

A Scientific Review on Shivlingi Beej (*Bryonia laciniosa*): Amystrical Ethno-Medicine for Infertility

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Abstract: Infertility varies across the regions of the world and it has been estimated to affect 8-12% couples worldwide. The WHO has estimated the overall prevalence of primary infertility in India to be between 3.9 and 16.8%. In the event of infertility, couples turn to the traditional medicine which is being used over the centuries for succor as Ayurveda holds high esteem and trust in this field. Herbal drugs are cheaper, easily available and with a meager fear of any side effects. Many herbs effective for infertility are also used in folk practice which often goes unnoticed. Shivlingi beej is one such unnoticed folk medicine that shows good results for counteracting infertility. It is a uterine tonic and improves the chance of conception in women suffering from infertility. An effort has been made in this paper to scientifically review and explain the role of shivlingi seeds in infertility of either sex hypothetically

Keywords: Infertility, Ayurveda, Shivlingi seeds.

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I. Introduction

From time immemorial the phenomenon of infertility was prevalent throughout the world which may persist as long as the human race exists. Every human being has an inherent, intense desire to continue one's own race. Infertility varies across the regions of the world and it has been estimated to affect 8-12% couples worldwide. The WHO has estimated the overall prevalence of primary infertility in India to be between 3.9 and 16.8%.^[1] In the event of infertility, couples turn to the traditional medicine which is being used over the centuries for succor as Ayurveda holds high esteem and trust in this field. The customary Indian restorative framework notices home grown solutions for the treatment of assortment of ailments. Shivlingi (*Bryonia laciniosa*) is a surely understood ethno medicine in India and stands out amongst the most flexible restorative plants having a wide range of natural action. Shivlingi Beej or Shivlingi Seeds are used for treatment of female infertility. It is a uterine tonic and improves the chances of conception in women suffering from infertility. Moreover it is also used traditionally as an aphrodisiac and pro-fertility compound, touted to increase masculinity and enhance youthfulness during aging. Hence this ethno-herb has immense potential of research in this field of infertility of either sex.

II. Aim And Objective

1. To review and evaluate the anti-infertility action of Shivlingi (*Bryonia laciniosa*) seeds.
2. To interpret the hypothetical action of Shivlingi (*Bryonia laciniosa*) for infertility in both sexes.

Basic Information

Bryonia laciniosa is a herb, which has been included in *Vrishya rasayana* category in Ayurvedic texts. *B. laciniosa* Linn Syn *Diplocyclo palmatus* (Linn.) Jeffery (Cucurbitaceae) distributed throughout India and locally known as Shivlingi. The seeds of *B. laciniosa* are known as "Shivlingi" because the upper surface of seeds has a marking and morphology, which resembles 'Shivlingi', icon of Lord Shiva, a popularly worshiped deity by Hindus.^[2]

It is an annual climber with bright red fruits and is reported to be a high medicinal value.^[3] Traditionally it is used as acrid, anti-inflammatory, and tonic. It is also in treating inflammations and general debility.^[4] The seeds are reported to be useful in curing case of sterility.^[2] It is also a constituent of Ayurvedic formulation 'Strirativallabhupugak' described in ancient text to improve sexual behaviour and as a general tonic.^[5]

Botanical Name	Bryonia Laciniosa
Botanical synonym	Bryonopsis Laciniosa, Diplocyclos Palmatus
Sanskrit synonyms	Lingini, Bahupatra, Ishwari, Shaivamallika, Swayambhu, Lingsasambhuta, Lingi, Chitraphala, Amruta, Pandoli, Lingaja, devi
Common Name	Shivlingi Gargumara
Plant Family	Cucurbitaceae – groids of squashes
Genus	Bryonia
Distribution	India-Madhya Pradesh, Uttar Pradesh, Gujrat, Uttrakhand
Habitat	Tropical & subtropical regions

Morphology

Stem is tremendously expanded thin, scored, glabrous. Rings are slender, striate, glabrous. Leaves are membranous, 10-15 cm long and expansive, green and scabrid above, paler and smooth or almost so underneath. Profoundly cordate at base. 5 lobed, the projections are elongated, lanceolate, midrib once in a while serrate. Petioles are 2.5-7.5 cm long, striate, slim. Male flowers are with little fascicles of 3-6, peduncle 5-20 mm long, filiform, glabrous. Calyx is glabrous, 205mm long, teeth subulate. Corolla is 3-5 mm long, fragments, appressed, oval, intense, pubescent and female solitary or few, or numerous peduncles and shorter than male. Organic products are sessile, 1.3-205 cm in breadth, globose, smooth, pale blue green, streaked with wide vertical lines and having seeds with 5-6mm long, yellowish cocoa.

