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An experimental study of Shatavaryadi Paka W.S.R to its Vajikarana effect

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Abstract

Vajikarana is one among the Ashtanga which deals totally about sexual health. Vrushya Chikitsa of Ayurveda addresses the reason for sexual insufficiency and directs the use of sexual Aphrodisiac herbs, minerals and treatment to enhance the vitality. The present study aims to find out Vajikarana effect of Shatavaryadi paka experimentally on albino rats in two different doses viz Dose mentioned as per classics & the same formula of preparation dispensed with respect to its dose as double dose. Trial group 1 & 2 with 6 rats in each administered with 1gm & 2gm of Shatavaryadi paka respectively where as control group with 6 rats given 2ml/rats of distilled water. Both the trial groups showed Vajikarana effect in comparison to control group but Trial group2 (double dose) show better result as compared to Trial group1 (single dose). These studies showed that Shatavaryadi paka have better Vajikarana effect as compared to the control group. As it showed the drastic changes i.e. increased sexual activity with respect to given parameters irrespective of varied dosages.

Keywords: Shatavaryadi paka, Vajikarana, Aphrodisiac

Introduction

8-12% of couples are expected suffering from some forms of infertility problems worldwide. Thus, 50-80 million people are affected. Anatomical, Genetical, endocrinological or immunological factors attribute to 5% of couples. Others are affected by various reasons viz., sexually transmitted diseases; postpartum problems etc^[1]. These problems affect about 15% to 16% of men. When men lose interest in sex, their masculinity gets threatened and to relieve themselves from such stress many sex drugs draw their attention^[2].

Substances or medicines which give the strength like a horse to have sex with female/s are called as Vajikarana^[3]. With the etymology of the word 'Vajikarana', it can be understood in better way as it is derived from two words, *Vaji* means horse and *Karan* means causing^[4]. Even the aphrodisiacs are classified in two principle groups i.e., psycho physiological (visual, tactile, olfactory, aural etc.) and internal (drugs, food etc.)^[5]. Aphrodisiac drugs act by altering the level of specific neurotransmitters or specific sex hormone in the body. Most of the aphrodisiac drugs act by altering the testosterone and progesterone concentration in the body.

The literary research reveals the utilization of aphrodisiacs in broader terms, mostly simile to Vajikarana as they are concentrating upon male infertility along with desire of sex. Shukra janaka, Shukra pravartaka and Dehbalkaraka drugs are used in Vajikarana chikitsa. Various formulations and single plant drugs are mentioned in Ayurveda as Atmagupta, Ashwagandha, Musali, Shashtikadi gutika, Vrishya Pooplikayoga, Mashaparnabhritakshira, Shukralaganasiddha kshira, Shatavaryadi Paka etc. Shatavaryadi paka^[6] is mentioned with Rajmrigankah text explains that one who is consuming this drug for some period can satisfy thousand ladies. Its component drugs are rich in sugar, protein, specific amino acids, phenols etc.

Some of compounds present with component drugs are help in better blood supply to genitals. Vitamin E and foliate are related with histamine production and histamine is related to easy sexual orgasm, both male and female. Numbers of these compounds are present in component drugs which affect the sexual health^[7].

Aims & Objectives

- To evaluate the Vajikarana effect of the "Shatavaryadi paka" on albino rats in two different doses as:
 - The dose mentioned as per classics
 - The same formula of preparation dispensed with respect to its dose as double dose.
- To compare the efficacy of selected drugs (Trial drug 1 & Trial drug 2) in order to evaluate the better one in respects to suitability and dosages.

Materials and methods

The whole procedures were segmented in to two parts as

- Preparation of Formulation
- Laboratory Animal Testing for Vajikarana (Aphrodisiac) Activities

Table 1: Ingredients of Shatavaryadi paka with Quantity

S. No	Ingredients	Quantity
1	Arka pushpa churna	150gms
2	Shigru pushpa churna	15gms
3	Shatavari churna	7gms
4	Yashtimadhu chuma	5gms
5	Gokshura churna	3gms
6	Ela churna	3gms
7	Godugdha	300ml
8	Goghrita	38ml
9	Madhu	38gms
10	Khanda Sarkara	38gms

Procedure^[8]

Above mentioned all ingredients are taken separately in appropriate ratio. In a vessel milk is taken and khanda Sarkara was added and paka was done. After attaining 3-4 thread consistency of paka, churna of all ingredients are added and stirred well. When the paka was very tight in consistency, ghrita was added and mixed well and is taken out from fire. After cooling the mentioned quantity of Madhu was added and mixed and preserved in air tight container.

