

ROLE OF THANEERVITTAN KIZHANGU (ASPARAGUS RACEMOSUS) IN FEMALE HEALTH CARE - A REVIEW**G. G. Kalaiselvi^{1*} and P. Mirunaleni²**¹Siddha Physician, Puducherry.²Siddha Consultant, Ayush Wellness Clinic, President Estate, Rastrapathi Bhavan, New Delhi.Article Received on
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Corresponding Author*Dr. G. G. Kalaiselvi**Siddha Physician,
Puducherry.**ABSTRACT**

Pregnancy and childbirth have been an essential part of human existence for millennia, but unfortunately the experience has not been easy for all women. Between our menstrual cycle, pregnancy and menopause – our ladies endure a lot. The most important thing is that at the time of conception there are high demand of nutrition to maintain the health of pregnant women and the fetus. So to meet the needs of pregnancy, luckily, there's an ancient herb *Thaneervittan kizhangu* (*Asparagus racemosus*) in Siddha system of medicine is known to support us through all of it. Coined as the “Queen of Herbs” and is the

primary herb recommended for female health. It belongs to Asparagaceae family. Diabetes, Gonorrhoea, leucorrhoea, tuberculosis, agalactia, inflammations, tumours, burning micturition are few of many conditions that can be treated with *Thaneervittan kizhangu*. *Asparagus racemosus* cleanses, nourishes, and strengthens the female reproductive organs and so, it is traditionally used for PMS, amenorrhoea, dysmenorrhoea, menopause and pelvic inflammatory disease (PID) like endometriosis. *Asparagus racemosus* is considered as the most potent female health tonic and also supports deeper tissue and builds blood, helping in treating infertility, prevents miscarriage and acts as a post-partum tonic as it increases lactation, regularizes the uterus and balances hormones, probably due to phyto-estrogens. It is widely used as a drug for conception and during lactation. This present article includes the detailed exploration of benefit of *Thaneervittan kizhangu* in female health issue and pharmacological activities of the root extract of *Asparagus racemosus* reported so far.

KEYWORDS: Thaneervittan kizhangu. Phytoestrogen, infertility, lactation, Siddha herbs

INTRODUCTION

Pregnancy and childbirth have been an essential part of human existence for millennia, but unfortunately the experience has not been easy for all women. Between our menstrual cycle, pregnancy and menopause – our ladies endure a lot. The most important thing is that at the time of conception there are high demand of nutrition to maintain the health of pregnant women and the fetus. So to meet the needs of pregnancy, luckily, there's an ancient herb *Thaneervittan kizhangu* (*Asparagus racemosus*) in Siddha system of medicine is known to support us through all of it.

Asparagus racemosus, traditionally known as *Shatavari* in Sanskrit, *Thaneervittan kizhangu* in Tamil. Coined as the “Queen of Herbs” and is the primary herb recommended for female health. It belongs to Asparagaceae family. It is being traditionally used as female reproductive tonic. Shatavari has been used for centuries as a hormone balancer and a general tonic to uplift female health and libido. Being a powerful adaptogenic herb, that support women through all stages of the female reproductive cycle, beginning with the menarche (starts of menses), supporting the female system through menses, ovulation and fertility. The plant grows throughout the tropical and subtropical parts of India up to an altitude of 1500m. The plant is a spinous under-shrub, with tuberous, short rootstock bearing numerous succulent tuberous roots (30–100 cm long and 1–2 cm thick) that are silvery white or ash colored externally and white internally. These roots are the part that finds use in various medicinal preparations.^[1] *Thaneervittan kizhangu* has been mentioned in Siddha texts like Gunapadam (Mooligai vagupu) and Indian Siddha Materia Medica has evidently stated that *Thaneervittan kizhangu* promotes maternal health and noted its meticulous use as a galactagogue (enhances breast milk secretion in lactating mothers).