Ethnobotany

The plant holds a vital part in tribal society and customers furthermore utilized as a part of numerous natural restorative remedies. It is ordinarily known as 'Shivlingi' and 'Gargumaru' in India, a yearly climber with splendid red organic products and is accounted for to be exceedingly therapeutic. Locally in India its seeds are being utilized for advancing ovulation in women.^[6] Gound and Bharia tribes of Patakot valley venerate this plant. As per them, this herb aid for the childless folks. They also claim that the seeds of the plants have a stimulating agent to enhance sperm quality and sexual desire. Additionally, it acts as a tonic to improve physical and psychological health and enhance youthfulness in advancing age.

The home grown healers (Bhumkas) set up certain mix of herb and recommend it to the required individual. Interestingly, Bhumkas in Harra-Ka-Chhar town in Patakot recommend the seeds of this herb for imagining male children. In Gaiduba, customary healers make a mix of Shivlingi seeds with Tulsi (*Ocimum basilicum*) leaves and blend it in Jaggery (the conventional gummy sugar utilized as a part of India) what's more, offer it to the woman who is not imagining infant because of any reason. Shivlingi is a twinner and can be very much recognized by its bloom/natural products/seeds. The foul what's more, simply diverse kind of smell of the plant is likewise a method for distinguishing it.^[7]

Parts used

Leaves, Fruits, Seeds (Especially seeds)

Shivlingi Beej or seeds are commonly used for the treatment of female infertility. Seeds have anti-inflammatory, anti-fungal, antimicrobial, analgesic, antihyperlipidemic, spermatogenic and antipyretic properties.

Medicinal Properties^{[8][9][10][11][12]}

Shivlingi Beej has following healing properties.

- Uterine Tonic
- Fertility booster
- Aphrodisiac
- Spermatogenic
- Antioxidant
- Anodyne
- Anti-inflammatory
- Carminative
- Antimicrobial
- Antihyperlipidemic
- Anti-diabetic
- Antipyretic

Ayurvedic Properties

Rasa (Taste)	<i>Katu</i> (pungent), <i>tikka</i> (bitter)
Guna (Main quality)	<i>Laghu</i> (light), <i>ruksha</i> (dry), <i>tikshna</i> (sharp)
Virya (Potency)	<i>Ushna</i> (hot)
Vipaka (Resultant)	<i>Katu</i> (pungment)
Prabhava (Specific action)	Uterine tonic
DOSHA KARMA (Effect on Humors)	Pacifies Kapha Dosha and increases Pitta Dosha
Karma	<i>Rasayana</i> , <i>Sidhma</i> , <i>Kushthahara</i>
Organs effect	Uterus, ovaries and testes
Main indication	Infertility

Doasge

The gernal dosage of Shivlingi Beej is follows.

Adult : 1-3 grams.

Maximum Possible Dosage : 6 grams Per Day (in divided doses).

Doses : Twice a day with milk ; warm water for weight loss.

Best Time to Take : 3 hours after meal .

Recommended Treatment Duration : Minimum 3 months (some patients may require treatment with Shivlingi for 6 months or more depending on the health condition).

Safety profile

Shivlingi is considerably safe for most individuals when taken as per its indications in apporprate dosage under professional supervision. It is most suitable for patients that have Kapha Dosha aggravation and less suitable for people with increased Pitta Dosha. There are no reported side effects of Shivlingi when used wisely according to Dosha and its indication.

Allergic Reaction (Allergy) : Not known.

Pregnancy & Breastfeeding

Shivlingi is possibly safe to consume during pregnancy and breastfeeding . There are no side effects reported in women that take it for infertility treatment and unknowing consume it during the first trimester of pregnancy. There are no side effects and abnormalities observed on the fetus with shivlingi.

Contraindications

There are no absolute contraindications for Shivlingi Beej.

Drug Interactions:Not known.

Phytochemistry (Chemical Composition)^{[13][14][15]}

Bryonia lacinosa is being utilized as paltry pharmaceutical since long in India ,however no work has been done aside from couple of unsaturated fats and sugars are accounted for to be available in the seeds. Because of colossal thereapeutic significance of the seeds,the seed adhesive from *B. lacinosa* was subjected to phytochemical investigation. It was observed that the divers concentrates of *Bryonia lacinosa* contained.

