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### RESEARCH ARTICLE

#### A COMPARATIVE STUDY OF VISHALADI CHURNA AND NISHA LAUHA IN THE MANAGEMENT OF PANDU

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#### Abstract

Background: Pandu Roga is a common yet significant disease described in Ayurveda, characterized primarily by *vaivarnya* (pallor) of the skin, mucosa, and eyes, resembling anemia in contemporary medicine. It is considered a manifestation of *Rasa-Rakta Dhatu Kshaya* (depletion of *rasa* and *rakta dhatus*), and its pathogenesis is deeply rooted in the improper functioning of *Agni* (digestive fire) and vitiation of *Doshas*, especially *Pitta*. The present study evaluates and compares the clinical efficacy of *Vishaladi Churna* and *Nisha Lauha* in the management of Pandu Roga. Materials and Methods: A randomized comparative clinical trial was conducted on two groups of patients diagnosed with Pandu Roga. A total of 98 patients diagnosed with Pandu were enrolled in the study. Out of these, 38 patients discontinued treatment before completion. Group A received *Vishaladi Churna*, and Group B received *Nisha Lauha* for 3 days. Assessments were done before and after treatment using hematological investigations, the FACIT Fatigue Scale, and a standardized Ayurvedic *pandutalakhana* scoring scale. Results: Both groups showed statistically significant improvement ( $p < 0.0001$ ) in all hematological parameters and subjective symptoms. Group B (*Nisha Lauha*) demonstrated superior improvement in Hb% ( $\uparrow$ ), RBC count, and cardinal signs like *Panduta* (88%) and *Daurbalya* (90.91%). It also showed greater relief in fatigue-related domains such as "I feel weak all over" (83.51%) and "I am able to do my usual activities" (87.39%). Group A (*Vishaladi Churna*) showed better improvement in symptoms related to social activity limitation and *Pindikodweshtana* (70.37%).

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### Introduction:-

Pandu Roga is a well-documented disease in Ayurvedic literature, primarily characterized by panduta a loss of natural complexion resulting from vitiation of Rasa Dhatu. It is classified under Rasa PradoshajaVikara indicating its origin from disturbances in the first and most foundational bodily tissue, Rasa, which is formed directly from the essence of digested food. Proper formation and flow of Rasa is essential for the nourishment and development of all subsequent Dhatus. When Rasa Dhatu becomes vitiated due to factors like Agnimandya, Ama, and faulty Ahara-Vihara, it loses its capacity to nourish Rakta Dhatu, eventually leading to the manifestation of Pandu. This disease is not merely a condition of pallor but reflects deeper systemic depletion and dysfunction of the Rasa-Rakta axis, impacting the entire bodily strength (Bala), complexion (Varna), and immunity (Ojas).

Ayurvedic texts describe Pandu in three distinct forms—as an independent disease, as a symptom of other underlying conditions, and as a complication arising due to improper management. The causative factors (Nidanas) span across Aharaja, Viharaja, Manasika, Chikitsa-apacharaja, and Nidanarthakara categories, indicating a multifactorial etiology.

In the present study, Pandu is analyzed as a representative and significant Rasa PradoshajaVikara, with an aim to classical formulations—VishaladiChurna and Nisha Lauha—for their therapeutic efficacy.

### Material & Methods:

1. Method of Sampling: Simple Random Sampling Method
2. Method of Research: Clinical Research

The study was approved by the Institutional Ethics Committee of NIA (No. IEC/ ACA/2022/02/48, Date: 10-10-2022) and the trial was also registered in the clinical trial registry of India (CTRI No: CTRI/2024/10/074711 Date: 04/10/2024.)

Informed consent was taken from all the patients before including them in the trial. Patients were randomly divided into 2 groups.

Formulation of the drug:

The drug “VishaladiChurna” and “NishaLauha” was prepared at Pharmacy, NIA, Jaipur. Study drugs will be packed and labelled at the Pharmacy itself

A) Table 1:- Group A-VishaladiChurna<sup>1</sup> [3] – Ingredients.

