ABSTRACT

The event of male infertility in any person’s life, often makes him turn towards traditional medicine. Ayurveda is having high esteem and trust in this field. *Shalaparni* (As per API *Desmodium gangeticum* DC) is mentioned in *Agraya-prakarna* by Acharya Charaka for *Vrshya-karma*. Here *Shalaparni* granules were prepared to increase the palatability and shelf life of the drug. An effort has been made in this paper to scientifically review and explain the Pharmacognostical and Pharmaceutical characteristics of *Shalaparni* granules hypothetically.

**Aim:** The aim of the present study was to setting up a standard profile of *Shalaparni* granules which was prepared subjecting it to detail of pharmacognostical features, physicochemical features and phytochemical features evaluation.

**Materials and Methods:** Raw drugs of *Shalaparni* were collected from the Rajpipla Govt. pharmacy, Gujarat. Identification and authentication of *Shalaparni* granules were performed at Pharmacognosy Laboratory, I P G T & R A, Jamnagar. *Shalaparni* granules were prepared at laboratory of Rasashasta and Bhaishjyakalpana Department of the Institute. **Results:** Result of Pharmacognostical study shows that the presence of Parenchymal cell, Starch grains, Fragment of trichome with brown content, Stomata with epidermal cells, Group of lignified Vessels, Annular vessel, Fragment of Lignified annular vessel, Border pitted vessel, etc. Pharmaceutical analysis showed 5.066% w/w loss on drying, total Sugar content 54.1 %, pH 7. HPTLC study showed 10 spots at 254 nm and 2 spots at 366 nm. **Conclusion:** The findings of the study will be useful in the identification and standardization of the *Shalaparni* granules.

**KEYWORDS**

*Shalaparni granule, Pharmacognosy, Pharmaceutics, Oligozoospermia, Ayurveda*
INTRODUCTION

Prevalence of infertility changes across the different regions of the whole world and conception is depending on the fertility-potential of male & female both the partner. Males are responsible for about 30–40 % of infertility cases\(^1\). Male infertility affects the person’s mentality, his social behavior and also a feeling of incompleteness due to inability to make a progeny. Thus a male infertility person is not fully fit as per the WHO definition of health i.e. mental, physical and social wellbeing. Thus unable to fulfil the Purusharth Chatusalya because Aarogya (Health) is the root of this Chatuslaya which is the aim of life\(^2\). Oligozoospermia is the main cause of male infertility. Vajikarana is a branch of Astanga Ayurveda, in Ayurveda classics various Vajikarana drugs are mentioned as single or as compound drugs. Charaka Samhita is the prime text of Ayurveda, in which Shalaparni (Desmodium gangeticum DC) is mentioned as the best best Vajikarana drug\(^3\). So Shlaparni granules are taken for the management in this study. As a part of the research protocol Pharmacognosy and Pharmaceutical analytical study are also conducted, so here data is collected and evaluated. Here an attempt is made attempt is made here to produce some standard data for the future studies.

Shalaparni granules have also been indicated in several other conditions as per classic texts which are mentioned below.

a) **Cardiac pain:** Shalaparni boiled with milk is efficacious in cardiac pain\(^4\).

b) **Raktapitta:** Shalaparni with Mudgarasa in Ahara\(^5\).

c) **Vatarakta:** Shalaparni, Prasniparni boiled with milk should be taken\(^6\).

d) **Pediatric diseases:** Decoction prepared from Shalaparni, Prishniparni and Puga bark and mixed with honey pacifies three Doshas and checks all types of diarrhea\(^7\).

**Other uses:** Jvara (fever), Meha, Arsa (hemorrhoids), Chardi (vomiting), Sopha (swelling), Swasa, Kasahara (Cough), Krimi, Rajayakshma, Netra Roga, Hridaya Roga (Heart Diseases), Rakta Gata Vata, Vata Aardhavbhedaka, Mudha Garbha\(^8\).

**Aim:** To setting up a standard profile for Shalaparni-granules by detailed pharmaceutical and pharmacognostical evaluation.

