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EVALUATION OF ANTIPYRETIC POTENTIAL OF LAGHU MALINI VASANTA RASA – A ZINC-CONTAINING HERBOMETALLIC PREPARATION IN YEAST-INDUCED PYREXIA MODEL IN RATS

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ABSTRACT

Background Laghu Malini Vasanta Rasa (LMVR) is a classical herbometallic formulation widely indicated in Jwara (fever) in Ayurvedic texts. The formulation mainly comprises Yashada Bhasma (incinerated zinc) and Maricha (Piper nigrum Linn.) prepared with cow butter and lemon juice. **Objective**: To evaluate the antipyretic activity of Laghu Malini Vasanta Rasa in yeast-induced pyrexia in Wistar albino rats. **Materials and Methods**: The study was carried out after obtaining approval from the Institutional Animal Ethics Committee (IAEC/12/2012/10). Pyrexia was induced by subcutaneous injection of 12.5% dried Brewer's yeast suspension (1 mL/100 g). Animals were divided into two groups (n = 6 each) Group I (Control) received vehicle, and Group II received LMVR (22.5 mg/kg, p.o.). Rectal temperature was recorded at baseline and at 3, 6, and 9 hours after drug administration. Data were expressed as Mean ± SEM and analyzed using Student's t-test, considering p 0.05 as statistically significant. **Results**: LMVR-treated rats showed a mild decrease in rectal temperature at 3 and 6 hours compared to the control group, though statistically insignificant ($p > 0.05$). At 9 hours, the formulation did not produce a temperature-lowering effect. **Conclusion:** Laghu Malini Vasanta Rasa demonstrated mild, non-significant antipyretic potential in yeast-induced pyrexia in rats. Its traditional use in Jwara may be attributed more to its Brimhana (anabolic) and Rasayana (rejuvenative) properties rather than to acute antipyretic action.

KEYWORDS: Laghu Malini Vasanta Rasa, Antipyretic activity, Yeast-induced pyrexia, Jwara.

INTRODUCTION

Laghu Malini Vasanta Rasa (LMVR) is a classical *Rasaushadhi* mentioned in *Rasa Paddhati* (13th AD) [1] and other Ayurvedic texts including *Rasayoga Sagar*,[2] *Yogaratnakara*,[3] *Vasavarajiyam*,[4] and *Rasa Chandanshu*,[5] primarily indicated in the management of *Jwara* (fever). It is categorized under *Kharaliya Rasayana* group of *Rasaushadhi* and mainly comprises *Yashada Bhasma* (incinerated zinc) and *Maricha* (Piper nigrum Linn.) in a ratio of 21, with freshly prepared cow butter and lemon juice as *Bhavana Dravya* (levigation media).

Literary evidence suggests that the formulation exerts *Brimhana* (anabolic) and Rasayana (rejuvenative) effects and may be particularly beneficial in *Jeerna Jwara* (chronic fever). Since most classical references describe its efficacy in *Jwara*, the present study was designed to experimentally assess its effect on body temperature regulation—specifically, to determine the antipyretic potential of LMVR using yeast-induced pyrexia in Wistar rats.[6]

MATERIALS AND METHODS

Ethical Approval

The study protocol was approved by the Institutional Animal Ethics Committee (IAEC/12/2012/10), conducted as per CPCSEA guidelines.

Experimental Animals: Healthy Wistar albino rats of either sex, weighing 200 ± 20 g, were procured from the institutional animal house. Animals were housed in polypropylene cages (six per cage) with wheat husk bedding, maintained under standard laboratory conditions (12 h lightdark cycle, temperature 22 ± 3°C, relative humidity 50–70%). They were fed Amrut brand rat pellets (Pranav Agro Ltd.) and water ad libitum. All animals were acclimatized for 7 days before the experiment and fasted overnight prior to testing.

Test Drug

Laghu Malini Vasanta Rasa tablets were prepared as per Standard Manufacturing Procedure (SMP) developed for the formulation.[7] The details of ingredients and their proportions are provided in Table 1.

Table no. 1: Details of ingredients of tablets of *Laghu Malini Vasanta Rasa*.

Drug	Part used	Botanical name	Proportion
Yashada	*Bhasma*	Incinerated zinc	Two parts
Maricha	Fruit	*Piper nigrum* Linn.	One part
Navaneeta(freshly prepared cow butter- levigating media)	-	Freshly prepared cow butter	50% of total quantity of ingredients
Nimbu Toya (lemon juice-levigating media)	Fruit	*Citrus acida* Linn.	q.s.(quantity sufficient)
Pippali as adjuvant	Fruit	*Piper logum* Linn.	In equal proportion to all ingredients
Honey as binding agent	-	-	30% of total mass ingredients

Raw materials were procured from the Pharmacy, Gujarat Ayurved University, Jamnagar, and authenticated in the Pharmacognosy Laboratory. Yashada Bhasma was prepared following classical methods Shodhana in lime water, Jarana using Apamarga Panchanga, and Marana with Kumari Swarasa as Bhavana Dravya until desired Bhasma characteristics were achieved (white with yellowish tint after five Puta at ~650°C).Tablets (250 mg each) were prepared by wet granulation using honey as a binding agent and Pippali as adjuvant.

Dose Calculation and Administration

The human therapeutic dose (250 mg) was extrapolated to rat dose (22.5 mg/kg) based on the Paget and Barnes (1964) body surface area conversion.[8] LMVR and vehicle were administered orally using a gastric catheter attached to a syringe.