Observation

- Mandagni was maintained throughout the procedure.
- After attaining Paka lakshana only the other ingredients are added.
- Continuous stirring was done throughout the procedure to avoid carbonization.
- Color of the preparation was changed to dark brown.
- Typical smell was noticed after completion of the paka.

Precautions

- Continuous stirring should be done throughout the procedure.
- Prakshepaka dravyas are added only after attaining of sidha lakshnas.
- Honey should be added only after cooling of paka.

Experimental study

- Guidelines for Handling of Animals: CPCSEA Guidelines^[9]
- Source and locale of study: JSS College of Pharmacy- Mysore
- Materials of study

- Drug: Shatavaryadi paka

- Vehicle: Milk
- Accessories: Digital balance, 5ml syringe, plastic containers, surgical gloves, Albino rats
- Species: Albino rats
- Sex: Male & Female
- Weight range of rats: 150 to 200gms
- Number of male rats per group: 6 Rats
- Number of Groups: 3 Groups (Control group, Single dose group & Double dose group)
- Acclimatization: 2 weeks in reversed light and dark cycle 10pm to 10am.
- Housing and environment: One male and one female rat per polypropylene cages.
- Bedding: Paddy husk
- Temperature: 25 ± 2 degree Celsius
- Humidity: 40-70%

Inclusion criteria of rats

- Normal adult rat above 90 days and below 120 days
- Weighing between 150gms-200gms
- Rats those were sexually active during training period
- Male rats those attempted to mount the female rats more than 5 times in 5 minutes were considered as sexually active.

Exclusion criteria

- Rats below 90 days and above 120 days
- Rats above 200gms and below 150gms
- Sexually or physiologically unfit rats.
- Rats gone through or part of another experiments.

Experimental design

Table 2: Grouping with Dose & trial medicine

Group	Drug	Dose
Control group	Distilled water	2 ml
Single Dose (Trial group 1)	Shatavaryadi paka	1gm/rat
Double Dose (Trial group 2)	Shatavaryadi paka	2gm/rat

Rat dose fixation: As per FDA Guidelines formula for conversion of human dose to rat dose is:

$$\text{Rat dose (mg/kg)} = \frac{\text{Human Effective dose (mg/kg)}}{\text{Conversion Factor}} \times$$

Whereas conversion factor for rat is 6.17

Conversion of the dose obtained above to dose in mg/kg/day by multiplying with suitable conversion factor based on the average weight of animal.

Dose of Shatavaryadi paka for human being = 48gm = 48gm/60kg body weight

So human effective dose = 0.8gm

This can be calculated as per formula that is

$$\text{Animal Dose} = 0.8 \times 6.17 = 4.936\text{gm/kg body weight}$$

As the average weight of rat taken was 200gm,

So the Dose was $4.936 \times 200 / 1000 = 0.9872\text{gm} / 200\text{gm weight of rat}$

Experimental Observation

The sexual behavior was observed after 1 hour of treatment in a quadrant mating arena under dim red illumination. The experimental animal (male rat) was placed in the mating arena 10 min before the observation period for acclimation. 4 hours after the administration of the progesterone, the female rats were observed for estrous stage by observing the vaginal smear of the rat. The female rats with estrous stage were

confirmed for receptivity. The receptivity of the female rat was confirmed before the behavior test by exposing them to male rats other than the experimental animals. Then highly receptive female rats were introduced into male's cage and each male rat was observed 30 minutes for copulatory behaviors on 0th, 1st, 7th to 14th day of treatment and the parameters observed for recording were:

- Initial arousal period
- Peak arousal period
- Number of mounts
- Ejaculatory reflex
- Time interval to mount again

1. Initial arousal period- It was when male turned on or paid attention in number of seconds after female was introduced into observational cage and starts sending perceptive signals in matting behavior of genital smelling, licking, tale smelling etc.

