



REVIEW ARTICLE

EFFECT OF SHATPUSHPA IN FEMALE INFERTILITY W.S.R TO ANOVULATORY FACTOR: A REVIEW STUDY

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ABSTRACT

Incidence of infertility is on rise due to lifestyle changes. Rough estimates suggest that nearly 30 million couples in India suffer from infertility, making the incidence rate of infertile couples at 10 per cent. Amongst the causes of female infertility, ovarian dysfunction contributes about 40% which includes anovulation i.e. failure of follicle development and release of ovum. Modern medical treatment of this condition is burdensome financially as well as it is associated with risk factors including early menopause, ovarian carcinoma etc. In Ayurveda, many herbs are described which are helpful to procure fertility. Shatpushpa is the single drug of choice which is helpful in female reproductive disorders. Indication of Shatpushpa described by Kashyapa Samhita includes amenorrhoea, oligomenorrhoea, menopausal syndrome etc. Various researches have been carried out to evaluate effect of Shatpushpa on infertility due to anovulatory factor and results are satisfactory even though it is given by different route. There is need of time to evaluate effect of shatpushpa in the form of Shatpushpakalpa- the unique method of administration of Shatpushpa given by AcharyaKashyapa.

Key words: Infertility, Anovulation, Shatpushpa, KashyapaSamhita, Shatpushpa Kalpa

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INTRODUCTION:

Fertility is the capacity of a couple to reproduce or the state of being fertile. Reproduction is the process that requires the interaction and the integrity of the female and male reproductive tracts.

The couple who has not conceived after 12 months is the lowest reference limit for time to pregnancy (TTP) by the World Health Organization^[1].

Among the causes of infertility, ovarian factor overall contributes 20% and 15% in primary and secondary infertility respectively where as in females, it contributes 40%. Ovarian dysfunction encompasses anovulation or oligoovulation, corpus luteum insufficiency, luteinisedunruptured follicle.^[2]

Modern medical treatment for anovulation i.e. failure to produce mature ovum includes hormonal therapy, In Vitro Fertilization (IVF), Embryo Transfer (ET), Gamete Intra Fallopian Transfer (GIFT) etc., but they have unsatisfactory results, enormous expenses and lots of side effects like ovarian hyper stimulation, frequent abortion, multiple gestations and major long term possibility of ovarian cancer.

There is a need of time to evaluate some alternative medicine in infertility due to anovulation. While referring the *Samhitas*, the single drug found which can be helpful in such cases is Shatpushpa. Indication of use of

Shatpushpa given in *Kashyapsamhita* directly points out its utility in ovulatory dysfunction. To ascertain effectiveness of *Shatpushpa*, an attempt was made by reviewing previous research works which were carried out in anovulatory factor of infertility with the use of *Shatpushpa* in different dosage forms.

MATERIALS AND METHODS:

Aims and objectives:

1. To study description of Shatpushpa especially in infertility through Ayurvedic texts.
2. To study and critically analyze latest researches on Shatpushpa in female infertility w.s.r. anovulatory factor.

Description of Shatpushpa was studied from classical texts of ayurveda. Various journals were referred for recent researches being carried out on Shatpushpaw.s.r to female reproductive health.

LITERARY REVIEW:

DETAIL DESCRIPTION OF THE DRUG:-

1) *Shatapushpa*^{[3],[4]}

Botanical Name : *Anethumsowa* Kurz.

Family : Umbelliferae

Paryaya: *Chhatra, Shatahwa, Madhura, Pitika*

Swarupa: It is a *kshupa* having 1'-2' height.

Habitat : All over India.