Shatavari is having Madhur- suvai (Sweet taste), Madhur Vipaka (Post digestive effect) and Sheet Virya (Cold Potency).^[2] proves to be beneficial to women in all stages of life. Besides many actions, Diuretic, Antispasmodic, rejuvenating, Galactagogue, nervine tonic are important one. Diabetes, Gonorrhoea, leucorrhoea, tuberculosis, agalactia, inflammations, tumours, burning micturition are few of many conditions that can be treated with Shatavari. Apart from this it has, properties like Antistress, Antidiarrhoeal, Antidyspepsia, Antiulcerogenic action, Antioxidant & Cardio protection, Antioxytotic, Immunomodulator, Adaptogenic (phytochemicals that stabilize physical processes and encourage homeostasis in the body), Cytoprotective, Antiproliferative activity, Anti-tussive and Antibacterial Recent

research and chemical analysis help in understanding its mode of action and also support the traditional classification of *Thaneervittan kizhangu* (*Asparagus racemosus*), as a as a drug for conception and during lactation. This led to a deeper research in the area Nutraceutical usage of *Thaneervittan kizhangu* (*Asparagus racemosus*).

METHODOLOGY

Search criteria

Original articles, research papers published in journals and in Pub med central, Google scholar on Shatavari (*Asparagus racemosus*), and female disorders were studied out and related articles, papers were taken into consideration. Siddha literature including Gunapadam (Mooligai vagupu) and Materia Medica related to Shatavari (*Asparagus racemosus*) were also studied out.

Information regarding gynecological disorders was collected from Modern and Siddha literature. All the literature was especially studied for medicinal uses of Shatavari in female health issues and taken into consideration. Importance was given to clinical trials carried out on *Asparagus racemosus*. Finally results were obtained from all collected data and literatures studied.

Plant profile^[2]

Thaneervittan kizhangu: *Asparagus racemosus*

Botanical name: *Asparagus racemosus* Wild

Family name: Liliaceae

Common name: Asparagus fern, Indian Asparagus, Sataver White, Sparrow Grass, Satawari, Buttermilk root, Water root, Climbing Asparagus, Sataver Yellow, Asparagus Wild

Tamil name: Kilavari, Migundavanam, Nirmittan, Nirvittam, Paniyi-nakku, Puniyanahu, Sadamulam, Sadaveli, Sadaveri, Sandavari, Sattavari, Sirumal, Tannirvittan, Tusuppu, Varivari, Shatmooli, Narayani

Sanskrit name: Indeevari, Sukshamapatra, Bahusuta, Shatmooli, Narayani, Bhiru, Virya, Madabhanjani, Shatpadi, Shatvirya, Karshini, Mulla, Shatapadi, Supatra, Ssupatrika Tailavalli, Vari, Divya, Vishvasya etc

Other regional names

Bengali - Shatamuli

Gujrati - Satawari

Hindi – Satmuli, Sadabori, Satawar, Shakakul

Madhya Pradesh - Narbodh or atmooli

Kannada - Aheruballi

Malayalam - Chatavali

Rajasthan - Norkanto or satawar

Marathi - Shatavari or shatmuli

Telugu – Callagadda, Pillipechara, Ettavaludutige, Pilligaddalu.

Siddha properties (Pharmacodynamics)^[1,2]

Suvai – Sweet taste, **Virya** – Sheeta (Cold Potency), **Vipaka** (Post digestive effect) – sweet

Doses: Juice 10-20ml, Decoction 50-100ml, Powder 3-6gms.

Medicinal uses:^[1,2]

1. Asparagus root possesses aphrodisiac, demulcent, nutritive tonic, diuretic, anti-inflammatory, galactagogue, antiseptic, anti-oxidant and antispasmodic properties.
2. Regular use of asparagus root treats infertility, impotence, leucorrhea, menopause syndromes, hyperacidity, and certain infectious diseases such as herpes and syphilis.
3. It is also useful in treatment of epilepsy, kidney disorders, chronic fevers, excessive heat, Diabetes, tuberculosis, stomach ulcers and liver cancer, increases milk secretion in nursing mothers and regulates sexual behaviors.
4. *Asparagus racemosus* cleanses, nourishes, and strengthens the female reproductive organs and so, it is traditionally used for PMS, amenorrhea, dysmenorrhea, menopause and pelvic inflammatory disease (PID) like endometriosis. *Asparagus racemosus* is considered as the most potent female health tonic.
5. *Asparagus racemosus* also supports deeper tissue and builds blood, helping in treating infertility, prevents miscarriage and acts as a post-partum tonic as it increases lactation, regularizes the uterus and balances hormones, probably due to phyto-estrogens.
6. They are employed in chronic rheumatism and relieve bilious dyspepsia.
7. Tuberous root and honey were mixed together to give for bilious dyspepsia.
8. Tuberous root is boiled with milk to give for diarrhea.
9. Tuberous root juice- 1 part, purified butter- 1 part, milk- 10 part, are mixed together along with this sugar, Honey, Tippili (Piper longum) are added and made as a ghee. It act as a aphrodisiac.
10. Leaves juice is added with cows milk - it will reduce Internal heat, and leucorrhoea
11. The leaves are boiled and applied on boils and swellings.

