WJPMR, 2026, 12(4), 346-353

Research Article

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Impact Factor: 7.533

ISSN (O): 2455-3301

ISSN (P): 3051-2557

Coden USA: WJPMBB

EXPERIMENTAL EVALUATION OF OVULATION INDUCING ACTIVITY OF MAHACHAITASA GHRITA IN FEMALE WISTER ALBINO RATS

[*1]Dr. Mamata, [2]Dr. Laxmibai Kurle, [3]Dr. Ravi R. Chahvan

[1]PG Scholar Department of Rasashastra and Bhaishajya Kalpana, Taranath Governament Ayurvedic Medical College & Hospital Bellary.

[2]Professor Department of Rasashastra and Bhaishajya Kalpana Taranath Government Ayurvedic Medical College & Hospital Bellary.

[3]Proffessor Department of Rasashastra and Bhaishajya Kalpana Taranath Government Ayurvedic Medical College & Hospital Bellary.

***Corresponding Author: Dr. Mamata**

PG Scholar Department of Rasashastra and Bhaishajya Kalpana, Taranath Governament Ayurvedic Medical College & Hospital Bellary. **DOI:** https://doi.org/10.5281/zenodo.19434852

How to cite this Article: [*1]Dr. Mamata, [2]Dr. Laxmibai Kurle, [3]Dr. Ravi R. Chahvan (2026). Experimental Evaluation Of Ovulation Inducing Activity Of Mahachaitasa Ghrita In Female Wister Albino Rats. World Journal of Pharmaceutical and Medical Research, 12(4), 346–353.

Article Received on 05/03/2026 **Article Revised on 25/03/2026** **Article Published on 04/04/2026**

ABSTRACT

Infertility affects approximately 17.5% of the global adult population and nearly 15% in India, exerting substantial psychosocial burden on affected women. In Ayurveda, Rutu, Kshetra, Ambu, and Beeja constitute the fundamental prerequisites for conception, and their vitiation results in Vandhyatva, with anovulation being a predominant etiological factor. Mahachaitasa Ghrita, a classical Sneha Kalpana formulation indicated for Manovaha Srotovikara and Vandhyatva as described in Bhavaprakasha, was evaluated for its ovulation-inducing potential in female Wistar albino rats. Animals were randomized into four groups (n = 6). Experimental findings revealed a statistically significant prolongation of the estrous phase, elevation of serum estrogen levels, and increased endometrial thickness, reflecting estrogenic stimulation characteristic of the proliferative phase.

INTRODUCTION

Infertility affects 17.5% of adults worldwide and about 15% of the Indian population. It is defined as failure to conceive after one year of regular unprotected coitus and is associated with significant psychosocial stress, particularly in women.[1] Lifestyle, psychological, occupational, and social factors contribute to its rising prevalence.

Ayurveda describes conception as dependent on Rutu, Kshetra, Ambu, and Beeja impairment of any leads to Vandhyatva,[2] with Beeja being crucial in female fertility. Among causes of female infertility, anovulation accounts for 30–40%, commonly presenting with oligomenorrhea or amenorrhea.

Modern ovulation-induction therapies are costly and associated with adverse effects, necessitating safer alternatives. Mahachaitasa Ghrita,[3] a classical Sneha Kalpana, is indicated in Vandhyatva. It acts as Yogavahi, Agnideepaka, and Kapha-shamaka, with ingredients possessing Tridosha-shamaka, Vrishya, Rasayana, Garbhasthapaka, and Yonidoshahara properties, suggesting its potential role in managing anovulatory infertility.

MATERIALS AND METHODS

STUDY DESIGN[4]: Source of animals: Albino wistar rats: The required number of animals was procured from S.D.M. Centre for Research in Ayurveda and Allied Sciences, Udupi. The rats weighing between 110-160grams were procured.

Inclusion criteria

Healthy 24 Female wistar albino rats weighing of 110-160gm was selected randomly for the study.

Exclusion criteria

- Unhealthy and infected rats
- Pregnant rats
- Wister rats under the experiment

Trial drugs used for the experimental study.