MATERIALS AND METHODS

**Collection of raw drugs:** Raw drugs Shalaparni was collected from the Rajpipala, Gujarat. Shalaparni granules
were prepared in the RS & BK Department laboratory of the I P G T & R A, Jamnagar. The ingredients and parts used in the preparation of the final products are listed in Table No.[1]

**Pharmacognostical study:** *Shalaparni* granules were observed and authenticated by the Pharmacognosy department of the institute, As per API. The identification of Drug was done on the basis of morphological features, organoleptic features and powder microscopic features of the finished products. Here, pharmacognostical evaluation of *Shalaparni* granules was carried out. First granules were dissolved in distilled water and then a slide were made by with glass slide and cover slide then slide were observed under the Carl Zeiss Trinocular microscope. The microscope was attached with a camera. Then first photographs of *Shalaparni* granules slide (finished products) were taken without staining and after that with-staining (phloroglucinol and HCl staining) microphotographs were taken.

**Organoleptic Study:** *Shalaparni* granules were observed for the organoleptic characters like test, color, odor, and touch at the pharmacognosy laboratory of the institute. These all are very important features because they give general idea about the genuineness of the sample.

**Pharmaceutical Evaluation:**

**Physico-chemical parameters:** Important Physicochemical parameters (as per API) like: percentage loss-on-drying of the end product\(^{10}\), pH\(^{11}\) of the granules, percentage water-soluble-extract\(^{12}\), percentage methanol-soluble-extract\(^{13}\), percentage Sugar-estimation\(^{14}\), percentage total-ash-value of the granules\(^{15}\), *Shalaparni* granules were analyzed at the institutional pharmacognosy laboratory.

**High-Performance-Thin-Layer Chromatography (HPTLC):** HPTLC study was performed according to the guidelines provided by API. Methanol soluble extract was prepared and then it was used for the spotting. HPTLC was performed using Toluene: Ethyl acetate (9:1 v/v) solvent system and observed under short UV (254 nm) and long UV (366 nm). Then the color and the \(R_f\) values of resolved spots were noted. Analytical study of *Shalaparni* granules has showed 10 spots at 254 nm and 2 spots at 366 nm.

**RESULTS**

**Microscopic characteristics of Shalaparni granules:** Microscopic evaluation of *Shalaparni* granules was conducted and microphotographs were taken as seen in Plate 1, in which Fig. - 1.1 shows Churna (powder) of *Shalaparni* granules, Fig. - 1.2 Simple starch grains,
DISCUSSION

Pharmaceutical properties of Shalaparni granules had to be studied; hence the formulation was subjected to minimum Pharmacognostical and Pharmaceutical analysis. Pharmacognostical evaluation of Shalaparni granules showed the specific characteristic features found in microscopy such as simple starch grains, iodine stained simple starch grains, compound starch grains, fragments of trichome, with brown content, parenchymal cells, stomata with epidermal cells, group of fibers, group of lignified vessels, annular vessel, fragment of lignified annular vessel, border pitted vessel, pollen grain with brown content, prismatic crystal, rhomboidal crystals were found having similar appearance as API standard of Shalaparni. Ash value was 2.22% which illustrates minimum chances of adulteration in Shalaparni granules.

Extractive values are used for determination of the authenticity and purity of the sample, in this study Shalaparni granules were having 84.41% water-soluble extract and 90.32% alcohol-soluble extract, which confirms that the good quality of Shalaparni was taken for the study. There is a very important role in extractive value in the evaluation of crude drugs. Less extractive value of crude drugs...
reflects the presence of exhausted material and improper processing during drying or storage of the raw drug or adulteration of another material\(^\text{17}\). In the present study, alcohol-soluble extract value of the Shalaparni granules was higher than water-soluble extractive value. So Shalaparni granules constituents were more extracted in alcohol and solubility of the granules were more in alcohol in comparison to water. Loss on drying value was 5.08%, in the present study moisture content of Shalaparni granules was low. Herbal drugs which having low moisture content having higher stability because moisture provides a suitable environment for the growth of the microorganism which causes deterioration of the drugs and its formulations. Shalaparni granules are having good stability in the present study due to its low moisture content.

**CONCLUSION**

The Pharmacognostic study confirms that all proper characteristics were found in ingredient drugs of Shalaparni granules. In this study physicochemical analysis of Shalaparni granules reflects that the formulation meets maximum qualitative-standards of API at the preliminary level. All of the parameters and features observed and discussed here may be useful as identifying tools for the quality assessment of Shalaparni granules. The results of this study may be used as a reference standard in further research undertakings of its kind.
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