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ROLE OF *SHUKRALA DRAVYAS* IN MALE INFERTILITY WITH SPECIAL REFERENCE TO *KSHEENASHUKRA*(OLIGOZOOSPERMIA)- AN OVERVIEW

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ABSTRACT

Ksheenashukra, characterized by diminished quantity and quality of *shukra dhatu*, correlates with oligozoospermia in modern medicine, a major cause of male infertility. *Ayurveda* offers a comprehensive approach through *Vajikarana tantra*, focusing on *shukrala dravyas*—substances that nourish and promote *shukra dhatu*. This review explores classical references and modern research highlighting the role of *shukrala dravyas* like *Ashwagandha, Shatavari, Kapikacchu, Gokshura*, and others in managing *ksheenashukra*. These herbs, rich in phytoconstituents like withanolides, L-DOPA, and saponins, exhibit spermatogenic, antioxidant, and aphrodisiac properties. The mode of action is explained through Ayurvedic principles such as *Rasa Panchaka (Rasa,Guna,Virya,Vipaka* and *Prabhava)*. *Madhura rasa, guru-snigdha guna*, and *madhura vipaka* are considered most effective in enhancing *shukra*. These drugs influence neuroendocrine pathways, nitric oxide signaling, and androgenic activity. Research supports their efficacy in improving sperm count, motility, hormone balance, and reducing oxidative stress. Thus, integrating classical wisdom with modern evidence validates the therapeutic potential of *shukrala dravyas* in treating male infertility. This review advocates a holistic, evidence-based *Vajikarana* approach to managing *ksheenashukra* (oligozoospermia).

Key words: *Shukrala, Ksheenashukra*, Male infertility

INTRODUCTION

Ksheenashukra is a condition characterized by a decrease in the quantity and quality of *shukra dhatu*. *Acharya sushrutha* defines *Vajikarana tantra* as the branch dealing with conditions like *alpa* (less), *dusta* (vitiated), *ksheena* (decreased), and *vishushka* (dried up) *retas* (semen)[1]. *Dalhana* notes that *ksheena retas* often occurs in middle-aged individuals due to specific etiopathologies, with *vata* and *pitta doshas* being primary contributors. Approximately 20% of infertility cases are attributed solely to male factors. A leading cause is oligozoospermia, defined as semen containing fewer than 15 million sperm per milliliter.[2] This condition can result from obstructions in sperm flow due to testicular trauma, vasectomy, endocrine dysfunction, or sexually transmitted diseases.

AIMS AND OBJECTIVES

The Review is intended to detail the role of *shukrala dravyas* in Male infertility with special reference to *ksheenashukra* (Oligozoozspermia)

MATERIALS AND METHODS

The whole study is based on literary review collected from classical *Ayurveda* text, research papers, internet resources etc.

This study is carried out under the following heads

1. Definition of *ksheenashukra and vrishya dravyas*
2. Classification of *vrishya dravyas*
3. General properties of *shukrala dravyas*
4. Drugs with its activities related to *Vajikarana*

1. Definition of *ksheenashukra and vrishya dravyas*

Male infertility is a growing concern today, with its incidence rising due to lifestyle changes. Oligozoospermia, characterized by low sperm concentration in ejaculation, is a common cause. In *Ayurveda* similar conditions are described using terms like *Kshina shukra* and *Kshina retas*, which correspond to oligozoospermia.

In *Ayurveda* texts, the term *vrishya* is commonly associated with enhancing sexual vigor and improving seminal paramters. *Chakrapani* provides one of the most precise definitions, describing *vrishya* as a substance that aids in ejaculation of semen or boosts the production of s*hukra*[3]. These substances are considered vital in promoting reproductive health and vitality.