SL NO	NAME OF THE DRUGS
1	*Mahachitasa ghrita*
2	Primolut-N
3	Clomiphene citrate

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

- **Dose for rats:** The therapeutic Human dose of *Mahachaitasa ghrita* 48ml per day.
- Therefore, Rat Dose =Human Dose X 0.018 X 5 = 4.32ml/kgbw.

DOSAGE FORM AND SCHEDULE

DRUGS	DOSAGE FORM	ROUTE
Mahachaitasa ghrita	Liquid form	Orally
Primolut-N	Diluted with distill water	Intrapertoneal
Clomiphene citrate	Diluted with sesame oil	Orally

Grouping of Animal

Group	Group name	Treatment	Dose	Frequency	Duration
1	Normal control	Vehicle	-	Daily	21 days
2	Positive control	Primolut-N	50µg /kg BW	Daily	21days
3	Induced anovulation :*Mahachaitasa ghrita* (Test drug)	Primolut-N	50µg /kg BW	Daily	21 days
		Mahachaitasa ghrita	5ml	Daily	
4	Induced anovulation + Standard drug	Primolut-N	50µg /kg BW	Daily	21days
		Clomiphene citrate	50µg /kg BW	Daily	

- **Drug Administration:** Positive control group was adminsterd Primolut –N IP followed by vaginal smear.
- Test drug group was adminsterd Primolut –N intrapertonally (IP)followed by *Mahachaitasa ghrita* orally including experiment day for 21 days in morning session between 9 -10am followed by vaginal smear.
- Standard drug group was adminsterd Primolut –N IP followed by Clomiphene citrate orally including experiment day for 21 days in morning session between 9-10 am followed by Vaginal smear.

RESULTS

Showing Effect of Mahachaitasa Ghrita on Proestrus phase

GROUPS	PROESTRUS PHASE	%CHANGE
Normal control	5±0.93	
Positive control	3.33±0.76	33.4 ↓@
Test drug	5.16±1.16	54.95↑#
Standard drug	8.16±1.92*	145.04↑#

Showing Effect of Mahachaitasa ghrita on estrus phase

GROUPS	ESTRUS	%CHANGE
Normal control	9.33±0.49	
Positive control	8.5±0.500	-8.89↓@
Test drug	9.66±1.33	13.64↑#
Standard drug	3.66±0.71**	-56.94↓#

Showing Effect of Mahachaitasa ghrita on Metaestrus phase.

GROUPS	METAESTRUS	%CHANGE
Normal control	3.16±0.74	
Positive control	5.16±1.01	63.29↑@
Test drug	2.83±0.65	-45.15↓#
Standard drug	4.33±0.76	-16.08↓#

Showing Effect of Mahachaitasa ghrita on Diestrus phase

GROUPS	DIESTRUS	% CHANGE
Normal control	3.5±0.84	
Positive control	4±0.36	14.28↑@
Test drug	3.33±1.02	-20.12↓#
Standard drug	4.8±1.72	20↑#

Showing Effect of Mahachaitasa ghrita on Serum estrogen.

GROUPS		% CHANGE
Normal control	195.92±17.35	
Positive control	172.84±12.16	-0.117↓@
Test drug	195.92±17.35	13.35↑#
Standard drug	155.83±11.92	-9.84↓#

Data :MEAN±SEM
@- compared with normal control
#- compared with positive control

Showing histopathology results of ovary

No	Growing /healthy Follicles in different stages	Atretic /degenerating follicle	Corpus luteum	Stromal hyperplasia
NC1	7	1	8	-
NC2	4	2	8	-
PC1	3	6	8	++
PC2	2	3	0	+++
SD1	2	4	1	+++
SD2	4	7	1	++
T1	7	4	10	+++
T2	4	1	2	+++