2. Peak arousal period- When male paying attention towards female after some time or in few minutes with few vigorous try for obtaining female goes by constant dating, with increased frequency of genital licking, biting, and try to mount was being noted as peak arousal period.

Under prospective signals by both male and female indulge in matting dance, such as bush back appearance of male and kissing by lifting the legs to approach to face to face, tail smelling and in female a typical ear wiggling in its estrous period. Extra genital love played included grooming each

other love bites etc.

3. Mounting behavior: It was determined by following parameters.

- Mount latency- Duration from introduction of female rat into the cage till first mount
- Mount frequency- Average number of mounting in 30 mins of observation.

4. Intromission behavior: It was evaluated as follows

- Intromission frequency- Average number of intromission during 30 minutes
- Intromission latency- Time duration from introduction of female rat into the cages to first intromission(vaginal penetration)

4. Ejaculatory reflex- Ejaculatory reflex is the number of ejaculation in 30 minutes.

Ejaculatory latency - Time duration from first intromission till ejaculation

Component of female rat sexual behavior

In female there was fixed pattern elicited by mounting of the male. Acceptance of female was seen by exhibition of different grades of lordosis of female rat.

1. Marginal Lordosis- slight spinal flexion, slight elevation of head and tail end.
2. Normal lordosis- Prominent spinal flexion, 30° elevation of head from the floor.
3. Exaggerated spinal flexion- Spinal flexion is more prominent. Head was elevated at an angle of 45° or more.

Experimental results

Licking

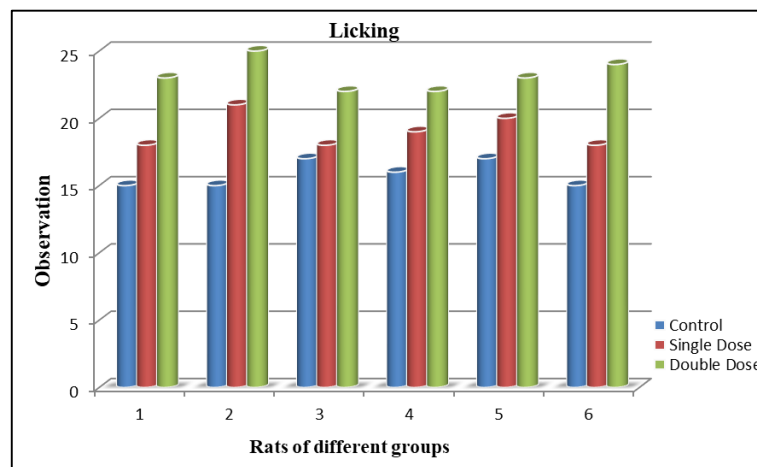


Fig 1: Showing Rats from Different Groups with Various Scores

Table 3: Showing mean of rats of different groups licking

	Mean	Standard. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
Control	31.8333	5.11534	2.08833	26.4651	37.2015	26.00	38.00
Trial I	41.5000	3.56371	1.45488	37.7601	45.2399	38.00	48.0
Trial II	43.6667	5.85377	2.38979	37.5235	49.8098	33.00	48.0
Total	39.0000	7.03771	1.65880	35.5002	42.4998	26.00	48.00

Table 4: Showing Score Assessed in Seconds Number of Licking

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	162.333	2	81.167	61.907	<0.05
Within Groups	19.667	15	1.311		
Total	182.00	17			

