

ORIGINAL RESEARCH ARTICLE

Pharmacognostical and Physico-chemical Evaluation of Soya Seed Granules

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ABSTRACT

Menopause is a normal, natural event—defined as the final menstrual period and usually confirmed when a woman has missed her periods for 12 consecutive months at age 45 to 55 years. Troublesome symptoms during this phase are supposed as due to lack of female hormone “Estrogen”. So, *Soya* seeds have selected to combat this situation as it contains phytoestrogens, as a better alternative of hormone replacement therapy (HRT) to manage menopausal symptoms without any side effect. Pharmacognostical findings like crystals, aleuronic grain, oil globules etc. confirm the ingredients present in the finished product. Physico-chemical evaluation findings show that ash value 1.8 % w/w, pH 6.5.

Key word: Menopause, Soya seeds, Pharmacognosy, Physicochemical.

INTRODUCTION

Right from adolescence, a woman undergoes a number of changes both physically and mentally. One of the natural transitions experienced by every woman, who has attended the menstrual cycle, is menopause. Menopause is defined as the culmination of women’s reproductive life in which ovaries does not Ovulate! Estrogen levels falls! No periods! No pregnancy and confirmed when a woman has missed her periods for 12 consecutive months at age 45 to 55 years^[1]. As per Ayurvedic classic menopause is not a disease but is a natural transition^[2] in women but, due to alteration of lifestyle and food habits, this natural phenomenon is reflected with so many problems as hot flashes, sweating, skin changes, night sweating, alteration of menstrual function, abnormal bleeding and psychic disorders including sleep disturbances, paresthesia, headache, noises in ears, irritability, anger, depression, anxiety, reduced sexual urge, vaginal dryness, pruritis vulva, lower BMR, etc. commonly called as menopausal syndrome^[3]. These symptoms may exacerbate when there is misuse or overuse of the mind, body, emotions, or senses as woman strains her mind too much. These changes are supposed due to hormonal deficiency dominated by geriatric changes in Modern Science and hormone replacement

therapy (HRT) and anti-depressants is only answer provided by them but it has created newer health issues^[4].

There are many researches has been conducted on natural products which claims that many herbal product having activity equal to female hormones which can be use in place of HRTs for e.g. *Shatavari*, *Soya seeds*, *Ashwagandha*, *Shatpushpa*, fennel etc.^[5]

So, Soy has selected for the present study to ensure its phytoestrogenic activity along with *Ayurvedic* concept of *Ajasrik Rasayana*, as it is frequently using by all over world as a better alternative of HRT to manage menopausal symptoms without any side effect. In contrast, for the first time undertaken pharmacognostical and physico-chemical analysis of soya seeds granules.

MATERIALS & METHODS

Procurement of raw material:

Flour of soya seeds was purchased from market by the pharmacy, Gujarat Ayurved University, Jamnagar and separated for physical impurities like sands, small stone particle etc. The ingredients and the part used are given in (Table 1).

Methods of Preparation of soya seeds granules: Powder of soya seeds (sieve No.85) was taken and roasted in an oven, temperature up to 65°C for 6-7 hours and then poured in to thick syrup made from sugar and then mixture was passed through sieve no. 10 to make granules and subjected to shade dry. Dose of granules kept 5gm B.D. with luke warm water after meal for three months with 2 month follow up in 15 days interval.

Pharmacognostical Evaluation:

Raw drugs were identified and authenticated by the Pharmacognosy laboratory, I.P.G.T& R.A., Gujarat Ayurveda University, Jamnagar. The identification was carried out based on the morphological features, organoleptic features and powder microscopy of the drug. Later, pharmacognostical evaluation of the soya seeds granules was carried out. Fine particles are separated and dissolved in small quantity of distilled water, studied under the Carl Zeiss trinocular microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.^[6]

Pharmaceutical Evaluation:

Soya seeds granules were analyzed by using qualitative and quantitative parameters at Pharmaceutical chemistry laboratory of I.P.G.T & R.A., Gujarat Ayurved University, Jamnagar^[7].

RESULTS

Pharmacognostical study:

Organoleptic characters-

Organoleptic characters of Soya seeds granules are tabulated in (Table 2).

Powder microscopy-

All the microscopic characteristics identified in granules, the characters obtained were recorded. Details are tabulated in (Table 3). Microphotographs provided in (Plate 1).

Physico-Chemical Parameters:

Physico- chemical Parameters of granules like loss on drying, ash value, water soluble extract, methanol soluble extract, pH and Qualitative Molisch's test for sugar were all found to be within the normal range. Details are tabulated in (Table 4).

DISCUSSION

The objective of the current article is to explore, analyze and standardized this compound scientifically through qualitative, quantitative parameters by physico-chemical analysis and Pharmacognostical measures. This approach will signal a new era towards the use of *phytoestrogens* in such menopausal patients to

improve the quality of life. Preliminary step to reach the goal of standardization in case of herbal medicine is to strictly follow the parameters of Pharmacognosy and Phyto-chemistry. Pharmacognosy study helps in authentication of the commonly used drugs through morphological, organoleptic and histological parameters. In the present study the formulation consists of single plants which were proved to be genuine by assessing the organoleptic characters and powder microscopy features. Reports obtained after conducting the primary physicochemical analysis were within in normal limit. Hence this study can be used in future quality control studies.

CONCLUSION

The accurate identification and guarantee of purity through Pharmacognosy and pharmaceutical chemistry measures is inescapable ladder needed for the quality assurance and standardization of any of the herbal medicine whether it is single drug or formulation. The present work was carried out with an aim to study Pharmacognostical and Physico-chemical parameters of herbal drug *Soya* seeds. The results obtained were within normal limits suggesting that the drugs used for this formulation were authentic and is safe to be used in patients suffering from menopausal syndrome. The present work can be a stepping step for further research work in this regards.

