SHATAVRI *(Asparagus racemosus)* - A MAGICAL HERB FOR LACTATING FEMALE

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ABSTRACT

BACKGROUND - Shatavari *(Asparagus racemosus)* is a medicinal plant that belongs to Asparagaceae family with several health benefits. Roots of shatavari are the most recommended and nutritious among all other parts of shatavari plant. Asia, Australia and Africa are known as harvesting hub for "Queen of herbs".

PURPOSE – The main purpose of study is to know health benefits of shatavari during lactation and throughout the life of women.

METHODOLOGY - An electronic research was conducted in RESEARCH GATE, PubMed and ACADEMIA on origin, characteristics, health benefits and composition of shatavari.

FINDINGS & RESULTS - The findings indicate several benefits served by shatavari plants like immune enhancing, Anti depressing and galactagogue properties.

Keywords – Human's milk, breastfeeding, Lactation, Shatavari *(Asparagus racemosus)*

1. INTRODUCTION

Throughout the life women undergoes several physical and psychological changes which are regulated by levels of hormones secreted in the body [9][15]. Lactation and post lactation is the phase that brings many morphological changes in mothers like demineralization of bones and several other hormonal changes [11].

Almost every women undergoes different problems like inadequate suckling of baby, breast and nipple pain, lack of maternal knowledge, obstructed mammary duct, inappropriate environment and mastitis during lactating phase among all inadequate supply of milk is major issue emerges during lactation [15]. So there is need of some effective herbal remedy to ease her journey throughout the different phases of life. Shatavari (Asparagus racemosus) is very constructive in enhancing female overall health and promoting lactation [10].

Shatavari is a climbing plant with its all parts consisting of health benefits but roots are the most beneficial [Alok et al., 2013] and are used in more than 60 formulations of ayurveda [12]. They are 30-100cm long, 1-2cm thick and whitish in color that possess several therapeutic benefits for females [1][20].Asparagus has a wide range of 250 species [Lakhwinder Singh et al., 2018] out of which 22 species are cultivated in India [Bharti et al., 2019].Generally it is found in tropic and subtropics regions of Asia ,Australia and Africa[Alok et al., 2013]. Shatavari is alkaline and sweet but it's after taste is slightly bitter [12].

It is known by different names in different geographical areas of India like Satavar, Shatamooli, Shatawari, Shatabari [Chawla et al., 2011] whereas it is known by Wild asparagus in English [Bharti et al., 2019].

For proper growth asparagus plant prefer fertile (sandy, loamy or clay) soil, hot climate and less amount of irrigation. Crop of these plants have very less probability of being affected by diseases and pests [Chawla et al., 2011].

Taxonomy of Asparagus [Lakhwinder Singh et al., 2018] [19]

- Kingdom: Planate

- Order: Asparagales

- Family: Asparagaceae

- Genus: Asparagus

Table1. Nutritional Composition of Shatavari *(Asparagus Racemosus)* [12].

Trace elements	Roots (mg/100g)	Leaves (mg/100g)
1. Zinc	14.8	16.5
2. Copper	2.3	3.4
3. Manganese	6.2	8.4
4. Cobalt	12.2	8.8
5. Sodium	49	74.5
6. Potassium	265.2	108.4
7. Lithium	5.8	5.8
8. Iron	149.3	204
9. Calcium	211.5	615.3

The most common species of Asparagus is Asparagus racemosus known as “QUEEN OF HERBS “and “ A FEMALE TONIC “ which claims to have several benefits by Ayurveda[Bharti et al., 2019][Alok et al., 2013].

Table1. Chemical constituents present in different parts of Shatavari *(Asparagus Racemosus)* [4][Bharti et al., 2019][17].

S.No.	Photochemical	Parts of plant
1	Steroidal saponin, saponin(Asparoside B,AsparininB&A,Immunoside), Isoflavone, Alkaloid, Flavanoids (Rutin, Hyperoside)	ROOTS
2	Steroidal saponin (Racemosid A ,B and C),Alkaloid(Quercetin),Rutin,Hyperoside	FRUITS
3	Glycosides of quercetin (Rutin, Hyperoside),Alkaloid (Quercetin)	FLOWERS
4	Sapogenin (Diosgenin), Glycosides of quercetin(Querectin 3-glucuronide)	LEAVES
5	Sarsasapogenin ,Thiazole,Kaempferol thiophenes	SHOOTS

Since ancient time Japanese consume shatavari to cure health problems related to liver, spleen and helps in preventing miscarriage whereas on other hand in India it is mainly used to cure internal problems like fever, pain and tumor [12].

BENEFITS AND PROPERTIES OF SHATAVARI

(a)Adaptogenic benefits

- During lactation some women might suffer from stressed which can affect overall health of body but active principles found in shatavari *(Asparagus racemosus)* provides shield against stressors and has ability to reciprocate stress inducing activities [Bharti et al., 2019].