Part Used : Dried Fruit

Vernacular names:

English : Indian Dil Fruit, Dill, Dill seed, Garden dill

Hindi :*Soya, Sova, Sowa.*

Gujarati :*Suva, Suvadana*

Bengali :*Suva, Sulpha, Shulupa, Sowa, Soolpha.*

Kannad :*Sabasige, Sabbasige.*

Marathi :*Badishep, Shepa, Shepu.*

Punjabi :*Soya, Sowa.*

Tamil :*Satakuppa, Shatakupivirai, Satakuppi.*

Telugu :*Sadapa, Shatakupivittulu, Satakupivittulu.*

Urdu :*Shibt, Soya.*

Rasa Panchaka:

Rasa :*Katu-tikta,*

Guna: *Laghu, snigdha, tikshna.*

Virya :*Ushna.*

Vipaka:*Katu.*

Doshagnata:*Kaphavatashamaka.*

Chemical constituents:

Dihydrocarvone, carvacrol, safrole and thymol, safrole, α -pinene, dphellandrene, dillapiol, d phellandrene, β -terpinene, carvone, caryophyllene, myristicin, eugenol, anethofuran (essential oil); carvone, (+) limonene (dill oil); glyceryl esters of saturated and unsaturated fatty acids, vicenin (6,8-di-c-glucosyl- 5,7,3'-trihydroxy-flavone), xanthone glycoside-dillanoside (fruits); tripetroselinin, petroselinicdiolein, dipetroselinicolein, dillapional (seed oil); benzodipyrangraveolone, carvone (plant); carvone, dihydrocarvone, carvacrol, methyl benzoate, 1,5-cineole, p-cymene, β -phellandrene, limonene, safrole, β -

terpinene and β -pinene (essential oil from fruits).^[5]

Karma and Prayoga:


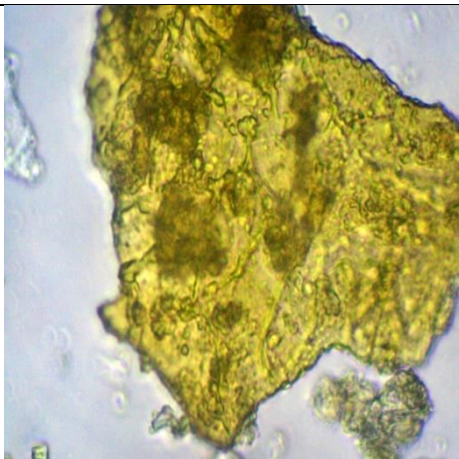
Due to *ushna* and *tikshnaguna* it acts as *kaphavatashamaka*. It has *deepana*, *pachana*, *anulomanand krimighna* (vermicide) properties so; it is used in *aruchi* (loss of appetite), *vamana* (vomiting), *agnimandhya* (acolorhydria), *ajeerna* (indigestion), *udarshoola* (abdominal pain), *krimi* (worms), etc. In female reproductive system it acts as *artavajanana* (helps in commencement of menstruation) and *stnayajanana* (production of milk). So it has good effect on *rajorodha*, *yonishoola*, *kastartava*, *prasuta* and *stanyanasha*. Experimental studies reveals its uterine stimulant activity. Sowa seeds are dry and of heat producing potency, *kosthavatahara*, *mutrajanana*, *artavajanana* (diuretic & amenagogue). It is used in abdominal colic, abdominal distension and *sandhishoola*.^[6]

Microscopic features:

When *Shatpushpa* is studied under microscope, following structure can be visualised:^[7]

Spiral vessels, Mesocarp cells, fibers with oil globules, Endosperm with oil globules, aleurone grains and micro-rosette crystals were the structures shown in powder microscopy. Features were suggestive of *Anethumsowa* Kurz.

Microscopic features of Shatapushpa

	
Endosperm cells with oil Globules (after staining)	Endosperm cells with oil globules

PREVIOUS RESEARCH WORK:

Various researches have been carried out in female infertility due to anovulatory factor.

Below are the work done to evaluate effect of *Shatpushpa* in infertility.

