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## An Experimental Study to Evaluate the Effect of *Vishnu Taila* on Estrous Phase of Female Wister Albino Rats

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### ABSTRACT

**Objective:** To evaluate the effect of Vishnu taila on estrous phase of wistar albino rats.

**Method:** The study was carried out on 4 groups of rats with 6 rats each. First group was the standard group, second group was given with Vishnu Taila orally, third group with Ovrall L and fourth group with Ovrall L followed by vishnu taila. The drug was administered orally for 21 days. Daily vaginal smear was observed to see the estrous phase.

**Result:** The study revealed the predominance of estrous phase in Vishnu taila treated rats.

**Conclusion:** From the above study it can be concluded that Vishnu taila can be administered to improve the estrous phase in wistar albino rats.

### KEYWORDS

*Vishnu Taila, Estrous Phase*



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## INTRODUCTION

The presence of proper ovulation in women is a symbol of good health status in a lady who menstruates normally. In treatment protocols, ovulation helps to understand when one can achieve conception, also it helps in providing information on when one can avoid the unwanted pregnancy. Experimental studies are aimed at proving the effect of a drug prior to human trial. It helps in understanding its effect over the body tissues. The estrous cycle in rats is having 4 phases namely proestrous, estrous, metaestrous and diestrous phase<sup>1</sup>. The estrous phase indicates the ovulatory period in rat. Increase in estrous phase or decrease in diestrous phase indicates more of ovulatory period. The drug Vishnu Taila as a drug of choice in Vandhyatva is mentioned by Acharya Chakradutta<sup>2</sup>. In Bhaishajya Ratnavali in Vatavyadhi Adhikara, reference of Vishnu Taila in Vandhyatva can be obtained<sup>3</sup>. This study was aimed at understanding the effect of Vishnu Taila on estrous phase of Wistar albino rats which indirectly indicates presence of ovulation.

## MATERIALS AND METHOD

Ethical Committee Approval Number-SDMCRA/IARC/PT-01

### Drug Selection

**Test drug:** Vishnu Taila was taken as a test drug to be given internally. The reference of

Vishnu Taila was obtained from Chakradutta.

**Standard Drug:** The positive control group was given with Tab Ovrall- Norgestrel 0.3mg and Ethinyl Estradiol 0.03mg

### Ingredients of Vishnu Taila-

Drugs	Quantity
1. Shalaparni	1 Pala
2. Prishniparni	1 Pala
3. Brihati	1 Pala
4. Eranda	1 Pala
5. Putika	1 Pala
6. Bala	1 Pala
7. Kantakari	1 Pala
8. Satavari	1 Pala
9. Gavedhuka	1 Pala
10. Saireyaka	1 Pala
11. Tila taila	4 Parts
12. Goksheera	16 Parts

### Dose Fixation

Dose fixation: Based on the body surface area ratio and by referring to the table of Paget and Barnes (1964).

Recommended daily intake of Vishnu Taila = 1 Pala

Human Dose X 0.018 for rat weighing 200g  
i.e.,  $48 \times 0.019 \times 5 = 4.32 \text{ ml/kg}$

i.e.,  $1 \text{ g} = 0.00432 \text{ ml}$

### Experimental design and procedure

Wistar strain albino female rats weighing between 150-250g were used for the study with following conditions.

The animals were obtained from the animal house attached to the Pharmacology Laboratory, SDM Centre for Research in Ayurveda and Allied Science, Udyavara. They were exposed to natural day and night cycles with ideal laboratory condition in



terms of ambient temperature, humidity and they were fed with rat pellets and tap water ad libitum.

The experiments were carried out in conformity with guidelines of the Institutional Animal Ethical Committee(IAEC)after obtaining its permission .ETHICAL CLEARANCE NUMBER-SDMCAU/IAEC/PT.01

**Animal Grouping:**24 wistar albino rats were selected for the study which were then grouped into 4 of 6 rats each.

**Route of drug administration:**The drug was administered by oral route with the help of feeding tube attached to injection syringe.

**Duration of study:**21 Days

Daily vaginal smear was observed under 40x objective lens to see the estrous phase<sup>4</sup>.

## RESULT

**Table 1** Effect of Vishnu Taila on Proestrous Phases

GROUPS	PROESTROUS PHASES	% change
<b>CONTROL GROUP</b>	5.66 ± 0.33	--
<b>VISHNU TAILA GROUP</b>	5.16 ± 0.47	8.93↓@
<b>OVRAL L</b>	5 ± 0.25	11.75↓@
<b>V+ISHNU TAILA+ OVRAL L</b>	5.16 ± 0.30	3.32↑#

Data :Mean ±SEM,

@- compared with normal control

#-compared with Ovrall L

The data related to the effect of test drug on number of proestros phase in complete estrous cycle has been shown in the table 1a

Data shows that there was a decrease in the number of proestrous stage in the Vishnu Taila group and Ovrall L group as compared to the normal control group. The observed decrease was found to be statistically non significant compared with normal control group. The data shows that there was an increase in the number of proestrous phase in combined Vishnu Taila and Ovrall L group when compared to the Ovrall L group.the observed result was found to be statistically non significant.