2. Classification of *vrishya dravyas*

Vrishya dravyas have been classified by different scholars on the basis of their mode of action and effect *on shukra dhatu.*

table no.1: vrishya dravya classification

According to *chakrapani*[4]	According to *dalhana*[5]	According to *sharangadhara*[6]
Shukravriddhikara	*Shukrajanaka*	*Shukrala*
Shukrasruthivriddhikara	*Shukrapravartaka*	*Shukrajanaka*
	Shukrajanaka pravartaka	*Shukrasthambaka*
		Shukrashoshaka

Shukrajanaka: The drugs that enhance and promote the production of *shukra* are classified by *chakrapani* as *shukravriddhikara*, while *sharangadhara r*efers to them as *shukrala.* Eg-*Ashwagandha, shatavari.*

Shukrapravartaka: The drugs that stimulate the ejaculation of semen from the body are known as *shukrapravartaka*. *Chakrapani* classifies these drugs under *shukrasrutikara*. Eg-*jatiphala, kataka.*

Shukrajanaka pravartaka: Drugs having both *janaka* and *pravartaka* properties are known as *shukrajanaka pravartaka*. *Chakrapani* described it as *shukrasruthi vriddhikara* eg- *kapikacchu, masha.*

Shukra sthambhaka: Drugs that enhance the ability to control ejaculation during sexual activity. Eg-*haritaki.*

3. General properties of *Shukrala dravyas*

The drug which possesses *Madhura*(sweet), *snigdha*(unctuous), *Jeevana* (promoters of life), *brimhana*(nourishing), *guru*(heavy*), gunas* are considered for *vrishya karma.*

To achieve the desired quantity and quality of *shukra, charaka* has described a group of drugs under *shukrajanana mahakashaya*. Among these, many no extinct today, but *Jatila* (*Nardostachys jatamansi) and Kulinga* (*Abrus* species) are replaced by *Gunjamoola.* These drugs are *guru, snigdha*, *manda, hima and sthira* in nature with *Madhura rasa* and *Madhura vipaka*, and *sheeta virya*, resembling the properties of *shukra dhatu*. By virtue of these properties, they might help in nourishing and increasing *shukra dhatu*.

table no.2: *rasa panchaka* with *karma* [9]

DRAVYA	***RASA***	***GUNA***	***VEERYA***	***VIPAKA***	***KARMA***
Kapikacchu	*Madhura, Tikta*	*Guru, Snigdha*	*Ushna*	*Madhura*	*Brihmana, Vrishya*
Shatavari	*Madhura, Tikta*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Rasayana, Shukravardhaka*
Gokshura	*Madhura*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Pustida, Vrishya*

Masha	*Madhura*	*Guru, Sara, Sigdha,*	*Ushna*	*Madhura*	*Balya, Shukrala, Brimhana*
Musali	*Madhura, Tikta*	*Guru, Snigdha*	*Madhura*	*Madhura*	*Vrishya, Pustibalapradha*
Ashwagandha	*Tikta, Kashaya*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Balya, Shukrala*

table no 3: drugs with phytoconstituents related to *vajikarana*

DRAVYA	**PHYTOCONSTITUENTS**	**ACTIVITY**
Ashwagandha	withanolides a-y, withaferin	antioxidant, antistress
Kapikacchu	mucuadinine, l-dopa	anti-oxidant, aphrodisiac
Shatavari	shatavarin i-iv, asparagamine a	antioxidant, aphrodisiac
Gokshura	dioscin, protodioscin, diosgenin	antioxidant, aphrodisiac
Kokilaksha	histidine, asteracanthine	antioxidant, aphrodisisac
Masha	b-sitaosterol, stigmasterol, glutelin	antioxidant, aphrodisiac
Musali	saponins, sapogenin(hecogenin)	spermatogenic, aphrodidsiac

4. Drugs with its activities related to *vajikarana*

table no 4: drugs with its activities related to *vajikarana*

Dravya	Research update
Kapikacchu[10]	Spermatogenic, anti-stress, Anti-oxidant, Anxiolytic- Clinical study of *kapikacchu* seed powder therapy rectifies the perturbed alanine, citrate, GPC, histidine and phenyl alanine content in seminal plasma and improves the semen quality. Treatment with Mucuna pruriens significantly relieved psychological stress and seminal plasma lipid peroxide levels along with improved sperm count and motility. Also restores the level of SOD, catalase GSH and ascorbic acid in seminal plasma in infertile men.
Shatavari[11]	Effective in Sexual dysfunction caused by Hyperglycemia- Fructans and fructoligosaccharides have been shown to possess significant effectiveness in overcoming this damage. Overall constitution of aqueous extract of A. racemosa rich in steroidal saponins and fructo oligosaccharides provides a prototype combination for combating the degenerative influence on sexual functions caused by alloxan or streptozotocin.