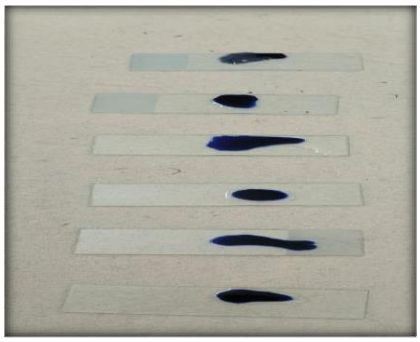
Nil, +Mild, ++ Moderate, +++ Severe

Figures of animal study

Dosing of rats

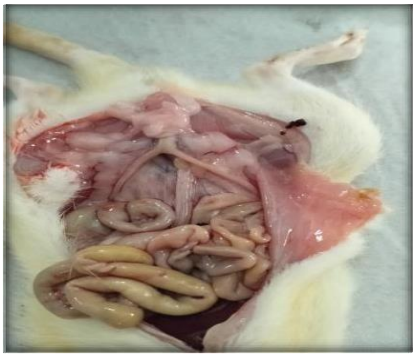
Primolut- N Administration

Collection of blood sample



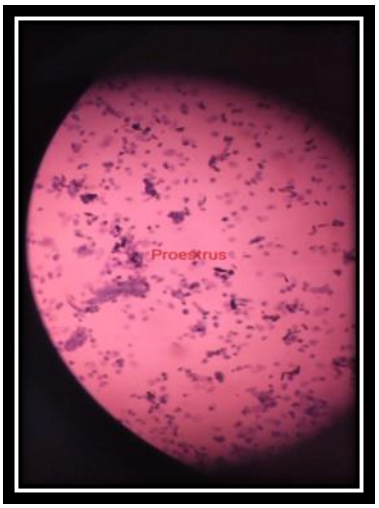
Slide preparation

Microscopic observation

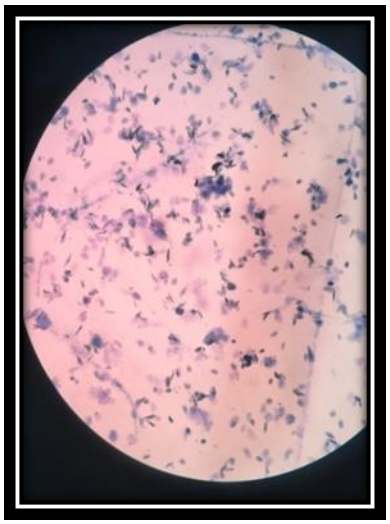


Dissection of rats

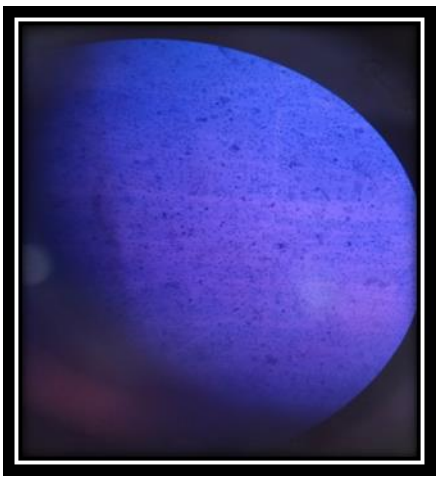
Vaginal smear of rat showing different Phases of Estrous cycle