ACKNOWLEDGEMENTS

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Table 1: Botanical identity of Soya seeds

S.No	Name	Pharmacopial name	Botanical name	Family	Part used	Ratio
1	Soyabean	<i>Lecithinum ex soya</i> Merr.	<i>Glycine max</i> (L.)	Fabaceae	seeds	single

Table 2: Organoleptic characters of Soya seeds granules

S.No	Drug	Nature	Colour	Odour	TASTE
1	Soya seeds granules	Granules	Light yellow	Oily smell	Mucilaginous sweet characteristically like pulses

Table 3: Powder microscopy of Soya seeds granules

S.No	Name	Botanical Name	Microscopical Characters
1	Soya seeds granules	<i>Glycine max</i> (L.)	Prismatic crystal of calcium oxalate. Endosperm in surface view. Fragment of cotyledon. Fragments of sub epidermis cells. Iodine stained starch cells and aleurone grains Lower epidermal palisade cell. Oil globule with aleurone grains. Simple starch grain with hilum. Spool shaped cells. Testa in surface view

Table 4: Analytical characters of soya seeds granules

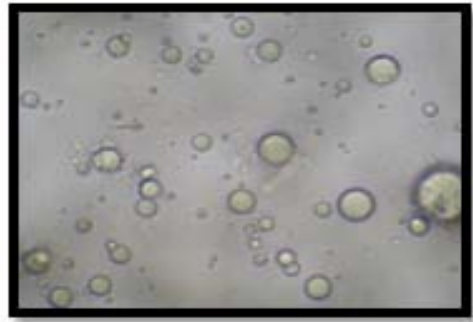
S.No	TEST	RESULT
1	Loss On Drying	7.65 % w/w
2	Ash Value	1.8 % w/w
3	Water Soluble Extract	33.590 % w/w
4	Methanol Soluble Extract	11.56 % w/w
5	pH	6.5
6	Qualitative Molisch's test for sugar	Positive

Plate 1: Microphotographs of Soya seeds

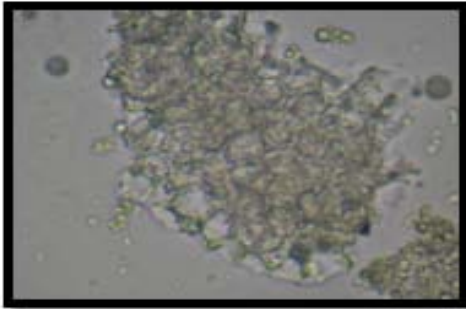
Prismatic crystal



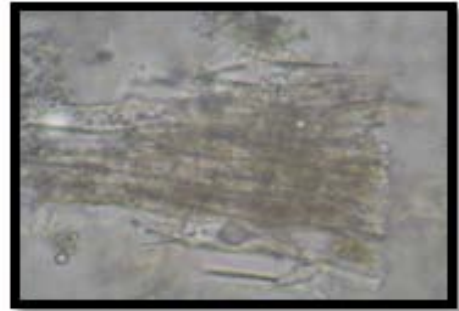
Oil globules



Endosperm in surface view



Lower epidermal palisade cell



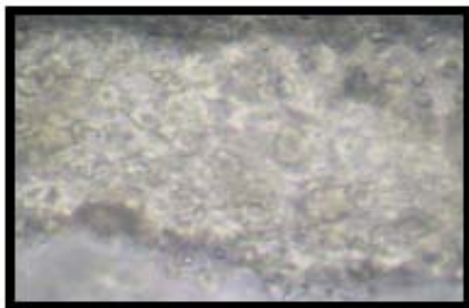
Fragment of cotyledon



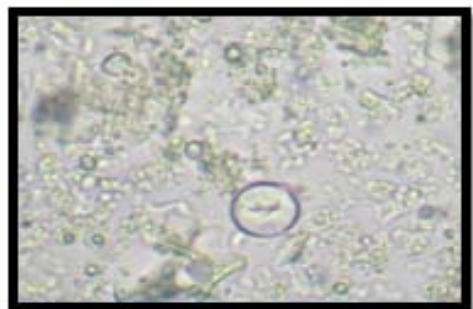
Simple starch grain with hilum and Prismatic crystal



Fragments of subepidermis cells



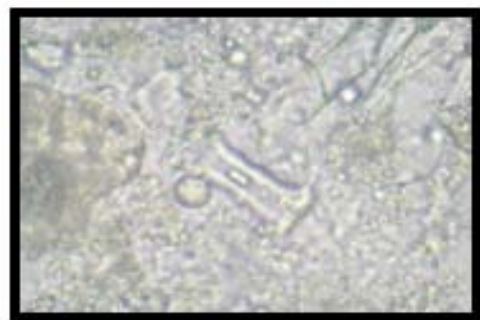
Simple starch grain with hilum



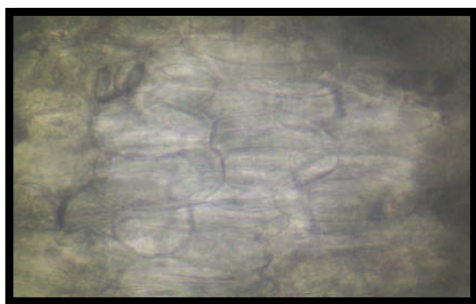
Iodine stained starch cells and aleurone grain



Spool shaped cells



Testa in surface view



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