1. Punicic acid.
2. Goniotalamin.
3. Glucomannan.

Shivlingi beej indications

- Female infertility.
- Male infertility due Oligospermia.
- Impaired spermatogenesis.
- Asthenozoospermia –reduced spermatic motility.
- Teratospermia –defective or abnormal spermatic morphology.
- Constipation.
- Obesity & weight loss (when used alone).
- Hyperglycemia & Diabetes.

Female Infertility

Diminished ovarian reserve (DOR) is a condition that causes infertility,mostly in older women. *Aartavakshaya*,which can be correlated with DOR, has been described as deficiency or loss of *Artava dosha* not appearing in time, is delayed, or is scanty. DOR can occur in any condition according to Ayurvedic types of *Vandhyatva* (inherent infertility). Shivlingi Beej promotes fertility and increases the chances of getting pregnant. It also helps to normalize the menstrual cycle if the patient has light periods with a little blood flow. But if the patient has heavy blood flow during menstruation,then Shivlingi is contraindicated.

According to ayurvedic analysis, it is more beneficial if the patient is obese or overweight and has absent menses, light menstruation, having a feeling of heaviness in the lower abdomen and feeling of puffiness or swelling during the premenstrual and menstrual period. It is also beneficial if a woman with infertility suffering from depression along with a feeling of sadness and laziness, emotional eating, leucorrhea, increased sleep and swelling in legs or whole body.

If the patient has thick mucus during her period or yeast infection, then it is also most suitable. In such cases, Shivlingi should be used in maximum dosage.

Rasayan action of Shivlingi helps to synthesize purest Rasa dhatu subsequently, Upadhatu Artava is formed having required quality for fertilization. Hypothetically the Rasayan karma in this regard may act through androgenic effect via DHEA.^[16]

Impotence & Oligospermia

In traditional medicine, Shivlingi is used as an aphrodisiac. It is fertility booster for men too. It increases masculinity and testosterone level in the body. It is considered as a potential testosterone booster. Due to this reason, it is used in men for treating impotence. Shivlingi seeds also have spermatogenic action. Therefore, Shivlingi seeds improve the spermatogenesis process and improve the total count.^[17] According to Ayurveda, Shivlingi seeds are best in cases of impotence and oligospermia if the patient has excess Kapha Dosha or symptoms of increased or aggravated Kapha. Shivlingi reduces blockage of several channels in the body by clearing the excess Kapha and Ama. This mechanism also improves the supply of nutrients to the testes and blood flow to male reproductive organs, which ultimately helps to improve the process of spermatogenesis and treat impotence.

Action of ethanolic extract of seeds of *Bryonopsis laciniosa* Linn on male Albino rats showed androgenic activity and effects on hypothalamo-pituitary gonadal axis.^{[18][19][20]}

Action was evaluated as follows.

1. Increase body weight, testis, prostate, epididymis and seminal vesicle.
2. Increase in spermatogenesis.
3. Increases in sperm count.
4. Increase in fructose content of seminal vesicle.
5. Increase in serum testosterone and LH.

Shivlingi has a rasayan and Vajikarana effects by which the purest Shukradhatu is synthesized, thus helping with fertilization in cases of Oligozoospermia, Asthenozoospermia and Oligoasthenozoospermia. Shivlingi is hypothesized to treat these conditions by androgenic effects through DHEA. In the case of Azoospermia, there is absence of sperm due to obstruction or failure of spermatogenesis, Obstruction may be relieved by treatment of Katu Rasa, Ushna Veerya and Rasayan effects that has decreased quality causing spermatogenesis.

III. Discussion And Conclusion

Various ethobotanical herbs have been repeatedly used to treat infertility. Many of them have shown extraordinary effects on treating infertility of either sex. Shivlingi is one such drug which gives an Ayurveda upper hand due to its dual effect for infertility treatment in both the sexes. The plant seeds are used by traditional healers since thousand of years. In spite of its wide area of usage and its innumerable claims of effect on infertility, the data and literature regarding Shivlingi is very limited. Hence scientific validation for its attributes and principles is the need of hour. Infertility experts, research scholars and scientists have a wide scope to achieve in –depth knowledge of Shivlingi. This effort of the hypothetical evaluation of anti –infertility action of Shivlingi may form a base for further research and revalidation.

