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Formulation and Evaluation of Shatavari Granules

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Abstract: *Shatavari (Asparagus racemosus Wild.) is one in all the several plants having multitude of advantages. Asparagus racemosus (Shatavari) is suggested within the writing for the interference and treatment of generative disorders of girls like sexual debility, ammenorrhea, dysmenorrheal, dysfunctional female internal reproductive organ hemorrhage, adenomyosis, gonorrhea, prolapse of womb etc. It is also recommended as a galactogogue just in case of lactational inadequacy. Asparagus racemosus has been with success employed by some medical practitioners as Associate in Nursing medication, anti-microbial and immunomodulator for several infectious diseases. Asparagus racemosus will also improve the milk production and copy capability of dairy farm animals. the utilization of Asparagus racemosus may boost the immune system and consequently forestall the infection of the mammary gland and generative organs of cows. It may be effectively accustomed reduce the strain of dairy farm animals and improve their productivity therefore manufacturing clean and healthy milk from them. the traditional history of Bharat is extremely made in flavouring medication and one in every of the oldest living system of health care within the world and called writing derived from its ancient Indic roots 'ayur' (life) and 'ved' (knowledge). It offers an expensive, comprehensive outlook to a healthy life. Originated from Bharat around 5000 years past it's currently spreaded its essence across the world and has occupied a main position in health care systems..*

Keywords: Asparagus recemoaus, Granules, Ayurveda, Shatavari root

I. INTRODUCTION

Shatavari [Asparagus racemosus] is one of important hearb for uses human health care,it is belongs to Asparagaceae.it is traditionally used as female reproductive tonic.Shatavari are known as many names Shatmooli,Bhusuta,Indeevrietc.Asparagusracemosus are having Madhur vipaka (post digestive effect) Madhur-tikta Ras(Sweet-bitter taste).(1) Shatavari forming many action like diuretic, antispasmodic the important action is nervine tonic. Shatavari treated the Inflammations, agalactia, tumours. ‘‘Swasthasyas was tharakshanamathurasyavikar prasamanam’' (2) Female having actions of Balya and Rasayan is important role of Shatavari to maintain Swasthya (Health).fetus health dependent on Garbhini (pregnant lady).

Asparagus racemosus (Shatavari) is an indigenous medicinal plant of the family Liliaceae. It is commonly known as Satamuli in Hindi and is a perennial climbing shrub with fleshy roots. Satavari is known as queen of herbs, mainly used in Ayurveda and Unani systems of medicine.it is useful for growing healthy baby and pregnant lady .The functioning of Shatavari is galactagogue are well known. The capacity of Shatavari is to treat many female diseases eg. Dysmenorrhea, premenstrual syndrome. Shatavari is very useful and beneficial plant for human beings especially females.

II. METHODOLOGY

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. Ayurveda literature including Samhita and Nighantu related to Shatavari (Asparagus racemosus) were also studied out.

2.1 Profile of Plant

Genus : Asparagus	**Subfamily:** Asparagoideae	**Synonyms:** Shatmooli, Narayani, Bhiru, indeevari, bahusuta, Virya, Madabhanjani, Shatpadi, Shatvirya
Species : Asparagus racemosus L	**Order:** Angiosperms	

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Kingdom: Planate	**Clade:** Angiosperms	
Family: Asparagaceae	**Latinname:** Asparagusracemosus	

2.2 Distribution

Plant occurs throughout India, tropical and subtropical parts including Andamans and almost commonly ascending up to an altitude of 4000 feet in the Himalayas and in Ceylon

2.3 Plant Description

Asparagus racemosus (satavar, shatavari, or shatamull, shatawari) is a species of asparagus common throughout India and the Himalayas .and northern Australia. It grows 1–2 m (3 ft 3 in – 6 ft 7 in) tall and prefers to take root in gravelly, rocky soils high up in piedmont plains, at 1,300–1,400 m (4,300–4,600 ft) elevation. It was botanically described in 1799. Because of its multiple uses, the demand for Asparagus racemosus is constantly on the risdestructive harvesting, combined with habitat destruction, and deforestation, the plant is now considered "endangered" in its natural habitat.

Fig. 1: Leaves and Roots of Shatavri

Parts Used : Asparagus racemosus roots

Doses: Decoction 50-100ml, powder 3-6gm,Juice 10-20ml.