No.	Name of Drug	Scientific Name	Parts Used	Parts
1.	Vishala	<i>Citrullus colocynthis</i> (L.) Schrad.	Fruit	2
2.	Katuki	<i>Picrorhizakurroa</i> Royle ex Benth.	Rhizome	2
3.	Mustaka	<i>Cyprus rotundus</i> Linn.	Rhizome	2
4.	Kustha	<i>Saussurealappa</i> C.B. Clarke	Root	2
5.	Devdaru	<i>Cedrusdeodera</i> (Roxb.)	Heartwood	2
6.	Kalingaka	<i>Holarrhenaantidysentrica</i> (Roxb. ex Flem.) Wall.	Bark	2
7.	Moorvamool	<i>Marsdeniatenacissima</i> (Roxb.)	Bark	4
8.	Atees	<i>Aconitum heterophyllum</i> Wall. ex Royle	Root	1
Total				17

Dose: 2 gm Twice a Day

Anupana: Luke Warm Water

Table 2:- NishaLauha<sup>ii</sup> [4] – Ingredients.

No.	Name of Drug	Scientific Name	Parts Used	Parts
9.	Haritaki	Termineliachebula	Fruit	1
10.	Bibhitaki	Termineliabelirica	Fruit	1
11.	Amalaki	Emblicaoficinalis	Fruit	1
12.	Haridra	Curcuma longa	Rhizome	1
13.	Daruharidra	Berberis aristate	Stem Bark Root	1
14.	Katuki	Picrorhizakurroa	Root	1
15.	AyorajLauha	Calcined iron		6
Total				12

Dose: 250 mg Twice a Day

Anupana: Honey and Ghrita in Vishama Matra

#### Sample Size:

In this clinical study, a total of 98 patients were initially registered, with 50 patients in Group A and 48 patients in Group B. During the screening process, 30 patients failed to meet the inclusion criteria, with 14 patients from Group A and 16 patients from Group B excluded from the study. Additionally, there were 8 dropouts, with 6 patients from Group A and 2 patients from Group B discontinuing participation. Ultimately, 60 patients completed the study, with 30 patients in each of the two groups.