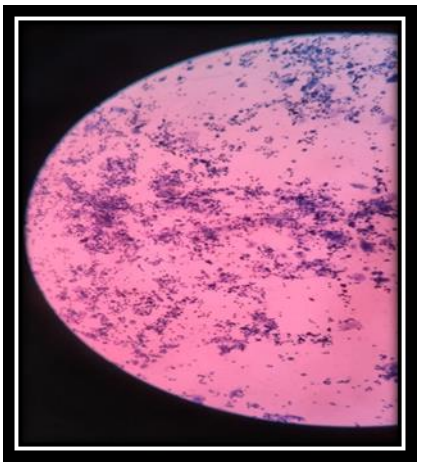
Proestrus phase



Estrus phase



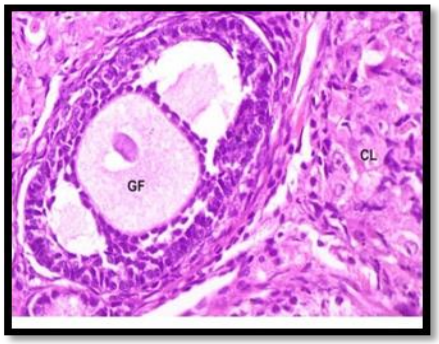
Diestrus phase



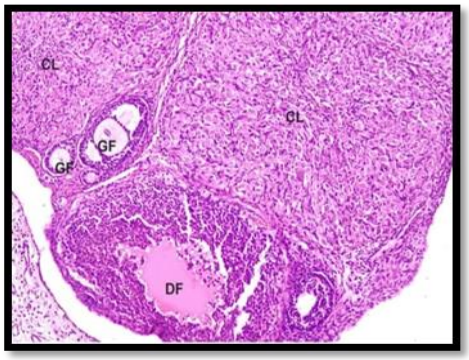
Metaestrus phase

HISTOPATHOLOGY

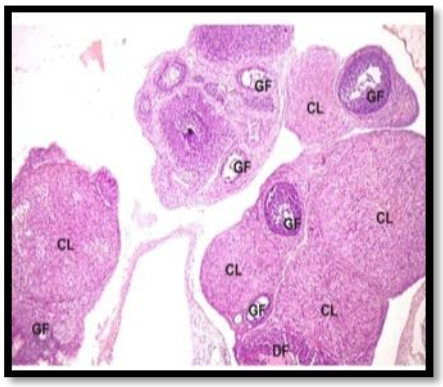
Normal control group



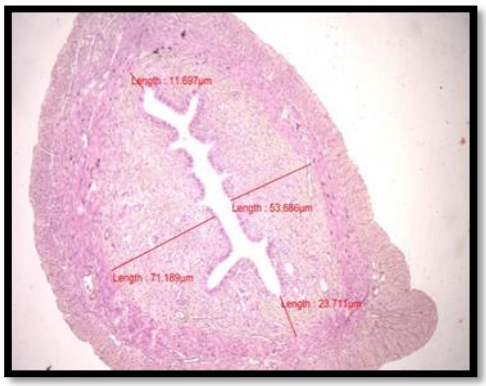
Graffian follicle



Growing follicle

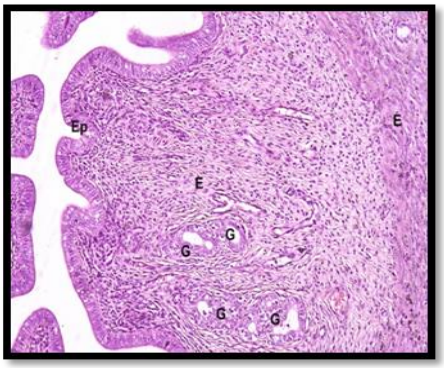


Corpus luteum

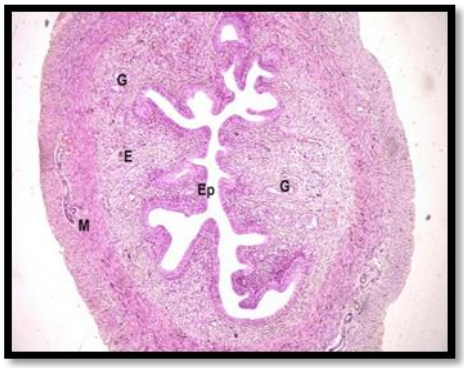


Endometrium thickness

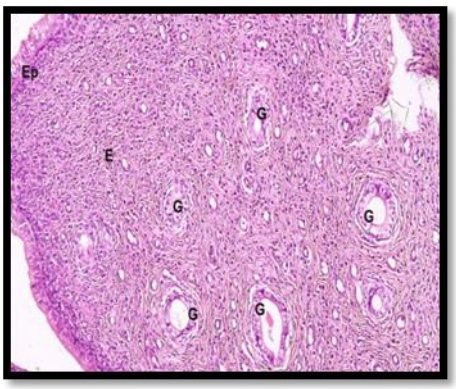
Positive control group



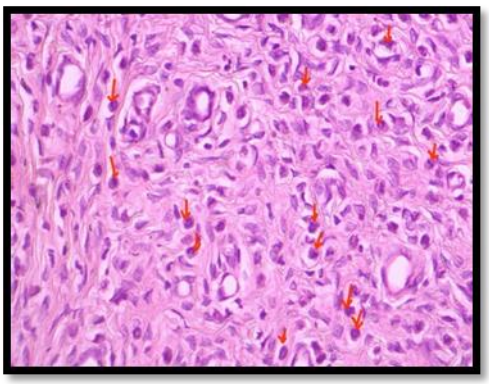
Neutrophillic inflatration



Endometrium thickness



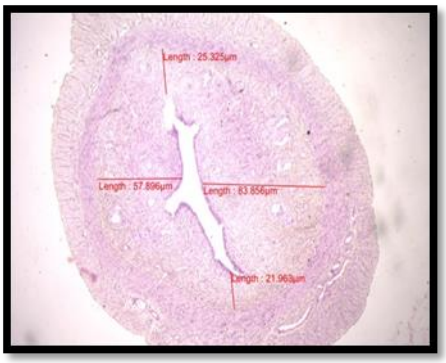
Atrophy of ovary



Hyperplasia endometrium

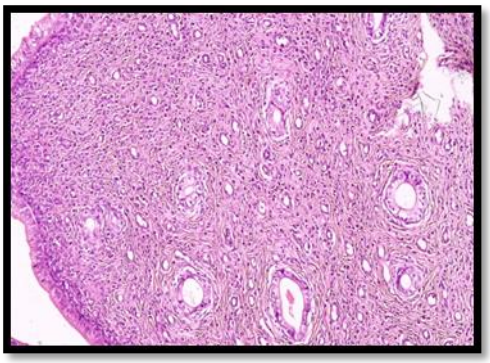
Standard Drug group

Fig:47



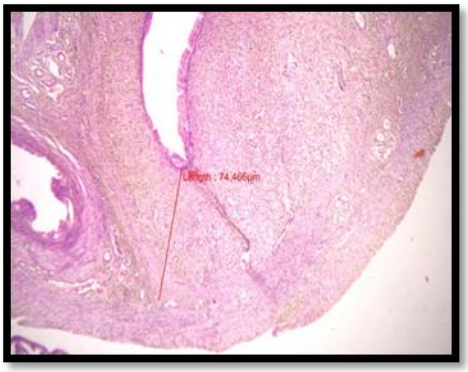
Enometrium thickness

Fig :48



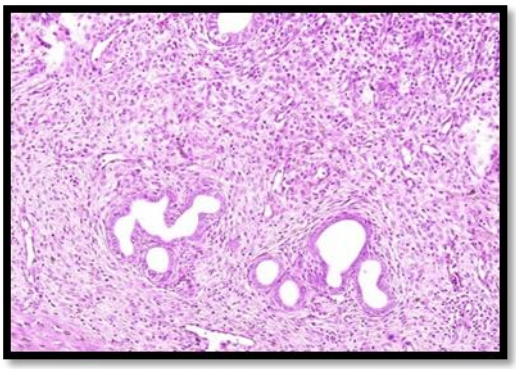
Graffian fillicle

Fig :49



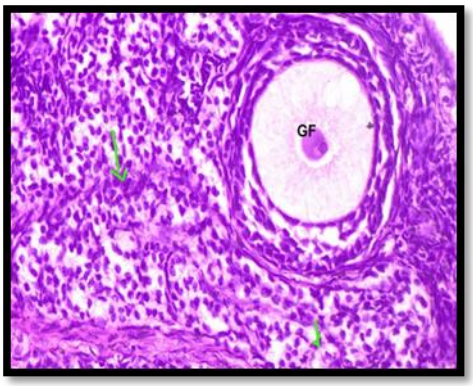
Hyperplasia of endometrium

Fig :50

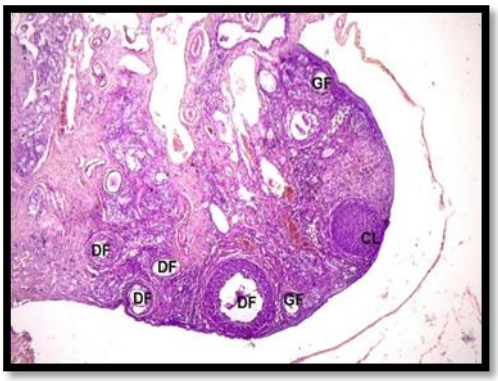


Corpus luteum

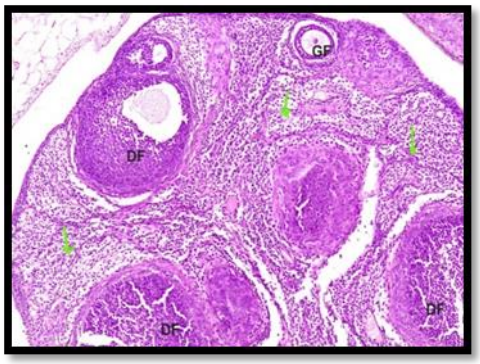
Test drug group



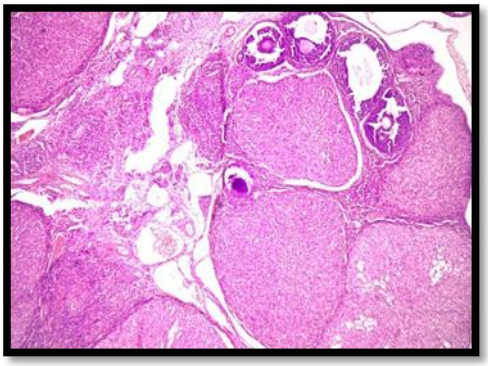
