

NUTRAHERBS: SYNERGY OF AYURVEDIC HERBS WITH NUTRACEUTICALS W.S.R TO FEMALE INFERTILITY – A REVIEW

¹Kadam ST,

²Pawar AD

¹PG Scholar , Department of Dravyaguna , R.A.Podar Medical College (Ayu), Mumbai 400018

²Associate Professor, Department of Dravyaguna , R.A.Podar Medical College (Ayu), Mumbai 400018

ABSTRACT

Background: Utility of food as health promoting factor beyond its nutritional value is gaining acceptance within public arena and among scientific community. Nutraceutical is a dietary substance which has physiological benefit or provides protection against a disease. These are a combination of one or more nutritional supplements like Vitamins, Minerals etc. which are administered as an adjuvant therapy to improve disease conditions.

Objective: The objectives of such literature review were to an attempt to critically review, the synergistic effect of combining herbs like *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.) with nutraceutical formulations indicated in female infertility.

Methodology: The present work is primarily based on theoretical research using related research articles, standard textbooks of epidemiology and classical treatises of Ayurveda.

Discussion: In the present scenario, cases of female infertility have increased due to various nutritional, pathological and environmental changes. Medical practitioners correct the nutritional errors in such patients by administering nutraceuticals mainly containing DHEA, antioxidants and micronutrients, thus enhancing fertility. Ayurvedic herbs like *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.) exhibit extravagant fertility-enhancing properties in females. Thus, combining these herbs with nutraceuticals would bring exemplary results in infertile and sub-fertile females. These herbs not only possess medicinal properties, but also have nutritional values. Therefore, the synergistic effect of combining herbs like *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.) with nutraceutical formulations indicated in female infertility would be tremendous.

Conclusion: This can further increase the scope and utility of, 'Nutraherbs' in medical practice.

Keywords Adjuvant therapy, Nutraherbs, Female infertility, *Asparagus racemosus* Wild, *Ficus benghalensis* L.

INTRODUCTION: Nutraceuticals are dietary supplements administered not only for their nutritional value but also for their therapeutic benefits like delaying the aging process, increasing life expectancy and supporting the structures and the functions of the body. Role of nutraceuticals as an adjuvant therapy in diseases is widely accepted in the medical fraternity. Various factors like diet and lifestyle changes,

infections, etc. have increased the incidence of female infertility.^[1,2,3,4] In Ayurvedic texts similar concept is described as *Vandhyatva*. Herbs like *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.) are said to be *Vandhyatvanaashak* (anti-infertility) and *Vrushya* (fertility-enhancing) in the Ayurvedic texts.^[5] Combining these herbs with nutraceuticals indicated in female

infertility would bring extraordinary results in such patients. Hence, the synergetic effect of *Shatavari* and *Vata* with nutraceuticals can be studied and the efficacy of these herbs over nutraceuticals as an alternative therapy can further be verified. For the same, this review would prove beneficial.

OBJECTIVE

The idea of such a theoretical research stemmed out with this literature review, and the specific objectives of this review were to:

- summarize the current understanding of Female infertility.
- Critically review the synergetic effect of combining herbs like *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.) in female infertility.

MATERIALS & METHOD

An initial phase of study was made to review related scholarly articles related to the above said subject by using systematic internet-based search engines. The present work is primarily based on theoretical

research. Classical treatises of Ayurveda including Samhitas and Nighantus have been referred for the study. The gathered information has been studied and presented as a review.

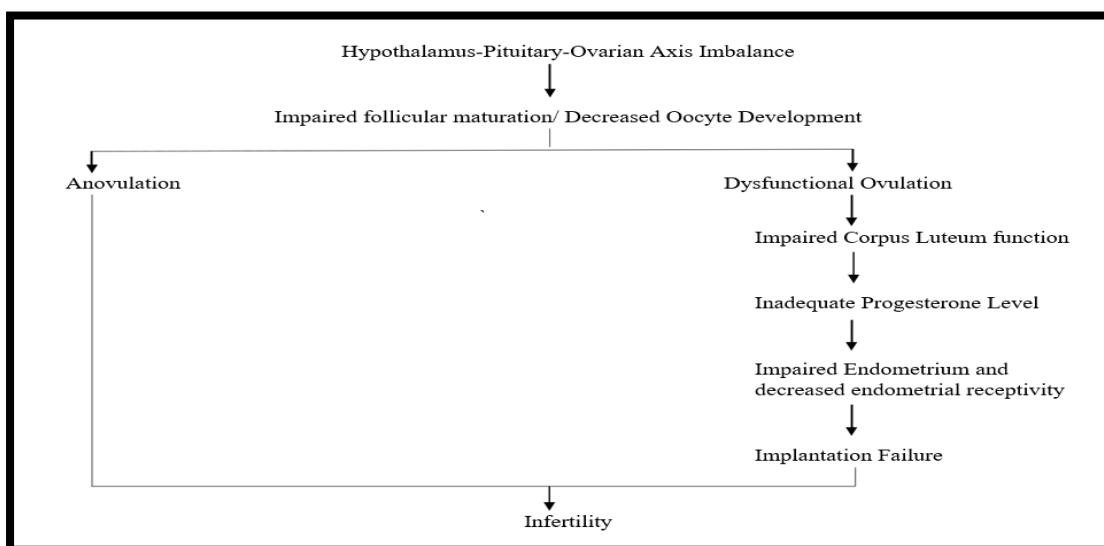
REVIEW:

Factors Affecting Fertility in Females:

- Infections and various pathologies occurring in the reproductive system like Polycystic Ovarian Syndrome, Endometriosis, etc.
- Deterioration of Oocyte quality.
- Irregular or disturbed menstrual cycle (Dysmenorrhoea, Menorrhagia, Pre-Menstrual Syndrome etc.).
- Hormonal imbalance –

- Luteal Phase Defect (LPD) – Inadequate progesterone production from corpus luteum results in infertility. Endogenous progesterone not sufficient to maintain a functional secretory endometrium and to allow normal embryo implantation and growth.
 - Nutritional deficiencies.
 - Factors like age, stress, anxiety, alcohol consumption, smoking, etc.^[3]

Figure 1: showing flowchart of pathophysiology of Infertility



1) Assisted Reproductive Techniques used in cases of Infertility:

- a. IUI (Intrauterine Insemination).
- b. IVF (In Vitro Fertilisation).
- c. ICSI (Intracytoplasmic Sperm Injection).

2) Role of Nutrition in Infertility:

In sub-fertile population, poor nutrition detrimentally affects the success rate of fertility treatments and that of the above mentioned assisted reproductive techniques. Hence, periconceptional care should comprise personalised medical and tailored nutritional interventions to enhance fertility. Here comes the role of nutraceuticals in the treatment of infertility.^[2]

3) Nutraceuticals:

i. Definition: -

Nutraceuticals are substances obtained from dietary sources that are formulated to provide health benefits in certain diseases along with their basic nutritional value.

ii. Nutraceuticals in Infertility: -

Nutraceuticals containing the following nutrients are mainly administered in infertile and sub-fertile females –

- a. DHEA (Dehydroepiandrosterone) - DHEA significantly decreases cancellation rate and improves pregnancy rate in IVF.^[4]
- b. Antioxidants (Vitamin C, Vitamin E, Omega 3 Fatty Acids) – Shorten time to pregnancy in unexplained infertility.
- c. Micronutrients (Zinc, Copper, Selenium, Iodine) – Adjuvant multiple micronutrient

supplementation during ovulation induction has a higher chance of pregnancy.^[2]

4) Ayurveda on Infertility:

Ayurveda, the ancient medical science, explains infertility as *Vandhyatva*. *Vandhyatva* is said to be the outcome of *Dushtaartav(a, Alpaartava, Nashtaartava* and various *Yonidoshas* and *Beejadoshas*. *Aacharyas* (Ayurvedic scholars) have explained their treatment in detail. Various medicinal plants like *Shatavari* and *Vata* are described as *Vandhyatva Naashak* (Anti-Infertility) in the Ayurvedic texts.^[7,10,11,12] Ayurveda supports health by strengthening body's own self-healing and balancing mechanisms" and doesn't rely on intervention by any outside or foreign substance to replace or correct the hormones in the body. Evaluation of person's *Dosha* is very significant for prescribing the treatment and any blockages and weaknesses in body parts for which the treatment includes appropriate diet, body therapies, herbs, sensory therapies, and lifestyle and yoga therapies^[8,9]

Shatavari^[5,10,11,12,13] -

Latin Name : *Asparagus racemosus* Wild.

Family : Liliaceae.

Description : A tall climbing undershrub with annual woody terete stems, distributed throughout tropical and sub-tropical India.

Nutritional value^[16]:

Table no 1: Nutrients description of Asparagus racemosus Wild.