- Cattle animals also revealed positive outcome after consumption of Asparagus racemosus. Alterations occur in nor-adrenaline, dopamine and 5-hydroxytryptamine and therefore lead to decrease in chronic stress [8].

(b)Gastrointestinal benefits

- Roots of shatavari (*Asparagus racemosus)* are highly enriched with amylase and lipase activities which show digestion promoting properties of roots [9].
- Powdered dried roots of Asparagus racemosus when consumed orally results in proper digestion and gastric emptying.
- Methanol extract and aqueous extracts of shatavari (*Asparagus racemosus)* shows Antiulcer and Antidiarrheal activities [Alok et al., 2013].
- Shatavari act as shield for gastric mucosa because it has antacid and antisecretory benefits that may protect mucosal cells and increases capability of mucosal barrier which helps in preventing corrosive and proteolytic effects of acid (pepsin) on ulcer by creating complex [Bharti et al., 2019].

(c)Milk production benefits

- The most important benefits of shatavari (*Asparagus racemosus*) are galactagogue property that acts as a safe and effective lactagogue. It stimulates Pituitary gland or Hypothalamus through its active principles like Shatavari-I,II,III and IV which enhances production of prolactin therefore leads to enhancement of milk yield and also helps in development of mammary glands in women and animals[Bharti et al., 2019].
- A group of 60 lactating women were supplemented with shatavari (*Asparagus racemosus*) in form of capsules three times a day. Student t-test was the method used for

statistical analysis. Prolactin hormone in mothers showed an increase of 32.87%. Mothers and babies also showed increment of 3.78% and 16.13% respectively [Gupta et al., 2011]. Three months study was conducted in 3 districts of ecological belts. Lactating women in these areas were told about benefits of Asparagus racemosus and dried roots powder was given to mothers and in return got positive reviews about consumption of shatavari (*Asparagus racemosus)* [Pandey et al., 2017].

- Shatavari claims to enhance the level of prolactin hormone which directly increases the milk production therefore help in proper weight gain of baby.[18][19].

(d) Immunomodulatory benefits

- Aqueous root extract of shatavari has appreciable boost in immunity by enhancing T-cells which ultimately leads to increment in antibodies. Functioning of liver and kidney might be regulated by oral consumption of Asparagus racemosus [Bharti et al., 2019].
- Some properties of roots showed positive outcome in overcoming sepsis by altering macrophages which sometimes are the reason for abdominal surgery and trauma [Chawla et al., 2011].Roots extract when consumed regularly and in prescribed amount will be able to alter Th1/Th2 immunity [Alok et al., 2013].
- By activating immune cells through increasing stem cells in marrow and lymph tissues Asparagus racemosus also possess antiallergic properties [9].
- Shatavari has the capability to fight against several diseases caused due to free radicals. [16]

(e) Reproductive effects

- Consumption of shatavari helps female throughout all phases of life like it helps to strengthens uterus and help to cure sexual dysfunction, endometriosis, amenorrhea, and dysmenorrhea [8][Thakur et al., 2021].
- Shatavari helps to prevent miscarriage and promote lactation by balancing hormonal levels [8][Thakur et al., 2021].
- Oral consumption of shatavari claims to treat major female reproductive problems like PCOS and PCOD.[18]

2. METHODOLOGY

The main purpose of writing is to identify references related to cultivation and benefits of shatavari *(Asparagus racemosus).* An electronic research was implemented in RESEARCH GATE, PubMed and ACADEMIA on origin, history, health benefits and composition of Shatavari (*Asparagus racemosus*) Based on the literature, these search terms were considered - Asparagus racemosus, harvesting-cultivation of plant, nutritional composition, health benefits of Asparagus racemosus, physiological changes during lactation in a total of 25 searches.

Original research and other reviews were assessed at title, abstract, or by reading the full paper. Studies were included when they met (a) the harvesting procedure and nutritional composition of (*Asparagus racemosus)* (b) papers that addressed any aspect of health benefits of (*Asparagus racemosus*)and (c) problems during lactation.

3. CONCLUSION AND DISCUSSION

Since ancient times Asparagus racemosus has been claimed by Ayurveda a medicinal plant with several benefits especially in life of female throughout all phases. It has been identified that Shatavari (*Asparagus racemosus)* when consumed in prescribed amount helps in enhancing milk

production during lactation. Shatavari *(Asparagus racemosus)* also reveals other activities like it suppresses stress, antiulcerative, antiallergic benefits. During lactation the main benefit of Shatavari *(Asparagus racemosus)* is its galactagogue property. This review in future will help to explore more about phytoconstituents and other potential of shatavari.

4. AUTHOR'S CONTRIBUTION

Muskan Garg and Prof. (Dr.) Pratibha Singh designed the layout and analyzed the data. Muskan Garg wrote and edited the final document which was approved by Prof. (Dr.) Pratibha Singh. Both Muskan Garg and Prof. (Dr.) Pratibha Singh contributed to the final writing of review paper.

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