Chemical constituents

Shatvari is known to possess a wide range of photochemical constituents which are mentioned below.

- a. Steroidal saponins, known as shatvarins. Shatvarin I to VI are present. Shatvarin I is the major glycoside with 3-glucose and rhamnose moieties attached to sarsapogenin,^[3-6] Recently, Shatavarin V, Asparinins, Asparosides, Curillins, Curillosides have also been reported.
- b. Oligospirostanoside referred to as Immunoside,^[7]
- c. Polycyclic alkaloid-Aspargamine A, a cage type pyrrolizidine alkaloid,^[8-10]
- d. Isoflavones-8-methoxy-5, 6, 4-trihydroxy isoflavone-7-O-beta-D-glucopyranoside,^[11]
- e. Cyclic hydrocarbon-racemosol, dihydrophenantherene,^[12,13]
- f. Furan compound-Racemofuran,^[14]
- g. Carbohydrates-Polysaccharides, mucilage,^[15]
- h. Flavanoids-Glycosides of quercetin, rutin and hyperoside are present in flower and fruits,^[16]
- i. Sterols-Roots also contain sitosterol, 4, 6-dihydroxy-2-O (-2-hydroxy isobutyl) benzaldehyde and undecanyl cetanoate,^[17]
- j. Trace minerals are found in roots-zinc (53.15), manganese (19.98 mg/g), copper (5.29 mg/g), cobalt (22.00 mg/g) along with calcium, magnesium, potassium zinc and selenium,^[18,19]
- k. Kaepfrol-Kaepfrol along with Sarsapogenin from woody portions of tuberous roots could be isolated,^[20]
- l. Miscellaneous-Essential fatty acids-Gamma linolenic acids, diosgenin, quercetin 3-glucourbnides. This plant also contains vitamins A, B1, B2,C, E, Mg, P, Ca, Fe, and folic acid,^[21-23]

Pharmacological actions

In young females

PCOS (Polycystic ovary syndrome)

PCOS is a hormonal disorder that affects women during their reproductive age. This is a really a very serious problem nowadays and is very common and if not treated on time which may lead to infertility.” Shatavari” is mentioned as an herb of choice to treat various reproductive issues related to female health. Menstrual irregularities are effectively managed by Shatavari by maintaining the balance between hormones and the target cells. It stimulates

and promotes the follicular development and growth which is the main reason to develop ovum that is required for conception. Ovulation which is initiated and maintained by the hormone FSH and LH hormone. It also balance estrogen and progesterone it is main hormone for conception. Dayani Siriwardene S A, Karunathilaka L et. al has proved that powder of Shatavari (*Asparagus racemosus*), along with other herbs taken twice is helpful to correct the hormonal influence and enhances the follicular maturity. It was observed that there is reduction of polycystic appearance of ovaries and improvement of follicular maturity in USG reports. LH/ FSH hormone reports revealed that the ratio came to the normal level, even 75% of the patients get conceived by such management.^[24]

Dysmenorrhea and Premenstrual syndrome (PMS)

Dysmenorrhoea literally means painful menstruation. It is one of the most common gynecological problems.^[25] The constituents of *Asparagus racemosus* make it useful in menstrual disorders such as dysmenorrhea, premenstrual syndrome, irregular bleeding during perimenopausal period and also in situations after menopause. *Asparagus racemosus* contains saponins that might have hinder the oxytocic activity on the uterine musculature, thereby maintaining spontaneous uterine motility, confirming its utility in dysmenorrhea which comprises of painful menstruation without significant pelvic pathology.^[3] Ethyl acetate and acetone extracts of roots of *A racemosus* block spontaneous motility o the virgin rat's uterus. These can also inhibit the spasmogenic effect of Ach, barium chloride and serotonin on the uterus, futher confirming its activity in relieving dysmenorrhea.^[26]