	Aphrodisiac activity- Hydro alchoholic and aqueous extract of root 200mg/kg, 400mg/kg- significant aphrodisiac activity on male wistar albino rats as evidenced by increase in number of mounts and mating performance.
Ashwagandha[12]	Spermatogenic, anti-stress, antioxidant- Root extract of *ashwagandha* resulted in significantly improved semen parameters in concern with improved and regulated sexual hormone levels in oligospermic males. Root extract resulted in a higher level of testosterone and a concomitant increase in serum levels of LH among infertile men having suboptimal testosterone levels before therapy.
Gokshura phala[13]	Aphrodisiac, anti-inflammatory, antioxidant Repeated dose administration of lyophilized aqueous extract of the dried fruits of *gokshura* at dose of 50 and 100 mg/kg of body weight as a sexual enhancer in the management of sexual dysfunction in male rat. A significant increase in serum testosterone level was observed. Ethanolic extract of *gokshura* exhibited protective effect against cadmium induced testicular damage. The protective effect appears to be mediated directly either through inhibition of testicular tissue peroxidation by antioxidant and metal chelating activity or by stimulating the testosterone production from Leydig cells. Tablets of dried entire plant were administered to 35 patients with oligospermia at a dose of 192 mg/day for 3 months. The treatment produced an improvement in total sperm count and motility.
Kokilaksha[14]	Aphrodisiac- –Ethanolic extracts of seeds 100, 150, 200mg/kg- changes in body and organ weight, sexual behaviour, histoarchitecture and fructose levels of seminal vesicles markedly affected sexual behaviour of the animals, as reflected of ML, increase in MF and enhanced attract ability towards females. A significant increase in the sperm count as well as fructose levels of seminal vesicles was noted.
Masha[15]	Spermatogenic- Aqueous extract of seed of Vigna mungo improved sexual performance and sperm count. The effectiveness of the Vigna mungo in multiple preclinical models with desire mechanism of action might be due to the presence of flavonoids, proteins and tannins or its synergistic action of these phytoconstituents.

Musali [16]	Spermatogenic activity- Ethanolic extract of rhizome of Curculigo for its effect on orientation behaviour and spermatogenesis in albino rats. They observed a change in orientation behaviour towards female, environment and self. Administration of 100 mg/kg b.w of ethanolic extract had pronounced effect on orientation of male towards the female rats Aphrodisiac activity- Ethanolic extract of Curculigo orchionoides rhizome at a dose of 100mg/kg. extract significantly changed the sexual performance as assessed by determining different parameters such as mating performance, mount frequency and latency, penile erection. The lyophilized aqueous extract of the plant showed significant improvement in sexual activity at a dose of 200 mg/kg body weight.

DISCUSSION

The above-mentioned drugs and their probable mode of action can be discussed under following headings,

1. **Based on the concept of *Rasapanchaka***

- ***Rasa*** – Majority of drugs listed above have *Madhura rasa* which has the action of *Saptadhatuvardhaka* as stated by both *Acharya Charaka* and *Acharya sushruta* (……. *shukraabhivardhana*)[17]. *Madhura rasa* of *Shukra* is due to Fructose in the seminal plasma which is an energy source of sperm metabolism and motility[18]. Few drugs have *Tikta rasa* as *pradhana /anurasa* which has the property of *Dhatu upashoshana* and *Medhya.*

  In case of *Ksheena shukra Madhura rasa pradhana dravyas* are the drug of choice (*Kapikacchu, Shatavari, Eranda, Musali, Kokilaksha, Gokshura, Masha*)
- ***Guna*** – *Guru snigdha sara gunas* are predominantely present in *Shukrala dravyas*. *Guru snigdha gunas* are one among the gunas stated under *Shuddha shukra lakshana*[19].