Figure 1:- Consort Flow Chart

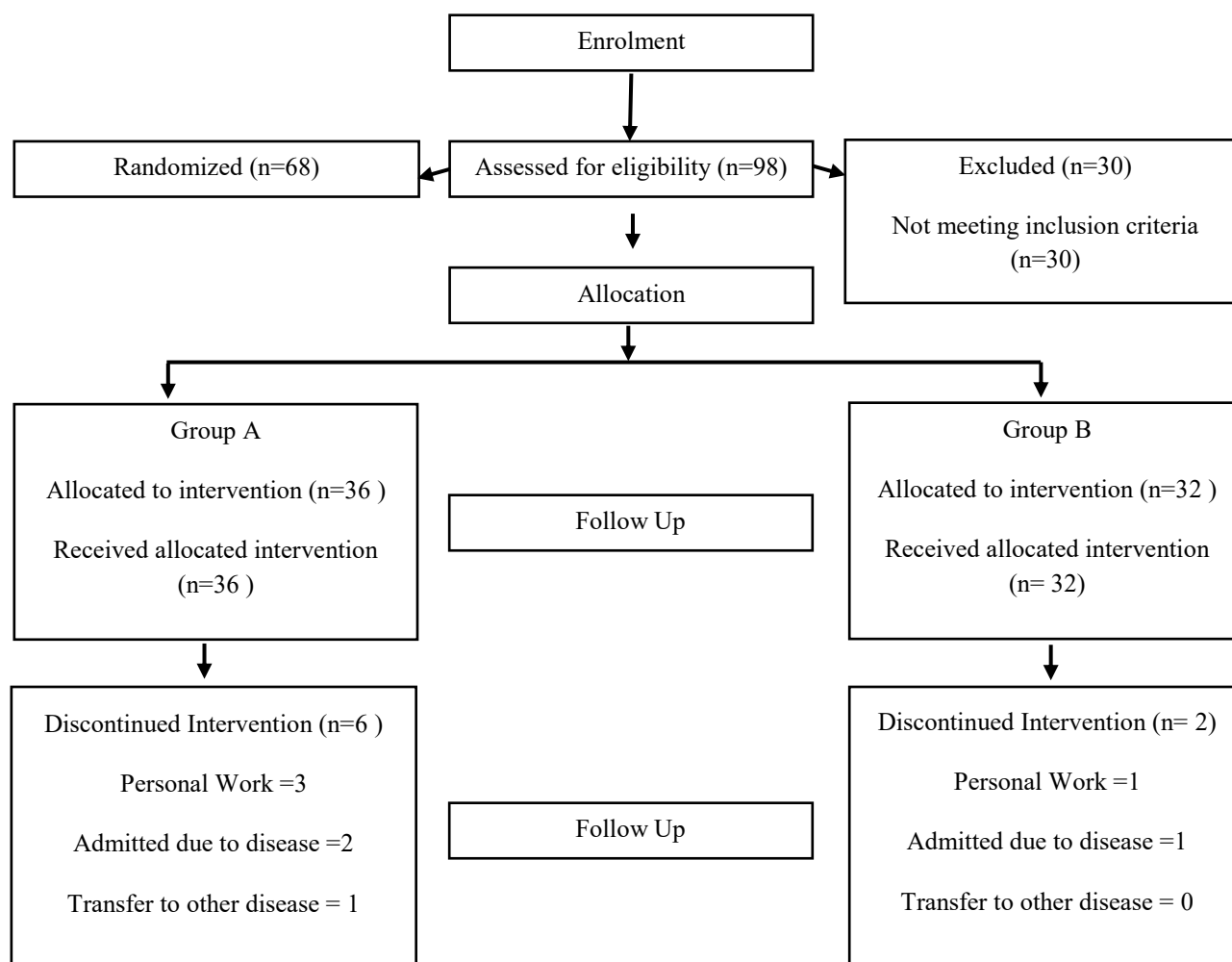


Figure 1

**Inclusion criteria**

1. Patients will be selected randomly irrespective of sex.
2. Patients of age group >18 yrs.
3. Patients who indulges in nidanalike guru, sheeta, snigdha, atimatraahaara, atichintana etc.
4. Patient presenting with signs and symptoms of Pandu especially panduta, daurbalyata, hridayaspandana, rukshata, aruchi, atinidra, aarohanaayasa.

**Exclusion criteria**

1. Mentally challenged Patients.
2. Uncooperative Patients.
3. Patients suffering from acute infections, tuberculosis, malignancies and bleeding disorders.
4. Patients on any maintenance therapy.
5. Pregnant women and lactating mother.
6. Patients with Hb < 6gm/dl.
7. Patients who see themselves eatinghaldiyukta food in swapana.
8. Patients with sign and symptoms like pandudantanakh, pandunetrapandusanghatdarshi.

**Withdrawal criteria**

1. If, any patient develops any side effect or cannot follow the instructions given, he or she will be withdrawn from the trial.
2. Failure to turn up for follows up.
3. Any other acute illness.

Criteria for assessment of therapy: Panduta Lakshana, FACIT- Fatigue scale and Changes in Complete Blood Count (CBC)

Follow Up Study:45 days including 4 visits i.e., day 0, day 15, day 30, day 45 for screening and treatment.

**Results:-**

Table 3:-Efficacy of therapy on Objective Parameters on Both Groups

Variables	Gr.	Mean		MeanDiff.	% Relief	SD±	SE±	tvalue	Pvalue	S
		BT	AT							
RBC	A	3.857	4.255	0.398	14.51%	0.1502	0.02743	14.51	<0.0001	S
	B	3.921	4.675	0.7543	16.22%	0.2547	0.04651	16.22	<0.0001	S
Hb	A	9.247	10.86	1.614	24.24%	0.3648	0.06661	24.24	<0.0001	S
	B	9.303	11.21	1.904	19.03%	0.5478	0.1000	19.03	<0.0001	S
HCT/PCV	A	30.13	34.36	4.237	12.29%	1.888	0.3447	12.29	<0.0001	S
	B	30.25	36.85	6.597	17.52%	2.062	0.3765	17.52	<0.0001	S
MCV	A	79.83	82.57	2.744	13.33%	1.127	0.2058	13.33	<0.0001	S
	B	78.07	79.74	1.664	29.59%	0.3081	0.05625	29.59	<0.0001	S
MCH	A	24.86	26.20	1.332	4.476%	1.630	0.2976	4.476	<0.0001	S
	B	24.07	24.31	0.2480	0.6736%	2.017	0.3682	0.6736	0.5059	NS
MCHC	A	30.92	31.68	0.7567	2.296%	1.805	0.3296	2.296	0.0291	S
	B	30.78	30.48	-0.2963	-0.6898%	2.353	0.4296	0.6898	0.4958	S
RDW	A	16.72	14.79	-1.924	26.77%	0.3937	0.07187	26.77	<0.0001	S
	B	17.66	14.91	-2.755	21.81%	0.6916	0.1263	21.81	<0.0001	S