Graffian follicle



Ovary with hyperplasia



Growing atretic follicle



Increased follicles

DISCUSSION

Changes in Proestrus phase

During the proestrus phase, LH and FSH levels rise sharply in rodents. LH is to induce ovulation, corpus luteum formation and stimulate the production of ovarian steroid harmones. FSH stimulates estradiol Secretion. Estradiol is high levels in the proestrus phase and stimulate the relese of gonadotropins that cause ovulation.

Therefore, at this stage follicle growth and endometrial development are stimulated by estrogen.

In present study significantly increases the number of Proestrus phase in MCG compared to positive control indicating stimulatory effect on ovulation .it may promote follicular maturation and support ovulatory function.

Changes in Diestrus phase

In Diestrus after the corpus luteum degenerates, Progestrone levels plummet. The level of estradiol is at lowest at this stage. The endometrium doesn't shed off is rebuilt for the next cycle. The data shows there was an increase in number of Diestrus phase in positive control while MCG Shows decrease in Diestrus duration it may suggests Constituents in MCG influences the Hypothalamic pituitary gonadal (HPG) axis. It exerts the mild estrogenic effect, which can antagonize the Progestrone activity, thus promoting earlier onset of proestrus.

Chages in Metaestrus phase

In the metaestrus phase after ovulation corpus luteum is formed and progesterone is produced but if fertilization does not occur, the corpus luteum ceases to produce progesterone with slight increase in estradiol. progestrone and FSH levels are low in this stage. The data shows there was increase in number of metaestrous phase in positive control when compared to normal control group it indicates Reversed estrogenic effect while MCG Significantly reduces the metaestrus phase by counteracting estrogen over activity & restore harmonal balance in the estrus cycle.

Changes in Estrous phase

During estrus, with ovulation occurring spontanouesly, females are receptive to males, while FSH levels are high at this stage, high FSH Levels trigger several morphological changes that lead to ovulation and pregnancy when fertilization occurs. As a result the corpus luteum becomes functional & secrets progesterone due to LH, which inhibits FSH.