**Table 2** Effect of Vishnu Taila on Estrous Phase

GROUPS	ESTROUS PHASE	% change
<b>CONTROL GROUP</b>	5.2±0.3742	--
<b>VISHNU TAILA GROUP</b>	6.833±0.307**	31.4↑@
<b>OVRAL L</b>	4.166±0.307	19.88↓@
<b>VISHNU TAILA+ Ovrall L</b>	4±0.3651	4.15↓#

Data :Mean ±SEM,\*\*P<0.01

@- compared with normal control

#-compared with Ovrall L

The data related to the effect of test drug on number of estrous phase in complete estrous cycle has been shown in the table 1

Data shows that there was an increase in the number of estrous stage in the Vishnu Taila group as compared to the normal control group. The observed increase was found to be statistically very significant compared with normal control group. There was a decrease in the number of estrous phase in the Ovrall L group when compared



to the normal control group. The observed data was found to be statistically non-significant. The data showed that there was decrease in the number of estrous phase in Ovrall L treated group and also in combined group ie, Vishnu Taila + Ovrall L treated group, when compared to the Ovrall L group. The observed results were found to be statistically non-significant.

**Table 3** Effect of Vishnu Taila on Meta Estrous Phase

GROUPS	META ESTROUS PHASE	%change
<b>CONTROL GROUP</b>	5.4±0.6782	--
<b>VISHNU TAILA GROUP</b>	5±0.3651	7.40↓@
<b>OVRALL L</b>	3.833±0.3073	29.01↓@
<b>VISHNU TAILA+ OVRALL L</b>	4.5±0.4282	17.401↑#

Data :Mean ±SEM,

@- compared with normal control

#-compared with Ovrall L

The data related to the effect of test drug on number of metaestros phase in complete estrous cycle is shown in the table 1

Data shows that there was a decrease in the number of metaestrous stage in the Vishnu Taila group and Ovrall L group when compared to the normal control group. The observed decrease was found to be statistically non significant as compared with normal control group. The data shows that there was an increase in the number of metaestrous phase in Vishnu Taila and Ovrall L group when compared to the

Ovrall L group. The observed increase was found to be statistically non-significant.

**Table 4** Effect of Vishnu Taila on Diestrous Phase

GROUPS	DIESTROUS PHASE	%change
<b>CONTROL GROUP</b>	4.6±0.4000	--
<b>VISHNU TAILA GROUP</b>	4±0.5164	13.04↓@
<b>OVRALL L</b>	7.833±0.3073**	70.282↑@
<b>VISHNU TAILA+ OVRALL L</b>	7.333±0.4944**	6.38↓#

Data :Mean ±SEM,

@- compared with normal control

#-compared with Ovrall L

The data related to the effect of test drug on number of Diestrous phase in complete estrous cycle has been shown in the table 1 Data shows there was a decrease in the number of diestrous stage in the Vishnu Taila group when compared to the normal control group. The observed decrease was found to be statistically non significant compared with normal control group. There was an increase in diestrous phase in Ovrall L group when compared with the normal control group .the observed increase was found to be statistically very significant. The data shows that there was a decrease in the number of Diestrous phase in Vishnu Taila and Ovrall L group when compared to the Ovrall L group. The observed result was found to be statistically very significant.

## DISCUSSION

### CONSOLIDATION STATEMENT-ESTROUS PHASE-



Parameters	COMPARED WITH NORMAL CONTROL		COMPARED WITH POSITIVE CONTROL	
	Positive control	Test drug	Test Standard drug	drug+ Standard drug
Pro oestrous	NSD	NSD	NSI	
Oestrous	NSD	VSI	NSD	
Meta oestrous	NSD	NSD	NSI	
Di oestrous	VSI	NSD	VSD	

#### **Proestrous phase-**

There was decrease in proestrous phase in Vishnu taila group and Ovrall L group when compared to control group which was statistically non significant. There was increase in proestrous phase in combined group which was statistically non significant.

#### **Oestrous phase-**

There was increase in oestrous phase in Vishnu taila group when compared to control group which was statistically very significant. There was decrease in oestrous phase in Ovrall L group when compared to control group which was statistically non significant. There was decrease in proestrous phase in combined group which was statistically non significant.

#### **Meta oestrous phase-**

There was decrease in metaestrous phase in Vishnu Taila group and Ovrall L group when compared to control group which was statistically non significant. There was increase in metaestrous phase in combined group which was statistically non significant.

#### **Diestrous phase-**

There was decrease in diestrous phase in Vishnu Taila group when compared to control group which was statistically non

significant. There was increase in diestrous phase in Ovrall L group when compared to control group which was statistically very significant. There was decrease in diestrous phase in combined group which was statistically very significant. The drastic increase in the estrus phase in the study showed the effect of Vishnu taila in rats. With effect to their sexual receptiveness, increased oestrogen which can be inferred as ovulatory period in lower animals.

The vaginal smear of Group 2 showed more of estrous cycle when compared to the Group 3, which showed an increase in ovulatory phase in rats.

#### **CONCLUSION**

Most of the ingredients like shalaparni, prishniparni, bala, goksheera, shatavari etc had madhura rasa and madhura vipaka. Madhura rasa is having the predominance of prithvi and ap mahabhuta. Due to the guru guna of these mahabhuta it is considered to have the tendency to move in downward direction. Few drugs in the drug like gavedhuka, brihati and prishniparni exhibits katu rasa. Katu rasa is having agni and vayu mahabhuta. Thus it can be inferred as one which helps in apana vayu functions of artava janaka and artava nishkramana. Tila is ushna veerya which might have acted as pittakaraka which probably might have acted as arthava janaka. Here arthava in the form of menstrual cycle, ovulation and hormones facilitating regular cycles may be considered.



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