2.4 Pharmacological Actions

It is considered both a general tonic and a female reproductive tonic. Shatavari may be translated as “100 spouses”, implying its ability to increase fertility and vitality. In Ayurveda, this amazing herb is known as the “Queen of herbs”, because it promotes love and devotion.

2.5 Chemical Constituents

Important Chemical Constituents of Shatavri Roots

Output Total Words 135 Saponins includes shatavarin one, shatavarin two, shatavarinthree, shatavarin four ar gift in roots.[9-11] Polycyclic organic compound like aspargamine A, and oligosaccharide in roots also are reported in some analysis.[12] Shatavari contains flavanoids, glycosides of quercitin, rutin and hyperosidear also gift in flowers and fruits. Quercetin 3-glucuronide ispresent in leaves.[13] Few trace minerals like atomic number 30 (53.15),manganese (19.98), copper (5.29), cobalt (22.00 mcgper gram) together with metal, magnesium, potassium, zincand chemical element.[14-15] The callus culture of Shatavarih as shown synthesis of sarsasapogenin.[16] a brand new isoflavone,8-methoxy-5, 6, 4′-trihydroxyisoflavone-7-O-β-dglucopyranoside was additionally isolated from Shatavari previously. [17] The isolation and characterization of polycyclic organic compound referred to as asparagamine,[18] isolation of anew 9, 10-dihydrophenanthrene by-product named racemosoland kaempferol were additionally done from the ethanolic rootextract of A. racemosus.

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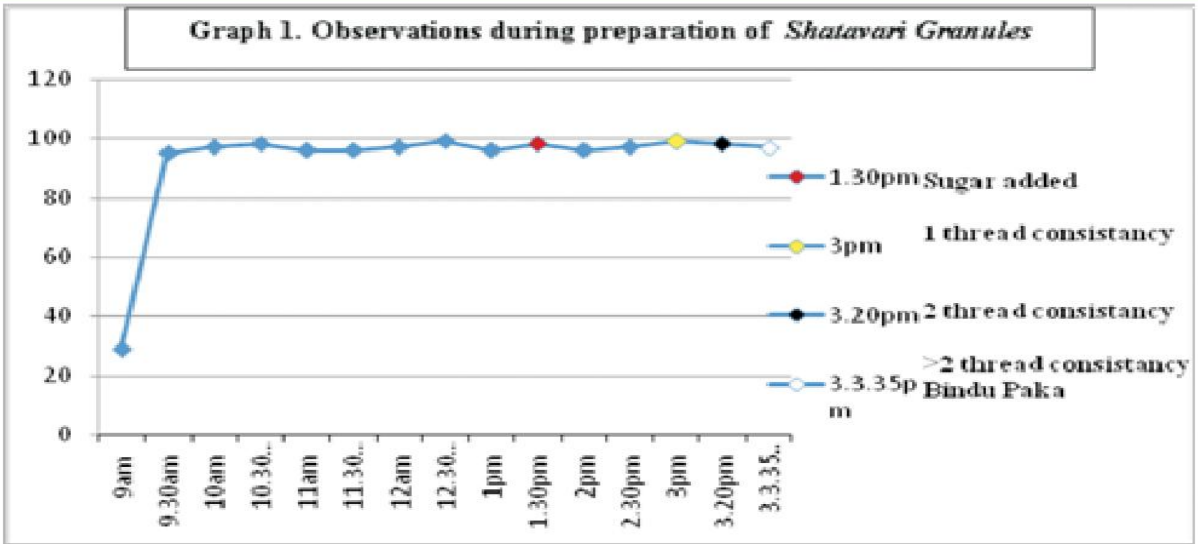
III. MATERIALS AND METHODS

Raw materialslike Shatavari root (Asparagus racemosa) (Pic 1) and FTO Elettaria cardamom( ) were collected from authentic sources and were valid by pharmacognosy science laboratory and preparation of Shatavari Granules was administrated at medicinal garden of Samarth institute of pharmacy belhepune , Maharashtra. Organoleptic characters, microscopic characters, chemistry analysis, microbial contamination were studied inanalyticallab as per API standards.