Anogenital Smelling

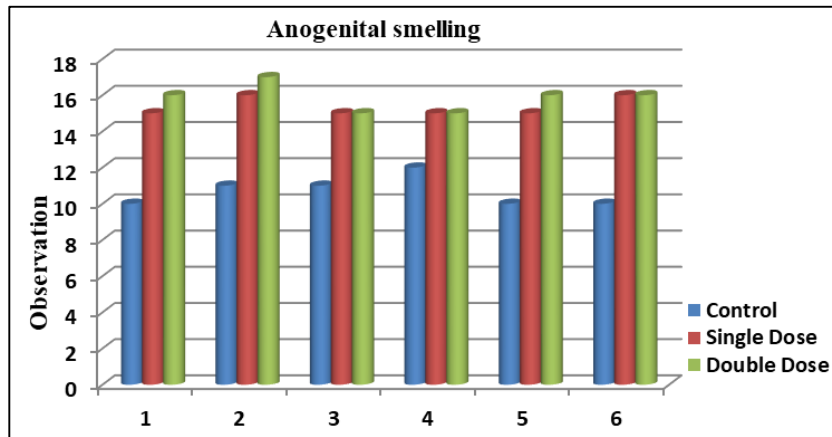


Fig.2: Showing Rats from Different Groups with Various Score

Rearing

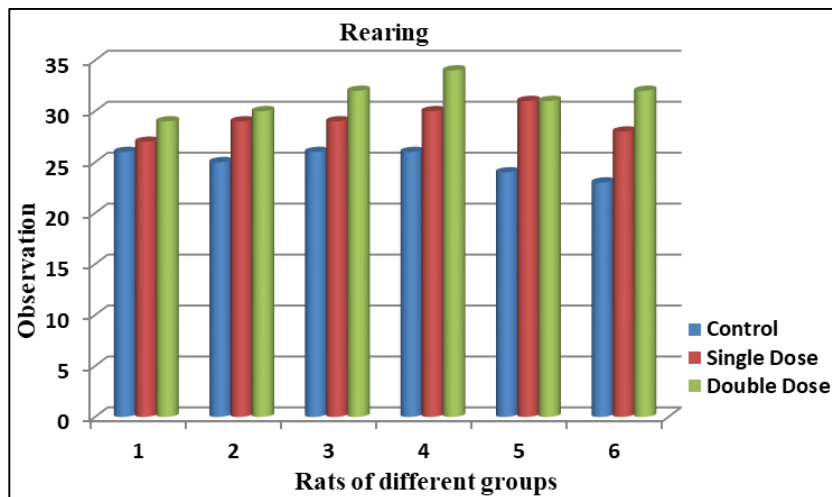


Fig.3: Showing Rats from Different Groups with Various Scores

Climbing

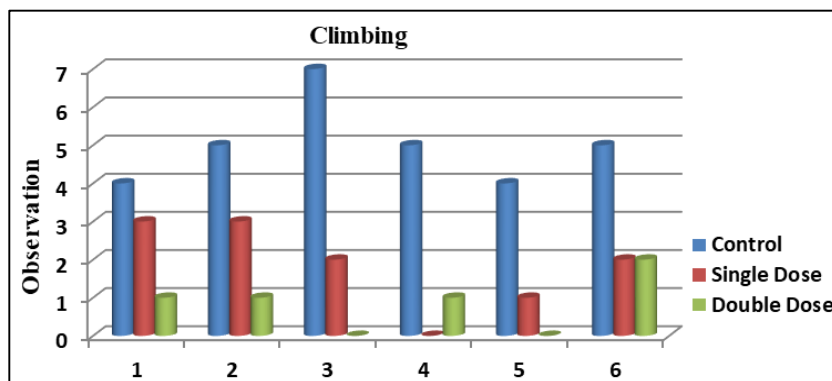


Fig 4: Showing Rats from Different Groups with Various Scores

Table 5: Score Assessed in Seconds Climbing

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	56.778	2	28.389	27.181	.000
Within Groups	15.667	15	1.044		
Total	72.444	17			

