 1drop of solution on prepared paper of NPST. After that observe the colour changes on all 3 types of papers in 3 different stages.

OBSERVATION AND RESULTS

Reading of the first phase was taken 0 to 5 minutes after spotting, the second phase taken 5 to 20 minutes and the third phase taken 20 minutes to 48 hrs.

Table 1: Showing the observation in NPST sampling of RS on 10% KI paper:

Solution	Observations	
	1gm RS+ 2ml Aq- ua regia	Phase I
Phase II		The brick-red spot separates into a brick red concentric ring with a dark brown periphery.
Phase III		Dark brown periphery fades away exposing a thin brick red margin.

Fig. 1: NPST sample of RS on 10% KI paper:

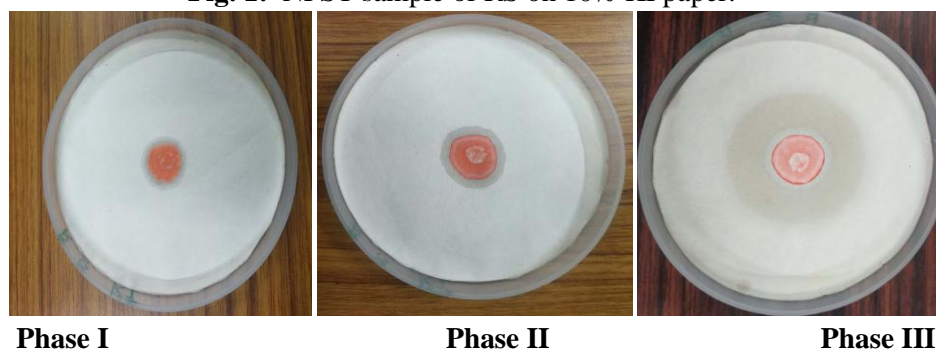


Table 2: Showing the observation in NPST sampling of RS on 10% KBr paper:

Solution	Observations	
1gm RS+ 2ml Aqua regia	Phase I	Colourless wet spot
	Phase II	Colourless wet ring
	Phase III	Not visible

Fig. 2: NPST sample of RS on 10% KBr paper:

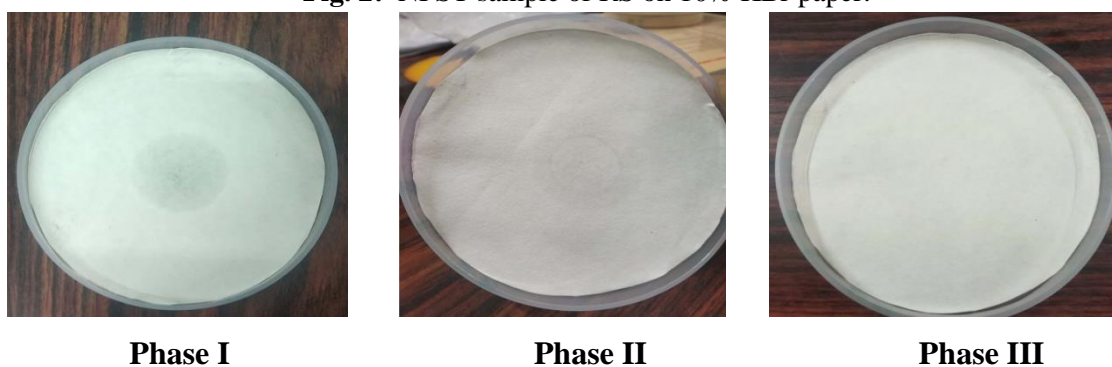
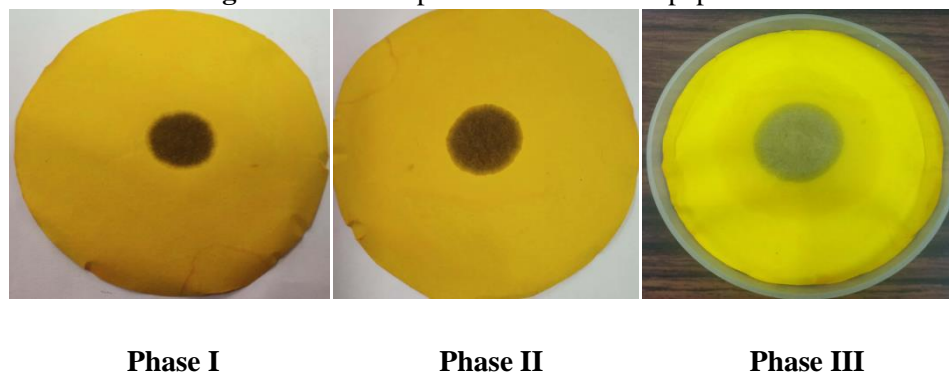


Table 3: Showing the observation in NPST sampling of RS on *Haridra* paper:

Sample	Solution	Prepared Paper	Observations	
<i>Rasa Sindoor</i>	1gm RS+ 2ml Aqua regia	<i>Haridra</i> paper	Phase I	Purple spot
			Phase II	Purple spot
			Phase III	Purple spot with the brown periphery.

Fig. 3: NPST sample of RS on *Haridra* paper



DISCUSSION

The efficacy of any formulation depends upon its analytical value that shows the purity of the drug used in the formulation and its authenticity. NPST is one of the analytical tests which are used to identify the metal *Bhasmas*. It is a Specific analytical parameter in which the prepared drug is compared with the standard monograph of the drug to identify it. *Rasa Sindoor* is one of the *Kupipakwa Yoga* and commonly used drugs in clinical practice. With the help of NPST test, *RasaSindoor* preparation was compared with the standard monograph of NPST to know the authenticity and purity of the drug. The standard monograph of NPST is also accepted by CCRAS. This NPST is based on a chemical reaction that is in between chemical reacting paper and solution of drug prepared in the reagent. NPST analysis is based on colour which is observed on three different phases at three different time intervals. It is a simple test that can be carried out with minimum setup and requirements.

CONCLUSION

In the present study, the *Rasa Sindoor* showed positive results according to NPST standard on three different papers at three different time intervals.

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