Name of Researcher	Title	Result
Rajput Arti ^[8]	Comparative study on <i>Shatpushpa</i> and <i>Mishreya</i> on <i>Beejotsarga</i>	Ovulation occurred in 57.15% of patients in whom <i>Shatpushpatailauttarbasti</i> and <i>Shatpushpa</i> tablet were administered Duration of menstrual flow increased and intermenstrual period was decreased <i>Shatpushpa</i> Group was found better in this study.
SavaliyaHetal ^[9]	Comparative study of <i>Shatpushpachoorna</i> and <i>Shatpushpa</i>	Ovulation occurred in 81.25% of patient in whom <i>Shatpushpa taila</i>

	<i>taila uttarabasti</i> in the management of <i>Vandhyatvaw.s,r to Viphalartava</i> (Anovulatory factor)	<i>uttarbastialong</i> with <i>Shatpushpachurnaorally</i> were given 75% patients ovulated in whom only <i>Shatpushpachurnaorally</i> was given. Both groups were found highly significant.
Krupa Patel ^[10]	A clinical study on polycystic ovarian disease and its management by <i>ShatpushpatailMatrabasti</i> and <i>Pathadikwath</i> .	20% patient ovulated in whom <i>shatpushpamatrabasti</i> was given. 33.33% patient got complete remission of disease.
Dr. KuwarRekhaChhagan ^[11]	“A Clinical Study – “ <i>Shatpushpa</i> in <i>Artavnirmiti</i> ” (Anovulatory cycle)	Group A (trial group) <i>ShatpushpaKashay Nasya &Yogbastialong</i> with <i>ShatpushpaVati</i> and Group B (Control group) –30 patients with <i>ShatpushpaVati</i> orally. 80% patient got complete remission in group A whereas 40% patients got complete remission in group B

DISCUSSION:

There is no direct description of anovulation in ayurvedic texts but certain words found in our texts can be correlated with anovulation i.e. *Nashtartava*^[12], *Abeejam*^[13], *Nashtabeejam*^[14].

Probable Tridoshic involvement in the Ovarian cycle:-

The process of development and enlargement from primordial follicles to the Graffian follicle is said to be due to *Kapha*, as one of the function of *Kapha* is *Upachayawhich* means development^[15]. *Pitta* is responsible for all type of *Paka Karma* in the body^[16], so here, the role of *Pitta* can be understood as maturation of graffian follicle

and conversion of androgens into estrogens (Aromatization). Differentiation or separation and then expulsion are also the functions of *vata*^[17]. So, here *Vata* is responsible for the rupture of follicle and thus for main event – ovulation.

These are the normal functioning of *Doshas* but, if there is vitiation of *Kapha*, there is no proper development of follicles. Vitiating *Vata* causes premature luteinization of follicles

and thus causes anovulation. Here, the function of *Pitta* is somewhat suppressed by *Vata* and *Kapha*, so there is reduced rate of aromatization (*Pitta* being not enough to convert increased androgens into estrogens causing androgen excess) and no maturation of follicles occurs. Hormonal imbalance first disturbs ovarian cycle which later on reflects by menstrual cycle.

❖ **SAMPRAPTIGHATAKAS**

Dosha	<i>Tridosha</i> with <i>Vata</i> (<i>Apana</i> & <i>Vyana</i>) dominance
Dhatu	<i>Rasa, Rakta</i>
Upadhatu	<i>Artava</i>
Agni	<i>Sthanik</i> (local) <i>Agnimandya</i>
Srotasa	<i>Artavavaha</i>
Srotodushti	<i>Sanga</i>
Udbhavasthana	<i>Pakvashaya</i>
Adhithana	<i>Trayavarta Yoni</i>
Vayktisthana	<i>Beejagranthi</i>
Marga	<i>Abhyantara</i>

The review of previous research works reveals that *shatpushpa* has direct effect on ovarian function. However, the routes of administration of drug were different i.e. oral, anal, intrauterine as well as nasal.