  According to *Samanya vishesha* siddhanta drugs predominant with *guru snigdha gunas* can be given in *ksheenashukra* to maintain the quantity and viscosity of semen. *Sara guna* helps to increase motility of sperm.
- ***Veerya*** – Drugs predominant with *sheeta veerya* are opted in *ksheena shukra*. As stated by *Acharya Sushruta "Sowmyam Shukram artavamagneyam.*[20]*"*

  Sheeta virya is also attributed with karmas like *Prahladana, Prasadana, Kledana, Jeevana.*

  Few drugs which are *shukrala* possess *Ushna virya* which is opposite to the *Sowmya guna of shukra* but can be utilized when *shukrashoshana* is needed to pacify *vata* dosha present in *Shukragata vata* (Premature ejaculation). Also in *dhatwagni mandhya janya ama ushna veerya* drugs can be used to clear *srotodushti* thereby facilitating *Dhatuposhana.*
- ***Vipaka*** – *Madhura vipaka dravyas* are predominantly opted in case of *ksheenashukra*. It has the action of *Shukrala*[21] (cha su 26/59-62).

- ***Prabhava***- Aphrodisiac drugs provide nourishment to *shukradhatu* by virtue of their *Prabhava.*
- ***Karma***- *Shukrala dravya* generally have karmas like *balya, brimhana, rasayana, pushtida* which helps in *janana, poshana, pravartana* of *shukra.*

2. **Based on mechanism of action, aphrodisiacs can be divided into these categories:**

- **Drugs acting on neurochemicals** – eg: *Kapikacchu* (*Mucuna pruriens*) stimulates the secretion of L-dopa, which converts to dopamine that activates the pituitary to release FSH and LH, with LH promoting testosterone secretion there by enhancing spermatogenesis and overall performance.[22]

  Drugs acting through NO mechanism may have *Shukrapravartana, Shukrasriti, Shukrarechaka(shatavari* containing saponins, steroidal glycosides, flavonoids may help in spermatogenesis.)

  Masha contains bioactives such as flavonoids, phenolics and tannins which have strong antioxidant properties. These antioxidants help reduce oxidative stress in reproductive organs protecting sperm from damage and supporting spermatogenesis.

  Mudghaparni contains bioactives such as vitexin and quercetin. Vitexin exhibits antioxidant properties and helps ameliorate sexual dysfunction and fertility impairments in male diabetic mice, while quercetin improves sperm morphology and function.[23]

  Mashaparni contains bergenin, an antioxidant that enhances sperm concentration and protects against diabetic testicular complications in Wistar albino rats. Antioxidant rich drugs protect from reactive oxygen species, thereby improving sperm count, motility and morphology.[24]

3. **Drugs acting on hormones (Androgens) may be of *Shukrala, Shukrajanana* activities.**

   Ashwagandha is rich in withanolides a steroidallactones which does the work of testosterone there by enhances the *shukra dhatu*.[25]

   Shukrala dravyas by the virtue of *Rasapanchaka* like *Madhura rasa, guru, snigdha guna, Madhura vipaka* helps in *shukrajanana, poshana* and *pravarthana*. The phytoconstituents found in these drugs are known to have antioxidant, antistress, aphrodisiac, spermatogenic activities which is believed to reduce oxidative stress and help in spermatogenesis. The comparative analysis between the *Rasayana* and the chemical compounds to predict their functional relationship is yet to be understood through extensive research. Still the researches that are carried out on these *dravyas* are supportive in establishing their *shukrala karma.*

CONCLUSION

Ksheenashukra, analogous to oligozoospermia in modern medicine, remains a significant cause of male infertility, with rising prevalence due to lifestyle, environmental, and physiological factors. *Ayurvedic* management emphasizes the use of *shukrala a*nd *vrishya dravyas*, which nourish and enhance the quality and quantity of *shukra dhatu.* Classical texts classify these drugs based on their actions—*shukrajanana*, *shukrapravartaka,* and *shukrasthambhaka*—each contributing to different aspects of reproductive health. *Rasapanchaka* analysis shows that drugs with *madhura rasa, guru-snigdha guna,* and *madhura vipaka* are particularly effective in addressing *ksheenashukra.* Modern research validates the traditional use of these herbs, demonstrating their antioxidant, spermatogenic, aphrodisiac, and hormone-modulating properties. Thus, an integrative approach combining classical *Ayurvedic* knowledge with contemporary evidence supports the effective role of *shukrala dravyas* in the management of male infertility**.**

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