

STUDY ON INDRA VATI RASA
(WITH SPECIAL REFERENCE TO IT'S PHARMACEUTICAL
EXPERIMENTAL AND CLINICAL EVALUATION OF EFFICACY
ON DIABETES MELLITUS)



Thesis Submitted for the Degree of

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(Rasa Shastra)

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SUMMARY AND CONCLUSION

Rasa Shastra deals with the minerals and metals of therapeutic importance and their processings. Earlier all the therapeutic requirements were fulfilled by the vegetable materials it self. But their limitations compelled the physicians to explore more potent medicines. In this sequence mineral originated materials were identified to be potent enough for the treatment of dreadful and incurable diseases. Toxic nature of minerals was known to the ancient scholars. This was the chief reason for the limited use of mineral materials in therapeutics. During the medieval period with the advent of detoxification processes like *shodhana* and *marana* their use became frequent in therapeutics.

The review of modern literature also reveals that Mercury and Tin either in elemental or compound form are toxic and produce various disastrous effects on vital organs. According to Ayurvedic literature also these are toxic in crude form. But their toxicity can be minimize to much extent with the help of various process of *shodhana*.

Bhasmas, kajjali, parpati, sinduras, pishtis etc are the *Rasaushadis* indicated in the management of various diseases. *Indra Vati Rasa* is a *kharaliya* preparation useful in the management of *Madhumeha*. The method of preparation of *Indra Vati Rasa* has been mentioned in detailed in *Rasa* texts. *Rasendra chintamani* was the first text mentioned this drug. It contains equal amounts of *Rasa sindura, Vanga bhasma, and Arjuna twak*

churna. Then this mixture is subjected to *bhavana* with *Shalmali mula swarasa* for 7 days and prepared in *Vati* form. (1 *masha*)

Pharmaceutical study:

Main objective of this study was to standardize the method of preparation of *Indra Vati Rasa*. Initially the ingredients of *Indra Vati Rasa* were prepared. For the preparation of *Vanga bhasma shodhana* (*Samanya* and *vishesha*), *jarana* and *marana* processes were adopted. For *samanya shodhana* of *Vanga* the popular method of melting and pouring in the *Taila*, *Takra*, *Gomutra*, *Aranala* and *Kulaththa kwatha* method was adopted. *Vishesha shodhana* was done in two steps. In the first step *Vanga* was heated and poured into *choornodaka* for 7 times. In the second step it was heated to melt and poured into *Nirgundi kwatha* mixed with *Haridra churna* 7 times. *Shodhita Vanga* was subjected to *jarana* i.e. roasting with the addition of *Apamarga panchanga yawakuta churna* little by little with constant stirring. Grayish white fine powder was obtained. *Jarita Vanga* was subjected to *bhavana* with *Ghrita kumari swarasa*, pellets were prepared and dried. These dried pellets were subjected to *puta* in electric muffle furnace at 600°C temperature for one hour. This process was repeated 8 times to obtain creamish white *Vanga bhasma*.

For the preparation of *Rasa sindura* equal amount of *shuddha Parada* and *shuddha Gandhaka* were taken, *Kajjali* was prepared and subjected to *Vatankura swarasa bhavana*. *Bhavita kajjali* was taken in a *kupa* (bottle) wrapped with seven layers of cloth and mud and subjected to

heating (*Mridu, madhyama* and *tivra agni* pattern)in a electric muffle furnace(*Vertical*).*Rasa sindura* was obtained at a sub limate from the neck of the bottle.

Dry *Arjuna twak* was chopped into pieces and crushed in a *khalva yantra* to obtain a coarse powder. This coarse powder was passed through a micropuiveriser with a fine mesh, filtered through a fine cloth to obtained smooth light brown *Arjuna twak churna*.

Fresh *Shalmali moola* was collected, chopped into small pieces, mixed with 16 times of water and heated on mild fire. When 1/4th of the liquid remained was filtered through a fine cloth to obtained blood red colour sticky liquid. i.e. *Shalmali moola swarasa*.

Equal amount of *Vanga bhasma* and *Rasa sindura* were taken into the *khalva yantra* and mixed together thoroughly. Then *Arjuna twak churna* was added to this mixture and subjected to *bhavana* with *Shalmali moola swarasa* for 7 days. After *bhavana* reddish brown colour paste was obtained. This paste was pressed on a manual pill cutter to obtain pills of *Indra Vati Rasa* 250mg size.