Experimental Design: Animals were divided into two groups (n = 6 each)

Group I – Control Vehicle only

Group II – Test (LMVR) 22.5 mg/kg orally

Baseline rectal temperatures were recorded. Pyrexia was induced by subcutaneous injection of 12.5% dried Brewer's yeast suspension (1 mL100 g). LMVR or vehicle was administered one hour prior to yeast injection. Rectal temperatures were recorded at 3, 6, and 9 hours after drug administration. The change in rectal temperature (°C) from baseline was calculated for each interval. Results are summarized in Table 2.

Statistical Analysis

Data were expressed as Mean ± SEM and analyzed by Student's t-test (paired and unpaired). $p < 0.05$ was considered statistically significant.

RESULTS

After yeast injection, control group rats exhibited a consistent rise in rectal temperature at 3, 6, and 9 hours. LMVR-treated rats showed a mild decrease in temperature at 3 and 6 hours compared to control animals, but the difference was statistically insignificant ($p > 0.05$). At 9 hours, LMVR failed to sustain the antipyretic effect.(table 2)

Table no. 2: Effect of *Laghu Malini Vasanta Rasa* on rectal temperature of pyrexia induced wister strain rats at 3 hours, 6 hours and 9 hours respectively.

Group	Dose mg/kg	Difference in rectal temperature at different time intervals (°C)					
		After 3 h	% change	After 6 h	% change	After 9 h	% change
Control	-	0.98 ±0.38	18.61↓	1.43 ±0.37	6.99↓	1.52 ±0.45	8.55↑
LMV	32.5	0.80±0.45		1.33 ±0.44		1.65 ±0.17	

Data: MEAN ± SEM, ↑ increase, ↓ decrease. (Unpaired 't'test)

DISCUSSION

The present study aimed to evaluate the antipyretic potential of Laghu Malini Vasanta Rasa through the yeast-induced pyrexia model. LMVR exhibited a mild reduction in rectal temperature at 3 and 6 hours, though not statistically significant, suggesting limited antipyretic potential under the conditions studied.

Fever is a complex physiological response mediated by cytokines such as IL-1β, IL-6, TNF-α, and interferons, which stimulate hypothalamic prostaglandin E_2 (PGE_2)

synthesis, elevating the thermal set point.[9] Conventional antipyretics act primarily via inhibition of cyclooxygenase and reduction of hypothalamic PGE_2 levels. In this study, the mild temperature-lowering effect of LMVR could be attributed to its ingredients. *Yashada Bhasma* (Zinc complex) Zinc is known to influence immune and inflammatory responses, with studies showing modulation of cytokine production.[10] Piperine, an alkaloid present in *Piper nigrum* and *Piper longum*, has been reported to possess antipyretic, analgesic, and anti-inflammatory activities.[11]

The non-significant outcome might be due to lower bioavailability, insufficient duration, or dosage. LMVR's traditional use in Jwara may relate more to its *Brimhana* and *Rasayana* actions, supporting recovery and immune modulation rather than direct antipyretic activity.

Future investigations should explore higher or repeated doses, Inclusion of a standard antipyretic reference drug, Biochemical analysis of cytokine and PGE_2 modulation, Structural identification of zinc–piperine complexes for mechanistic insights.

CONCLUSION

Laghu Malini Vasanta Rasa, a zinc-based herbometallic formulation indicated in *Jwara*, exhibited mild, non-significant antipyretic activity in yeast-induced pyrexia in rats. The results suggest a possible supportive rather than primary antipyretic role. Further pharmacological and analytical studies are warranted to elucidate its mechanism of action and clinical relevance.

REFERENCES

1. Mishra S. Rasapaddhati of Ācārya Bindu. 2nd ed. Varanasi: Chaukhambha Orientalia, 2005; 167.
2. Hariprapannaji Vd. *Rasayoga Sāgara*, Part 2. Reprint ed. Varanasi: Chaukhambha Krishnadas Academy, 2004; 351.
3. Śāstri L. *Yoga Ratnākara*. Reprint ed. Varanasi: Chaukhambha Prakashana, 2002; 245.
4. Pandeya D. *Vasavrajīyam* of Basavarāja. 1st ed. Varanasi: Chaukhambha Krishnadas Prakashana, 2010; 41.
5. Sawarikara P. *Rasa Chandanshu* of Vd. Datta Borkara. New Delhi: CCRAS Publication, 2011; 140.
6. Ashok BK, Bhat SD, Chandola HM, Ravishankar B, Jamadagni S. Antipyretic activity of *Guduchi Ghrita* formulations in albino rats. *Ayu*, Jul-Sep., 2010; 31(3): 373–377.
7. Walunj MB, Patgiri B, Shukla VJ, Prajapati PK. Standard manufacturing procedure for *Laghu Malini Vasanta Rasa* in context of *Bhavana* (levigation). *Ayu*, 2015; 36(2): 180–187. doi:10.4103/0974-8520.175535.
8. Paget GE, Barnes JM. Evaluation of drug activities. In: Laurence DR, Bacharach AL, editors. *Pharmacometrics*. New York: Academic Press, 1964; 161.
9. Mackowiak PA, Bartlett JG, Borden EC. Concepts of fever: recent advances and lingering dogma. *Clin Infect Dis*., 1997; 25: 119–138.
10. Al-Ajmi MF, Hussain A, Alsalme A, Khan RA. In vivo assessment of newly synthesized achiral copper(II) and zinc(II) complexes of a benzimidazole-derived scaffold as potential analgesic, antipyretic and anti-inflammatory agents. *RSC Adv*, 2016; 6(23): 19475–19481.
11. Sabina EP, Nasreen A, Vedi M, Rasool M. Analgesic, antipyretic and ulcerogenic effects of piperine: an active ingredient of *Piper*. *J Pharm Sci Res*., 2013; 5(10): 203–206.