Studies report the extract of seed powder of *Bryonopsis laciniosa* show androgenic activity and its effect on hypothalamic pituitary gonadal axis. This important activity may be due to androgens. Whether chemical composition of seed influences the level of sex hormone needs to be investigated further.

Shivlingi (*Bryonopsis Laciniosa*) clearly has a plethora of medicinal benefits and it holds quite a lot of promise as a multi –purpose medicine but further clinical trials are needed to scientifically prove its efficacy.

References

- [1]. Kumar D. The tribal literacy disparity in India. *Current Science*, 2005; 88; 676
- [2]. Panda H. *Handbook on Herbal Medicine*. National Institute of Industrial Research : New Delhi ,2004.
- [3]. Kritiker KR, Basu BD. *Indian Medicinal Plants*. Periodical Expert Book Agency: Delhi, 1987.
- [4]. Pullaiah T. *Encyclopedia of World Medicinal Plants*. Regency Publication :New Delhi,2006.
- [5]. Vaidya L. *Bavprakash*. Motilal Banarsidas: Varanasi, 1970.
- [6]. Vandana Singh, Tulika Malviya. *Carbohydrate Polymers*, 2006; 64(3): 48-3.
- [7]. Deepak Acharya, Shivlingi: A Common but Important Twine in Patalkot. *Ame Chronicle*, Dec 18: 2006.
- [8]. Mosaddik MA, Haque ME. Cytotoxicity and antimicrobial activity of goniothalamin isolated from *Bryonopsis Laciniosa*. *Phytother Res*, 2003;17: 1155-1157.

- [9]. Singh V, Malviya T, Tripathi DN, Naraian U. An Escherichia coli antimicrobial effect of arabinoglucomannan from fruit of *Bryonia Laciniosa*. *Carbohydr Polym*, 2009; 75: 534-537.
- [10]. Gupta M, Mazaumdar UK, Sivakumar T, Vamsi ML, Karki SS, Sambathkumar R et al Evaluation of anti-inflammatory activity of chloroform extract of *Bryonia Laciniosa* in experimental animal models. *Biol Pharm Bull*, 2003; 26:1326-1344.
- [11]. Sivakumar T, Perumal P, Kumar RS, Vamsi ML, Gomathi P, Mazumdar UK et al. Evaluation of analgesic, antipyretic activity and toxicity study of *Bryonia Laciniosa* in mice and rats. *Am J Chin Med*, 2004; 32: 531 -539.
- [12]. Singh V, Malviya T. A non-ionic glucomannan from the seeds of an indigenous medicinal plant :*Bryonia Laciniosa*. *Carbohydr Polym*, 2006;64: 481-483.
- [13]. Gowrikumar G, Mani VVS, Chandrasekhararao T, Kaimal TNB Lakshminarayana G. *Diplocyclos palmatus* L: a new seed source of punicic acid. *Lipids*, 1981; 16: 558 -559.
- [14]. Mosaddik MA, Ekramul Haque M, Abdur Rashid M. Goniotalamin from *Bryonopsis Laciniosa* Linn (Cucurbitaceae). *Biochem Syst Ecol*, 2000; 28: 1039 -1040.
- [15]. 15. Bapalal Vaidya (1981) Nighantu Aadarsh, Chaukhamba Bharati Academy, Varanasi, India.
- [16]. Vivek Murlidhar Chaudhary, Amit D Avlaskar, Role of Shivilingi in Infertility, *J Homeop Ayurv Med*, 2013;2:5, DOI:10.4172/2167-1206.100041
- [17]. <https://www.ncbi.nlm.nih.gov/pubmed/20032987>
- [18]. Gupta M, Mazumdar UK, Shivakumar T, Vamsi ML, Karki SS, Sambathkumar R et al. Evaluation of anti-inflammatory activity of chloroform extract of *Bryonia lasiniosa* in experimental animal models. *Biol Pharm Bull*, 2003;26:1342-1344.
- [19]. Sivakumar T, Perumal P, Kumar RS, Vamsi ML, Gomathi P, Mazumdar UK et al. Evaluation of analgesic, antipyretic activity and toxicity study of *Bryonia lasiniosa* in mice and rats. *Am J Chin Med*, 2004;32:531-539.
- [20]. Chauhan N S and Dixit V K., Effect of *Bryonia laciniosa* seed on sexual Behaviour of Male Rats., *International Journal of Impotence Research*, 2010;22:190-195.

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