3.1 Preparation of Shatavri Granules

Fresh asparagus root piled of hard theired of the middle is removed completely the roots are crushed and excrats the juice .The juice in taken a thick pot and sugar is added to it the mixture is heated to melt the sugar than reduce the cryastal of sugar during process continuous string is required than mixture with when mixture is get thicker then stop the heating Cool down rapidly. Continuousstrring is required to avoid the lump formation this process converted molten sugar to granules after this performing cardamom powder is added the mixture is cooled down mix thoroughly the granules are dried and stored in air tight container . Shatavari are the used in for nourishment the female for pregnancy and in lactating women.



3.2 Analytical Study

Analytical study was done to ascertain the fundamental standards for Shatavari granules as there's no book customary guideline. The formulation was initial tested for organoleptic parameters like color, odor and take a look at (Table 2).Physiochemical analysis includes Loss on drying at a hundred and five C,Total ash,0 Acid Insoluble ash, Alcohol Soluble extractives, Water Soluble extractive, pH, Bulk density, Tap density and Particle Size (Table 3) Microbiological.specifications were tested to validate its safety for internaluse. family Enterobacteriaceae, Totalfunguscount, E-coli, Salmonella, staphylococci Aureus and genus Pseudomonas Aueruginosa were performed as per CCRAS parameters (Table 4). Analysis ofsamples were conducted in analytical lab of Samarth institute of pharmacy belhepune, Maharashtra.

IV. OBSERVATION AND RESULTS

After adding the Sharkara to the stewing (decoction) effervescence was observed that subsided on constant stirring. Gradual thickening of sweetening .consistency of Tantumatwam and Darvi.

Batch	ShatavariKwatha (in l.)	Sharkara (in Kg)	Time required for preparation	Final Yield (in Kg)
AR1	4	10	6 hr35min	11.10
AR2	4	10	6hr42 min	10.90

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AR3	4	10	6hr45min	11.20
		Avg	**6 hr 40**	**11.06**

Table 1: Quantityn of ingredient and yield obtained in preparation of Shatavari granules

Table 2: Average result of organoleptic parameters of Shatavari granules

Parameters	Pharmacopeia Standard	Committee standard	Observations	Inference
color	Not available	Cream	Cream	Acceptable
odor	Not available	None	None	Acceptable
Taste	Not available	Sweetish	Sweetish	Acceptable

Table 3: Average result of physico-chemical parameter of Shatavari Granules

Parameters	Pharmacopeia Standard	Committee standard	Observations	Inference
Color	Not available	Cream	Cream	Acceptable
Odor	Not available	None	None	Acceptable
Taste	Not available	Sweetish	Sweetish	Acceptable
Parameters Evaluated	Pharmacopeia Standard	Committee standard	Avg. of three Batches	Inference
Loss on drying at 105^{o}C	Not available	Not more than 6%	3%	Acceptable
Total ash	Not available	Not more than 6%	5.7 %	Acceptable
Acid Insoluble ash	Not available	Not more than 0.5%	0.5%	Acceptable
Alcohol Soluble extractives	Not available	Not less than 20%	25%	Acceptable
Water –Soluble extractive	Not available	Not less than 50%	54%	Acceptable
pH	Not available	-	4.0 (10% aqueous solution)	Acceptable
Bulk density	Not available	0.642gm/ml	0.642 gm/ml	Acceptable
Tap density	Not available	0.810 gm/ml	0.810 gm/ml	Acceptable
Particle Size	Not available	2 to 4 mm size	2 to 4 mm size	Acceptable

Parameters as per CCRAS	Pharmacopeia Standard	Observations	Inference
Enterobacteriaceae	10^3/ g	Absent	Acceptable
Total fungus count	Maximum 10^3/ gm	Absent	Acceptable
E-coli	Maximum 10/ gm	Absent	Acceptable
Salmonella	None	Absent	Acceptable
Staphylococcus aurous	Absent	Absent	Acceptable
Pseudomonas aueruginosa	Absent	Absent	Acceptable

Table 4: Average result of Microbiological specifications of Shatavari granules for Internal Use

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Pic 1: Raw Shatavari root

Pic 2: Prepration of Shatavari root

Pic 3: Shatavari Granules

V. CONCLUSION

1 kilogram Shatavari granules is ready from 200 gm Shatavari root in average six.40 hrs at 90-100 0C ceaselessly maintained temperature. Constant hygiene is needed to rule out any risk of microorganism contaminations throughout preparation of granules. As standards for Shatavari granules are not mentioned in API, thus analytical findings of present study is thought of for future analysis.

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