Genital Grooming

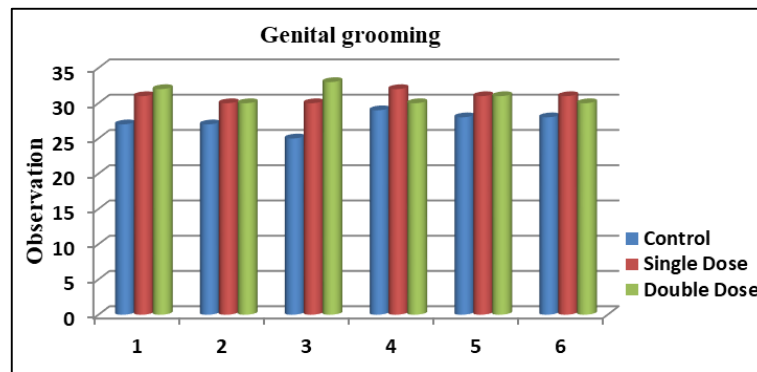


Fig 5: Showing Rats from Different Groups with Various Scores

Ejaculatory Latency

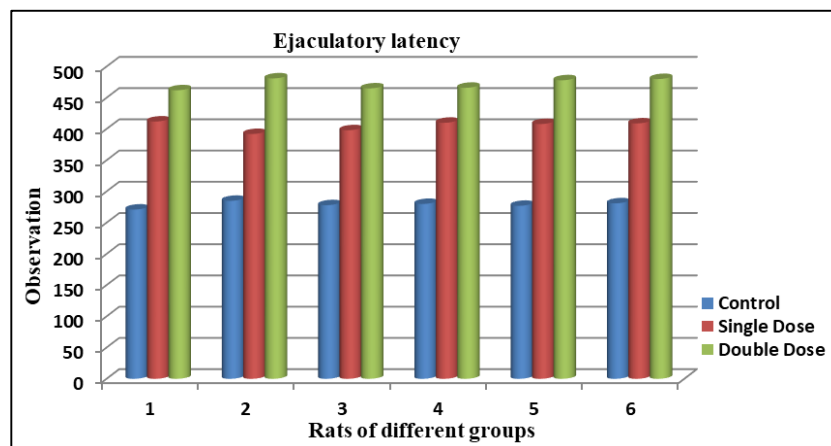


Fig 6: Showing Rats from Different Groups with Various Scores

Copulatory Efficiency

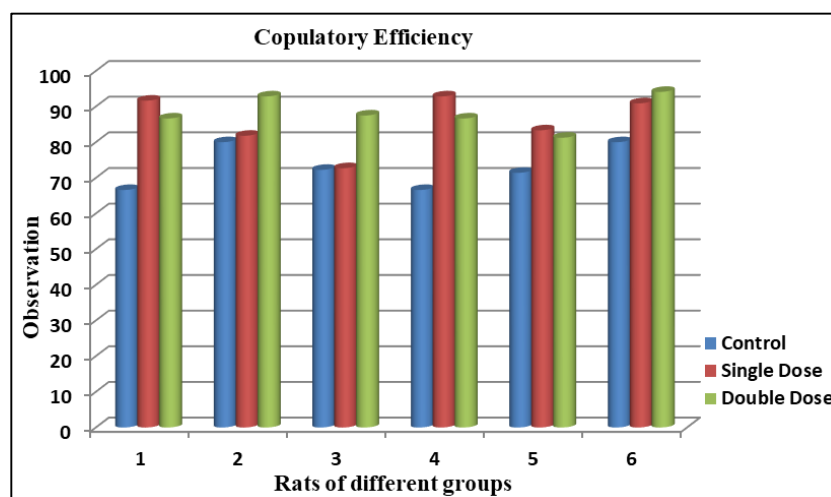


Fig 7: Showing Rats from Different Groups with Various Scores

Discussion

Aphrodisiacs do not work just on the body or just on the mind, but on the two in conjunction. Present drug *Shatavaryadi Paka* is one amongst various mentioned aphrodisiacs in different texts of Ayurveda [10]. Component drugs are flowers of Shigru, Arka, seed of Ela, rhizome of Yashtimadhu, root tuber of Shatavari, fruit of Gokshura, Madhu, Ghrita, Go-dugdha and Sharkara.

Animal testing exhibited interesting results with double dose (trial group II) than single dose (trial group I) when they are analyzed with control and in between the groups. For licking, the mean values for control, trial group I and trial group II are respectively 31.83, 41.5 and 43.66. For this parameter, both trial groups are observed significant. In terms of anogenital smelling only slight changes are observed between trial groups while both groups exhibit

significant result when compared with control, but while comparing these trial groups with each other, they are not significant. The means are in sequence for control, trial group I and trial group II as 10.66, 15.33 and 15.83. Both groups Exploration is observed in these groups for means as 24.5, 24 and 25.83 respectively for control, trial group I and trial group II. The result is not significant when these groups are tested for hypothesis with Dunnett T_3 test.