Table 4:-Effect of therapy on Subjective parameter (Panduta Lakshana)<sup>iii,iv,v</sup> on Both group

Variables	Gr.	Mean		MeanDiff.	% Relief	SD±	SE±	W value	Pvalue	S
		BT	AT							
Panduta	A	3.067	0.8333	2.233	72.83%	1.135	0.2072	-435.0	<0.0001	S
	B	3.533	1.233	2.300	65.11%	0.9154	0.1671	-465.0	<0.0001	S
Daurbalyata	A	2.867	1.067	1.800	62.79%	0.8867	0.1619	-435.0	<0.0001	S
	B	3.533	1.233	2.300	65.11%	0.8769	0.1601	-465.0	<0.0001	S
Hridspandanam	A	3.200	1.200	2.000	62.50%	1.203	0.2197	-378.0	<0.0001	S
	B	2.333	1.433	0.9000	38.57%	0.6074	0.1109	-276.0	<0.0001	S
Bhrama	A	3.000	0.9333	2.067	68.90%	1.048	0.1914	-406.0	<0.0001	S
	B	2.500	1.633	0.8667	34.67%	0.6288	0.1148	-253.0	<0.0001	S
Shunaakshikuta	A	1.433	1.167	0.2667	18.61%	1.081	0.1973	-78.00	0.1446	NS
	B	2.367	1.467	0.9000	38.04%	0.6618	0.1208	-253.0	<0.0001	S
Rukshata	A	3.100	0.9333	2.167	69.90%	1.262	0.2304	-351.0	<0.0001	S
	B	3.467	1.167	2.300	34.67%	0.9154	0.1671	-465.0	<0.0001	S
Swas	A	1.933	1.133	0.8000	41.38%	1.186	0.2166	-193.0	0.0008	S
	B	0.9000	0.4667	0.4333	48.14%	0.9714	0.1774	-101.0	0.0217	S
Aruchi	A	2.667	1.167	1.500	56.25%	1.137	0.2076	-276.0	<0.0001	S
	B	3.567	1.100	2.467	69.19%	0.8604	0.1571	-465.0	<0.0001	S
Pindikodweshtana	A	3.133	1.000	2.133	68.11%	1.074	0.1961	-378.0	<0.0001	S
	B	3.367	1.033	2.333	69.31%	0.9223	0.1684	-465.0	<0.0001	S

Jwara	A	1.833	0.8333	1.000	54.55%	1.083	0.1977	-302.0	<0.0001	S
	B	0.9667	0.5333	0.4333	44.85%	0.9353	0.1708	-110.0	0.0207	S
Karnaksweda	A	1.067	0.6667	0.4000	37.50%	0.9685	0.1768	-108.0	0.0339	S
	B	1.067	0.4667	0.6000	56.25%	0.9322	0.1702	-163.0	0.0025	S
Hatanlah	A	2.933	1.033	1.900	64.80%	1.125	0.2054	-351.0	<0.0001	S
	B	3.467	0.9667	2.500	72.14%	0.8610	0.1572	-465.0	<0.0001	S
Gatrashool	A	3.133	0.8000	2.333	74.44%	1.093	0.1996	-378.0	<0.0001	S
	B	3.533	1.233	2.300	65.11%	0.7944	0.1450	-465.0	<0.0001	S
Gaurvam	A	3.000	1.133	1.867	62.23%	1.196	0.2183	-300.0	<0.0001	S
	B	3.533	0.4333	3.100	87.78%	0.7589	0.1385	-465.0	<0.0001	S
Harit	A	3.233	1.033	2.200	68.07%	1.031	0.1882	-406.0	<0.0001	S
	B	1.100	0.5333	0.5667	51.25%	0.8584	0.1567	-142.0	0.0022	S
Shirnaloma	A	3.100	1.000	2.100	67.74%	1.185	0.2163	-406.0	<0.0001	S
	B	3.433	1.233	2.200	64.10%	0.9613	0.1755	-465.0	<0.0001	S
Hataprabha	A	3.000	1.000	2.000	66.67%	1.313	0.2397	-351.0	<0.0001	S
	B	0.9667	0.5333	0.4333	55.17%	1.223	0.2233	-127.0	0.0284	S
Kopan	A	3.200	0.8667	2.333	72.92%	1.184	0.2162	-378.0	<0.0001	S
	B	3.333	2.600	0.7333	22.00%	0.7849	0.1433	-136.0	<0.0001	S
Nidralu	A	2.867	1.067	1.800	62.79%	1.064	0.1942	-351.0	<0.0001	S
	B	3.467	0.9000	2.567	74.08%	0.7739	0.1413	-465.0	<0.0001	S
Sthivan	A	3.300	0.8667	2.433	73.73%	1.104	0.2016	-465.0	<0.0001	S