Experimental Study:

Indra Vati Rasa was taken evaluated for the possible effects of Insulin Dependent Diabetes Mellitus, lipid peroxidation and short-term

toxicity. Results suggest that IVR has hypoglycemic effect at two times therapeutic dose and enhanced the lipid peroxidation at therapeutic dose. IVR was found to be safe at therapeutic dose and four times therapeutic dose when administered 14 days in albino rats.

Clinical Study:

37 patients of Diabetes Mellitus (NIDDM) were selected for the present study. They were divided into three groups.

Group-A : Patients were given *Indra Vati Rasa* 1 g daily in divided doses.

Group-B : Patients continued with the on going OHA that he/she was taking previously.

Group-C : Patients who were given OHA only in group B again considered as group C and they were given OHA with *Indra Vati Rasa* 1g dose daily in two divided doses.

Over all 33 patients turned up for follow ups and were included in the study. Group A had 15 patients; group B had 18 patients and these 18 patients again taken as group C.

The Salient Features of this Study are:

1. Age of the patients ranged from 40 -80 years. Majority of the patients were above 50-60 years.
2. There was a slight male predominance in this present study with 65% of male patients and 35 % of female patients.

3. Commonest symptom was weakness followed by poly urea, polydypsia, and weight loss.
4. In the patients treated with *Indra Vati Rasa* there was a highly significant improvement in the symptoms like polyurea, polyphagia, polydypsia, weakness, muscle cramps, joint pain and weight loss. Administration of *Indra Vati Rasa* for 45 days has also significantly lowered the Fasting Blood Sugar with serum cholesterol. ($p < 0.001$)
5. In the patients treated with OHA there was a highly significant improvement in the symptoms poly urea, polydypsia, weakness and muscle cramps. Administration of OHA for 45 days has significantly lowered the Fasting Blood Sugar, Post Prandial Blood Sugar with serum cholesterol. ($p < 0.001$)
6. In the patients treated with *Indra Vati Rasa* with OHA there was a highly significant improvement in the symptoms poly urea, polyphagia, polydypsia, weakness, muscle cramps, joint pain and weight loss. Administration of OHA with *Indra Vati Rasa* for 45 days has significantly lowered the Fasting Blood Sugar, Post Prandial Blood Sugar along with serum cholesterol. ($p < 0.001$)
7. No significant effect of *Indra Vati Rasa* was seen on libido, blood urea and serum creatinine.
8. Clinically *Indra Vati Rasa* has shown no un towards effect in any of the patient. The present study has shown effectiveness by symptoms improvement and F.BS, P.P.B.S and serum cholesterol lowering effects were prominent in patients treated with *Indra Vati Rasa* with OHA combination group. (Group C)

Conclusion:

Based on pharmaceutical, experimental and clinical studies, it may be concluded:

- *Indra Vati Rasa* a *kharaliya* preparation is strongly recommended for the management of *Madhumeha* in *Rasa* texts.
- For the preparation of *Indra Vati Rasa* the ingredients should be prepared following the standard methods mentioned in the texts.
- The use of electric muffle furnace is found suitable for the preparation of *Vanga bhasma* 600°C temperature for 1 hour was found ideal for obtaining a optimum yield.
- *Rasa sindura* can be prepared in 9 hours in electric muffle furnace.

The temperature range is as follows:

Mridu	-150-250°C
Madhyama	-250-450°C
Tivra	-450-650°C

- After mixing the ingredients of *Indra Vati Rasa* properly *bhavana* with *Shalmali moola swarasa* for 7 days should be done.

Experimentally:

- *Indra Vati Rasa* is effective in STZ induced IDDM. The mechanism of anti hypoglycemic effect might also be due to IVR's influence on lipid peroxidation.

- Biochemically *Indra Vati Rasa* did not show any significant change in normal physiological variations like in albino rats at therapeutic and four times higher than therapeutic dose when administered for 14 days. However *Indra Vati Rasa* at four times higher than therapeutic dose has shown significant decrease in blood sugar level.
- With the toxicity study it can be said that *Indra Vati Rasa* can be safely recommended for therapeutic purpose.
- From the present clinical study on Diabetes Mellitus it can be modestly concluded that *Indra Vati Rasa* is effective in the management of NIDDM in the form of improvement in clinical symptoms and reduction of Fasting Blood Sugar after treatment for 45 days.
- *Indra Vati Rasa* is potentiating the action of oral hypoglycemic drugs.

References