The data shows there was an increase in number of estrous phase in MCG when compared with positive control group. The observed increase was found to be statistically significant. An increase in estrus phase suggests restoration of normal harmonal rhythm, improving ovarian function, enhancing estrogen levels.

Overall estrus cycle observation suggests that Test drug (MCG) increases the duration of estrus phase compared to positive control and standard drug.

Changes in serum estrogen

Estrogen helps in development and maintenance the reproductive system and female characteristics, also in follicular development and maturation followed by ovulation and endometrial impaction. Estrogen is an important harmone necessary for ovarian function.

The data shows there was decrease in serum estrogen in positive control when compared with normal control group, while MCG exhibits a significant increase in serum estrogen Suggests MCG maintained normal estrogen levels, preserve estrogen that supports normal follicular development & ovulation.

Changes in histopathology of ovary

Compared with the PC, Test drug shows marked histological improvement in ovarian architecture. Test drug is characterized by an increase in the number of growing follicles and corpus luteum, indicating restoration of folliculogenesis and ovulatory activity. The presence of corpus luteum from different cycles with both eosinophilic and basophilic luteinized granulosa cells suggests active and repeated ovulation. Additionally, there is a reduction in hyperplasia of interstitial stromal cells, reflecting normalization of stromal pathology**.**

Probable mode of action

Vandhyatva (anovulatory infertility) is mainly a Vata-Kaphaja disorder. Vitiated Kapha hampers follicular growth, disturbed Vata causes irregular ovulation, and suppressed Pitta impairs estrogen formation, leading to hormonal imbalance and anovulation. Drugs with Snigdha–Ushna–Vatashamaka properties (Dashamoola, Eranda, Bala) correct Apana Vata, promoting follicular growth and ovulation. Dipana–Pachana–Ama Pachana drugs improve Agni at cellular level, ensure proper Artava formation, remove Ama, and restore follicular maturation. Sara–Virechana drugs enhance bioavailability and regulate ovulatory cycles.

Shatavari acts through phytoestrogenic, adaptogenic, and antioxidant effects, modulating the HPO axis, improving follicular maturation, ovulation, and endometrial receptivity. Phytochemicals like flavonoids, glycosides, tannins, and Stigmasterol support steroid hormone synthesis, protect ovarian tissue, and improve oocyte quality. Thus Mahachaitasa Ghrita, with Tridoshashamaka, Vrishya, Rasayana, and Garbhasthapaka actions, corrects hormonal imbalance, restores ovulation, and enhances fertility in Vata-Kapha dominant anovulatory infertility.

CONCLUSION

The study has been under taken to evaluate ovulation inducing activity in wistar albino rats by inducing anovulation through Primolut-N.

Mahachaitasa ghrita when compared with Primolut-N induced group and standard group,(Clomiphene citrate) there is increase Estrus phase, increase in Serum estrogen, increase in follicles corpus luteum, increased endometrium thickness Shows estrogenic stimulation, which is a hallmark of the proliferative phase. It helps to correct anovulatory cycles and enhance fertility potential in women.

REFERENCES

1. Dutta Dc, Textbook of Gynecology, 5th edition the health and science publisher, 186pp.
2. Agnivesha. Charaka Samhita. Redacted by Charaka and Dridhabala Vaidyamanorama hindi Commentary by vidyadhar shukla Chaukamba prakashana. reprint 2022, Sharira sthana 2nd chapter, verse 12, 48-49pp.
3. Sri Bhavamishra. Bhava prakasha(vidyotini hindi commentary)edited by Bhisagratns Pandit seri Brahma Sankar Mishra Part-3 1993. Varanasi: Chaukambha prakashan: chapter 23 verse no 51-61, 215pp.
4. Anroop B. Nair, and Shery Jacob. A simple practice guide for dose conversion between animals and human. Journal of Basic and Clinical Pharmacy, 2016; 7(2): 27-31.
5. Dutta Dc, Textbook of Gynecology, 5th edition the health and science publisher, 186pp.