	B	2.633	1.200	1.433	54.43%	0.8976	0.1639	-325.0	<0.0001	S
Katiurupadaruk	A	3.033	0.7667	2.267	74.75%	1.230	0.2245	-406.0	<0.0001	S
	B	3.600	1.067	2.533	70.36%	0.8604	0.1571	-465.0	<0.0001	S
Bhaktiaarohan	A	3.133	0.8333	2.300	73.42%	1.208	0.2205	-378.0	<0.0001	S
	B	2.567	1.033	1.533	59.74%	1.137	0.2075	-276.0	<0.0001	S



Table 5:-Effect of therapy on Subjective Parameter (FACIT- Fatigue scale)<sup>vi</sup> on Both group

Variables	Gr.	Mean		MeanDiff.	% Relief	SD±	SE±	W value	Pvalue	S
		BT	AT							
I feel fatigued	A	2.800	0.9000	1.900	67.86%	1.155	0.2109	-351.0	<0.0001	S
	B	3.400	1.000	2.400	70.59%	0.9685	0.1768	-465.0	<0.0001	S
I feel weak all over	A	3.133	1.000	2.133	68.08%	1.074	0.1961	-378.0	<0.0001	S
	B	3.433	0.5667	2.867	83.51%	0.6814	0.1244	-465.0	<0.0001	S
I feel listless (washed out)	A	3.033	0.9667	2.067	68.15%	1.048	0.1914	-378.0	<0.0001	S
	B	3.400	0.5667	2.833	83.32%	0.7466	0.1363	-465.0	<0.0001	S
I feel tired	A	2.767	0.7333	2.033	73.47%	1.189	0.2170	-378.0	<0.0001	S
	B	3.633	1.033	2.600	71.57%	0.8550	0.1561	-465.0	<0.0001	S
I have trouble starting things because I am tired	A	3.033	0.8000	2.233	73.62%	1.278	0.2333	-351.0	<0.0001	S
	B	3.433	1.067	2.367	68.95%	0.9643	0.1761	-465.0	<0.0001	S
I have trouble finishing things because I am tired	A	3.133	1.300	1.833	58.51%	1.147	0.2095	-351.0	<0.0001	S
	B	3.400	0.6000	2.800	82.35%	0.6644	0.1213	-465.0	<0.0001	S
I have energy	A	3.200	1.567	1.633	51.03%	0.8087	0.1477	-378.0	<0.0001	S
	B	3.500	0.4667	3.033	86.66%	0.6687	0.1221	-465.0	<0.0001	S
I am able to do my usual activities	A	3.233	1.667	1.567	48.47%	0.8976	0.1639	-378.0	<0.0001	S
	B	3.433	0.4333	3.000	87.39%	0.6433	0.1174	-465.0	<0.0001	S
I need to sleep during the day	A	2.833	0.9000	1.933	68.23%	1.048	0.1914	-406.0	<0.0001	S
	B	3.600	0.5667	3.033	84.25%	0.8087	0.1477	-465.0	<0.0001	S

I am too tired to eat	A	3.033	1.367	1.667	54.96%	1.295	0.2365	-276.0	<0.0001	S
	B	2.633	0.5333	2.100	79.76%	0.7589	0.1385	-465.0	<0.0001	S
I need help doing my usual activities	A	2.967	1.200	1.767	59.56%	0.9353	0.1767	-435.0	<0.0001	S
	B	2.467	1.067	1.400	56.75%	0.8550	0.1561	-351.0	<0.0001	S
I am frustrated by being too tired to do the things I want to do	A	2.933	1.100	1.833	62.50%	1.117	0.2039	-300.0	<0.0001	S
	B	3.500	0.7667	2.733	78.09%	0.5833	0.1065	-465.0	<0.0001	S
I have to limit my social activities because I am tired	A	2.833	1.033	1.800	63.54%	1.064	0.1942	-351.0	<0.0001	S
	B	0.9333	0.6000	0.3333	35.71%	1.241	0.2266	-126.0	0.1132	ns