The mean values observed for rearing are 25, 29 and 31.33 respectively control, trial I and trial II groups. Significant result is shown when compared with control, but when trial group I is compared trial group II, the significance value is >0.05 .

While assessing climbing, 5 is the mean for control group whereas for trial group I and trial group II, they are 1.833 and 0.833 respectively. Again these trial groups are observed with significant values against control while they were not significant to each other.

For nongenital grooming, the mean values are respectively 20.5, 25.16 and 30.16 in order for control, trial I and trial II groups. This parameter is observed with significance when compared to control as well as in between groups also.

The mean values for genital grooming 27.33, 30.83 and 31 for control, trial I and trial II groups in sequence. Both groups show significant value against control but they are not significant to each other.

Mount frequency and mount latency both parameters show the mean values respectively 5.5, 11.83 and 15.5 for control, trial I and trial II groups. The values are found significant to each other between groups.

For intromission frequency and intromission latency, the values observed are respectively 4, 10.16 and 13.66 for control, trial I and trial II groups. Both trial groups are significant when compared with control. They are also significant to each other.

The means for ejaculatory latency and post ejaculatory intervals are observed in order for control, trial I and trial II groups are 278.66, 404.83 and 472. From observations, groups are showing significant result against control and each other too.

For percentage index of libido, means observed are 83.66, 89.16 and 90 respectively for control, trial I and trial II groups. For this parameter, both groups are showing significant result against control while they are not significant when compared to each other.

Means for copulatory efficiency percentage are respectively 72.81, 85.54 and 88.17 for control, trial I and trial II groups. Both groups are exposing significant outcome when compared to control, but they are not significant to each other.

Conclusion

After dispensing the formulation "Shatavaryadi Paka" to the male albino-rats. In almost all Parameters, the Trial group2 and Trial group1 show statistically significant result in experimental study when compared to control group. But Trial group2 (double dose) show better result as compared to Trial group1 (single dose). The limitation is, as the size of the sample was too small to draw a generalized conclusion, and the drug was not easy to intake as the drug become mucilaginous soon after it mixes with Saliva, milk or water. The scope for further study is required with larger sample & multi-centric trial can be conducted. The compound preparation Shatavaryadi Paka can be used after a course of

Shodhana to get a better result rather than administering it just in the form of Shamana Oushada.

References

1. Infertility, A tabulation of available data on in prevalence of primary and secondary infertility. Programme on Maternal and Child Health and Family Planning, Division of Family Health, World Health Organization, Geneva, 1991.
2. <http://www.webmd.com/sex-relationships/features/loss-of-libido-in-men>
3. Acharya Agnivesha, Charaka Samhita, Rev by Charaka, Dridabala, Ayurveda Dipika Commentary by Chakrapanidatta with Vidyotani Hindi Commentary by Pandith Kasinath Shastri, Published by Chaukhambha Sanskrit Sansthan. Varanasi-1997, Chikitsa sthana 2/51.
4. Apte Shivram Vaman-The Practical Sanskrit - English Dictionary, Motional Banarasidas Publishers Pvt.Ltd, New Delhi, 4st revised edition; Reprint, 1995.
5. <http://www.britannica.com/EBchecked/topic/29568/aphrodisiac>
6. Prof, Sidhinandan Mishra, Rajamrigankah, First edition- Chaukhambha Ayurveda pratishthan, Varanasi, 2011, 97.
7. Mark Douglas Hill, The Aphrodisiac Encyclopaedia: A Compendium of Culinary Come-ons, Published by Square Peg, part of Vintage Publishing.
8. Prof, Sidhinandan Mishra, Rajamrigankah, First edition Chaukhambha Ayurveda pratishthan, Varanasi, 2011, 97.
9. CPCSEA (Committee for the Purpose of Control and Supervision on Experiments on Animals) Guidelines, India.
10. Prof, Sidhinandan Mishra, Rajamrigankah, First edition Chaukhambha Ayurveda pratishthan, Varanasi, 2011, 97.