Though the same drug is administered to the patients, the occurrence of ovulation was gained in different percentage. This is may be due to individual mode of action based on route. i.e. more result was found when drug

was given intrauterine along with oral in compare to drug given only orally.

POSSIBLE MODE OF ACTION:

By the virtues of *Katu-Tikta Rasa, Ushanaveerya, Kaphavataghna* and *AgnivardhanaGuna*, it helps in *Amapachana* and thus *RasadhatuShudhi* i.e. proper formation of *Rasa dhatu*. Being upadhatu of *Rasa*, formation of *Artava* is maintained properly. Moreover, *Shatpushpa* is having *VatanulomakGuna. ArtavaNishkraman* is

regularized by *ApanaVata*. With the regulation of *Apanavataby Shatpushpa*, regularization of menstrual cycle is maintained.

Shatpushpa mainly contains phytoestrogens. Phytoestrogens have mixed estrogenic and anti-estrogenic action, depending on target tissue. Phytoestrogens may be either able to affect the endogenous production of estrogens. The pituitary gland releases gonadotropins that stimulate estrogen synthesis in the ovaries. Recent report indicate that phytoestrogen exert their effect in a selective estrogen receptor modulators (SERM). Through this SERM like action they act as both oestrogen agonists and antagonists. They inhibit the enzymatic conversion of endogenous oestrone to oestradiol and also possess intrinsic oestrogenactivity^{[18][19]}. *Shatpushpa* by its phytoestrogenic properties brings down the levels of insulin resistance in the body and restore the cellular imbalance that is a major cause of PCOS.

SCOPE:

In *Kashyapsamhita*, separate chapter is found regarding *Shatpushpa*. It has been considered as sweet, strength providing, promoter of nutrition, complexion and fire (digestive/metabolic).

In reference to reproductive health, it has been considered as *YonishukraVishodhinee* i.e. clarifies *Yoni* (female reproductive organ) and *Shukra* (sperm/spermatic fluid); *Mangalya-*

auspicious, eradicates effect of evil deeds and gives progeny^[20]

The detailed description of *Shatpushpakalpais* found in which the increasing amount of *shatpushpa* along with *Ghrita* is given with *Aharayantrana*. Management of such female is similar to *Virechanakarma*. Indication of this *kalpa* covers all type of female reproductive disorder i.e. one is suffering from secondary amenorrhoea, or menstruating without fertility; having excessive or scanty menstruation, who are menopausal or with primary amenorrhoea are eligible for use of *kalp*. Moreover who are inactive(without conception), having improper flow, whose children die immediately after birth or whose children are weak, unstable, emaciated; women having diarrhea, discoloration, polyuria; who don't feel sensation(frigid) as well as women who have complaints of dry vaginal canal- for all type of problems, *Shatpushpa* works as a nector.

AcharyaKashyapa added that by the use of *Shatpushpa*, even infertile woman also delivers. More over it also helps to control ageing process by maintaining strength and complexion. Oil made from *Shatpushpa* is beneficial when used with different routes i.e. nasal instillation, drink, unction, massage and enema^[21].

Shatpushpa can be considered as superior fertility agent then Clomiphene citrate which is

a known ovulation induction agent. Clomiphene citrate causes ovulation (70-80%) but has limitation because of anti estrogenic effect on endometrium and poor cervical mucus.^[22]

CONCLUSION:

Modern management of infertility due to anovulation is associated with many hazards. Ayurveda science with its proven track record is helpful in female infertility. Indications of *Shatpushpa* mentioned by *AcharyaKashyapa* are closely related to infertility related to ovarian dysfunction. The previous researches clearly show *Shatpushpa* has significant effect in the process of ovulation when given by different dosage forms like nasal, anal, oral and intrauterine route. More researches are needed to evaluate the effect of *shatpushpa* given in massage form. No work has been carried out for unique administration of *ShatpushpaKalp* which should be further evaluated in context of anovulation.

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