### Effect of Therapy

Both VishaladiChurna and Nisha Lauha exhibited statistically significant improvement ( $p < 0.0001$ ) in managing Pandu Roga, evidenced through changes in classical symptoms, validated fatigue scores, and hematological markers. Group A (VishaladiChurna) showed notable relief in classical Ayurvedic symptoms of Pandu Roga such as Daurbalya (86.67%), Pandu Varna (73.33%), and Pindikodweshtana (70.37%). Subjectively, patients reported significant improvements in fatigue-related domains: “I feel fatigued” (67.86%), “I have trouble starting things because I am tired” (73.62%), and “I have to limit my social activities because I am tired” (63.54%). Hematologically, moderate improvements were observed in Hb%, RBC count, and indices like MCV and MCHC, indicating enhanced hematopoiesis.

In contrast, Group B (Nisha Lauha) exhibited a more pronounced therapeutic effect across nearly all parameters. Classical symptoms such as Panduta (88%), Daurbalya (90.91%), and Shrama (84.62%) showed higher percentage relief. Subjective fatigue parameters like “I feel weak all over” (83.51%), “I am able to do my usual activities” (87.39%), and “I have energy” (86.66%) demonstrated robust improvement. Objective hematological indicators—including Hb%, RBC, HCT, and MCH—improved significantly, with percentage increases markedly higher than those in Group A.

### Discussion

Pandu Roga, described as a Rasa PradoshajaVikara<sup>vii,viii</sup>, is primarily a disorder of Rasa and Rakta Dhatu, arising due to impaired Dhatvagni and vitiation of Pitta Dosha.<sup>ix</sup> The therapeutic approach in Pandu involves Agnideepana, Raktavardhana, and Rasayana principles to address the root pathology.

Nisha Lauha<sup>x</sup>, a classical formulation containing Haridra, Amalaki, and Lauha Bhasma, demonstrated superior efficacy across all domains. The presence of Lauha Bhasma likely contributed to the robust hematinic action, as evidenced by marked increases in Hb%, RBC, and HCT. Additionally, the antioxidant and anti-inflammatory properties of Haridra and Amalaki may have played a role in alleviating fatigue and systemic debility. The substantial subjective relief observed in the FACIT-Fatigue Scale and PandutaLakshanas further affirms its multidimensional therapeutic potential.

On the other hand, VishaladiChurna<sup>xi</sup>, composed of drugs like Vishala (Citrullus colocynthis), VishaladiChurna, composed of Vishala, Katukiand Kusthapossesses deepana-pachana and pittashamaka properties, which likely improved digestion and metabolism, leading to better absorption and correction of Agni Mandya, a key pathogenic factor in Pandu. The inclusion of Moorvamool and Atees may have supported anti-inflammatory and immunomodulatory actions, which contribute to symptomatic relief in muscular weakness and exerted a notable impact on fatigue-related symptoms and general weakness. Interestingly, Group A showed better improvement in the

domain of social activity limitation, as reflected in the FACIT-Fatigue Scale, indicating that VishaladiChurna may have a positive effect on psychological and social aspects of fatigue.

Collectively, both formulations produced statistically significant results in correcting clinical features of Pandu Roga, yet Nisha Lauha demonstrated greater efficacy in restoring hematological values and reducing core symptomatology.

### **Conclusion**

Both VishaladiChurna and Nisha Lauha were found to be effective in the management of Pandu Roga, with statistically significant improvements observed in hematological parameters, fatigue levels (FACIT-Fatigue Scale), and classical PandutaLakshanas.

Nisha Lauha proved more efficacious overall, particularly in enhancing hematological profiles and alleviating cardinal symptoms such as Panduta and Daurbalya. Its potent Raktavardhaka and Rasayana properties likely underpin its clinical superiority. VishaladiChurna, while comparatively milder in terms of objective correction, showed considerable benefit in fatigue management and psychosocial domains, suggesting its potential as a supportive or adjunctive therapy in Pandu Roga.

From the present findings, Nisha Lauha may be recommended as the primary line of treatment in moderate to severe Pandu Roga, especially where hematological correction is warranted. VishaladiChurna may be considered in milder cases or where patients primarily present with fatigue and reduced quality of life. Further multi-centered studies with larger sample sizes and long-term follow-up are essential to substantiate these findings and establish comprehensive therapeutic protocols.

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### **Conflicts of Interest**

The authors declare that there are no conflicts of interest related to this study.

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