Nutrients	Value (per 100 grams)	Units
Calories	20	kcal
Carbohydrates	3.38	grams
Protein	2.2	grams
Total fat	0.12	grams
Dietary Fiber	2.1	grams
Folates	52	mcg
Niacin	0.978	mg
Pantothenic Acid	0.274	mg
Pyridoxine	0.091	mg
Riboflavin	0.141	mg
Thiamine	0.143	mg
Vitamin C	5.6	mg
Vitamin A	756	IU
Vitamin E	1.13	mg
Vitamin K	41.6	mcg
Potassium	202	mg
Calcium	24	mg
Zinc	0.54	mg

<i>Rasa-vipak-veerya</i>	: <i>Madhur</i> ,	<i>Shatavari</i>	<i>svaadutiktaa</i>	<i>vrushyaa</i>
<i>Tikta-madhur-sheeta.</i>		<i>doshatrayapranut /</i>		
Chemical Composition	: Saponins	<i>Garbhapradaa</i>	<i>kshatakshinahitaa</i>	
(Shatavarin 1,2,3,4).		<i>khaalityanaashani //</i>		
Classical texts ^[13,14,15] :		<i>Vata</i> ^[5,10,11,12,13] :	-	
<i>Shukrastanyakari</i>	<i>balyaa</i>	Latin Name	: <i>Ficus benghalensis</i> L..	
<i>vaatapittaasrashothajit /</i>		Family	-: <i>Moraceae</i>	
<i>Shatavari hima tiktaa rasesvaadu;</i>		Description	: It is a huge tree possessing	
<i>kshayaasrajit /</i>			supporting aerial roots, distributed	
<i>Vaatapittaharaa</i>	<i>vrushyaa</i>		throughout India.	
<i>rasaayanavaraa smrutaa //</i>			Nutritional value ^[17] <i>Dhanvantari nighantu</i>	

Table no 2: Nutrients description of Ficus benghalensis.

Nutrients	Value (per 100 gms)	Units
Calories	72	kcal
Carbohydrates	12	grams
Protein	2	grams
Total fat	2	grams
Dietary Fiber	8	grams
Calcium	364	mg
Phosphorous	43	mg

Rasa-vipak-veerya : *Kashaaya-katu-sheeta.*

Chemical Composition: 10% Tannins
Classical texts^[13,14,15].

Sheetaaagururgraahi
kaphapitthavranaapah: /
Varnyo visarpadaahaghn: *kashaayo*
yonidoshahrut // -Bhavprakash

DISCUSSION:

1. *Shatavari* (*Asparagus racemosus* Wild)
[1,5,6,7]

- i. *Shatavari* is known to provide protection against urinary tract infections and maintain vaginal pH.
- ii. The Saponins in *Shatavari* provide relief in Dysmenorrhoea and other Menstruation related problems.
- iii. *Shatavarin-1* blocks oxytocin induced contractions, thus acting as an anti-abortifacient.
- iv. *Shatavarin-4* acts as Oestrogen on the Uterine muscles, increases weight of accessory sex glands. This phytoestrogen enhances folliculogenesis and ovulation by binding directly to the Oestrogen receptors.
- v. *Shatavari* is well-known for its *balya* and *rasayana* properties. *Madhur rasa* helps in restoring strength of the body. Its *rasayana* property helps rejuvenate all the cells and tissues of the body.

2. *Vata* (*Ficus benghalensis* L.)^[1,2,3] –

- i. The tannins present in *Vata* act as astringent, correct uterine or cervical bleeding.
- ii. *Vata* is known to trigger cervical mucus secretion and promotes endometrial thickening during proliferative phase.
- iii. *Vatashruna* (Leaf bud) is used in *punsavana vidhi*.
- iv. *Vata* is well-known for its *Yonidoshahara* property.

CONCLUSION: From the above discussion, the anti-infertility properties of *Shatavari* (*Asparagus racemosus* Wild) and *Vata* (*Ficus benghalensis* L.)^[1] can be understood. Combining these power herbs with nutraceuticals in females with infertility or sub-fertility would bring marvellous results. The Synergetic effect of this combination can further be studied clinically. Not only are they anti-infertility drugs, but also possess nutritional benefits. Hence, *Shatavari* and *Vata* can be used as medicine as well as nutritional supplements in the treatment of female infertility. The role of *Shatavari* and *Vata* as herbal nutraceuticals or say ‘Nutraherbs’ can thus be showcased. Similarly, herbs indicated for various diseases in the Ayurvedic texts can be used in combination with Nutraceuticals or as a wholesome alternative treatment for the disease. The scope of studying the synergetic effect of the combinations of Ayurvedic herbs with nutraceuticals widens, which will further increase the utility of Herbal Nutraceutical combinations in the treatment of various diseases.

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Corresponding Author:

Dr. Santosh T. Kadam,MD Scholar , Dept. of Dravyaguna , R.A.Podar Medical College (Ayu), Mumbai

Email: drsantosh231@gmail.com

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