Leucorrhea

Leucorrhea is a condition where a thick and sticky discharge releases from the vagina of women. All women during their reproductive years' experience this. The in vitro anticandidal activity of *Asparagus racemosus* roots and tubers extract was investigated against *Candida albicans*, *Candida tropicalis*, *Candida krusei*, *Candida gullillermondii*, *Candida parapsilosis* and *Candida stellatoidea*, which are isolated from vaginal thrush patients. The extract of *Asparagus racemosus* showed high degree of activity against all the *Candida* strains. The inhibitory effect of the extract against all the *Candida* tested was forcomparable with that of standard antibiotics used.^[27]

Female infertility

It has been demonstrated that the Shatavari containing preparations stimulates haemopoetic function and increase weight of accessory sex glands.^[24, 28-29] Enhancing folliculogenesis and

ovulation, preparing womb for conception, preventing abortions, Shatavari is beneficial in female infertility.^[30,31] *Asparagus racemosus* extract containing formulation was found to cause an increase in uterine weight and uterine glycogen without altering serum estrogen progesterone levels in immature rats as against ovariectomized rats used as control. Study also indicates that the phytoestrogen performs its function by binding directly to the estrogen receptor without enhancing the endogenous estrogen levels.^[32]

During pregnancy

There are many reasons to say a pregnancy as a high risk and complicated one – repeated miscarriages (bad obstetric history), threatened abortions, oligohydraminos –which in turn a main reason for second trimester abortions and preterm labour, PIH(pregnancy induced hypertension) The obstetric complications most commonly seen in early pregnancy include threatened and inevitable abortions, incomplete, missed and complete abortions.^[25] Steroidal saponins, known as satavarins, satavarins I to VI are present. Satavarin I is the major glycoside with 3-glucose and rhamnose moieties attached to sarsapogenin. (ref: PUBMED) The saponin rich fraction was shown to have antioxytotic activity. The saponin inhibited oxytocin induced uterine contractions in vivo and is just like the estrogen (phytomedicine – Michael thomson, 2002).^[3] Antiabortifacient activity of Saponin glycoside A4 produces specific and competitive blockade of pitocin induced contraction and spontaneous motility.^[33] The polycyclic alkaloid asparagamine A is also reported to have an antioxytotic effect, showin an antiabortifacient effect.^[10] Therefore by the antioxytotic activity the steroidal saponin can prevent habitual abortions.

Here are some salient features of using shatavari dring pregnancy

Stimulate the immune system of the body

Some researchers have stated that the root extract of shatavari stimulates the immune boosting cells of pregnant women. It contain an active compound called Spaogenin which is the powerful immune modulator and prevents the Early intrauterine infections.

Folic acid- Shatavari is the richest sourc of folic acid that provide nutrition for the fetal development. As the folic acid reduce the chances of heart related problems, help in the neural development of the fetus. It also maintain the health of the pregnant mother and prevents cancer too.

Calcium- As pregnant women need a proper amount calcium to support the fetal development. It also help in bone formation and prevent abnormal fetal development.

Vitamins- Vitamin E, B6, C increase the immune response of mother and the foetus thereby prevent the antenatal infections.

Vitamin B6- It prevent nausea, vomiting and helpful in control of hyperemesis which is the main cause for oligohydraminos. It regulate the blood pressure and maintain the aminiotic fluid level.

Vitamin C- It also forms collagen fibres which are the main protein that helps in the formation of skin and other connective tissues.

Vitamin K – It maintains the cardiovascular functions of blood vessels of mother and baby thereby maintain the placental circulation.

Glutathione- High content of Glutathione in the plant act as antioxidants which counteract the oxidative damage to foetal damage to foetal DNA by the free radicals and thereby prevents birth defects.

Immunological activity^[34]

Few animal studies found that *A. Racemosus* is capable of producing leucocytosis with neutrophilia and furthermore is able to prevent myelosuppression by reducing cyclophosphamide induced leucopenia. Thereby it prevents the early intrauterine infections.

In case of PIH

PIH is caused by maternal causes such as obesity, fluid retention. PIH leads to eclampsia, IUD, oligohydraminos, IUGR, low APGAR.^[24] *A. racemosus* root extract has shown to treat pre eclampsia associated with pregnancy. PGI₂ and NO are the important vasodilators, the deficiency of which causes PIH. Essential fatty acid (GAMMA LINOLENIC ACID) of *Thanneer vittan kilangu* helps in the production of PGI₂ thereby prevents PIH. Antioxidant activity of the species prevent PIH by preventing placental peroxides which otherwise may lead to endothelial cell damage which further can cause an imbalance between vasodilators and vasoconstrictors leading to PIH. Anti-ADH activity also helps in maintaining blood pressure and decreasing edema of pregnancy by causing diuresis.^[35] Asparagus is also a rich source of RUTIN, (A flavonoid with anti-inflammatory properties).studies showed that Rutin enhances the permeability of capillaries, strengthens the blood vessels and protects them from becoming fragile. Rutin also prevents the hardening of arteries by reducing the viscosity of blood and helps in reducing hypertension.

Postpartum tonic

Thanneer vittan kilangu (Shatavari) root has several beneficial properties for postpartum and breastfeeding mother which warrant making it a staple in a new mother's pantry.

Increase milk production

A.racemosus is termed as *par peruki* ie. Galactagogue in *Siddha*. Breast milk is the perfect food for babies. Even the World Health Organization (WHO) recommends mothers to exclusively breastfeed their babies for the first six months to achieve optimal growth, cognitive development and health. Shatavari contains steroidal saponins mainly shatavarins that helps to increase the production of milk. It also helps nurture the health of the foetus. A study published in (*Iranian Journal of Pharmaceutical Research in 2011*) pointed out the benefits of Shatavari consumed by lactating mothers. During the study, capsules containing Shatavari roots given to lactating mothers. The dosages were given according to their body weight. Approximately 60 mg of Shatavari per kg of body weight was given to 70 women during the study. The subjects had three capsules of the herb with milk for 30 days. At the end of the study, it was seen that: Mothers who took the Shatavari capsules had an increase in mean prolactin hormone levels as compared to a mother who received a placebo drug during the study. Prolactin is the hormone responsible for increasing breast milk supply in lactating mothers. Both the mother and babies showed a substantial increase in weight after consumption of the herb after the study. During postpartum period,

It reduce stress and anxiety: Due to adaptogenic properties

Help with hormonal balance: Due to phytoestrogenic property

Rebuilds strength and vitality: It act as a rejuvenative

Antioxidant and immunity booster

Shatavari is also rich in antioxidants, which help protect cells from damage and oxidative stress and support postpartum healing. It may also boost immunity, which can give a much needed support the new mother's weakened immune system.

For menopause

Ageing affects both physical and mental health of every human being especially in women. In women, menopause is one of the important natural and unavoidable ageing events which occur between 45-55 years. Postmenopausal women are at a risk of developing diseases like osteoporosis, cardiovascular diseases. HRT has its limitations because of various side effects like breast carcinoma and endometrial carcinoma.^[25] Phytoestrogens are now being thought

beneficial in such patient and attracting the world. *Asparagus racemosus* is well known for its phytoestrogen properties and acts as a hormone modulator and can be effectively used for the management of menopausal females.

CONCLUSION

After going through all these studies, it can be concluded that *Asparagus racemosus* is useful in various female health issues like polycystic ovarian diseases, Dysmenorrhea, Premenstrual syndrome, Infertility and Menopause. Numerous studies have been conducted on different parts of *A. racemosus*, this plant has developed as a drug by pharmaceutical industries. Existing preparations of *Thanneer vittan kilangu* can be used for solving female health issues also there is a great scope for development of new Ayurvedic preparations from *Asparagus racemosus* to treat various female health issues as a result of its effectiveness and safety.

Conflict of interest statement

We declare that we have no conflict of interest.

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