

STUDY OF PHARMACEUTICAL & PHYSICOCHEMICAL EVALUATIONS OF CONVULVULUS PLURICAULIS CHOIS - A RESEARCH ARTICLE

Romesh Kumar Jaiswal¹, Manisha Dikshit², Ramesh Chandra Tiwari³ Anoop Kumar Singh⁴, Ved Bhushan Sharma⁵

¹P.G. Scholar, ²Associate Professor, ³Professor, ⁴Associate Professor, ⁵Assistant Professor, P.G. Dept. Of Agad Tantra, UAU, Rishikul Campus, Haridwar, Uttarkhand, India

Email: jaiswalromesh24@gmail.com

ABSTRACT

Shankhpushpi (*Convolvulus pluricaulis* Chois.) belongs to family Convolvulaceae and is found in different regions in India. The appearance of its flower is most like as a “Shankh” (a marine shell) due to which the name given to this plant is *Shankhpushpi* (Pushpa meaning flower). It is a perennial herb, has appearance like morning glory. Flowering and fruiting takes place from November to March. It acts as anxiolytic, tranquillizing, anti-amnesic, antioxidant, hypolipidemic, immunomodulatory, analgesic, antifungal, antibacterial, antidiabetic, anti-ulcer, anti-catatonic and cardiovascular activity. Physicochemical parameters of this plant such as loss on drying (4.62%w/w), Alcohol soluble extractive value (7.46%w/w), Water soluble extractive value (21.64%w/w), Ash value (13.68%w/w) and pH (7.88) was calculated and all these parameters were found in the range of API guide line.

Keywords: *Shankhpushpi*, *Convolvulus pluricaulis*, loss on drying, Ash value, pH

INTRODUCTION

Traditional system of medicine is becoming the new face of present system of medicine. It exists in every continent of the globe and in every cultural area of world. Each of this traditional medicine has its own origin and an individual basic philosophy. In India Ayurveda system of medicine provides health care for a large part of population. *Shankhpushpi* (*Convolvulus Pluricaulis* – Family Convolvulaceae) is an indigenous and most significant herbal plant in Ayurveda. *Shankhpushpi* is a medicinal plant which is perennial prostrate or sub erect spreading hairy herb 10-30 cm long with simple and alternate leaves that seems like

morning glory. It is prostrate and can be more than 30 cm long, flowering and fruiting takes place from November to March. Besides *C. pluricaulis*, *Evolvulus alsinoides* Linn, *Clitoria ternatea* Linn and *Canscora decussata* Schult are also considered as *Shankhpushpi* in different parts of the country. *Shankhpushpi* holds an important place among *Medhya rasayana*¹ because of its rejuvenating property, antioxidant and neuroprotective activity but our Ayurvedic texts such as *Bhava Prakash*, *Kaideva* and *Dhanavantari Nighantus* have also considered its *Vishaghna* property.²⁻³ *Shankhpushpi* having Properties that are men-

tioned in our Ayurvedic texts as *Tikta rasa, snigdha & picchila guna, Sheeta virya* and *Madhur vipaka*⁴. However, this plants proved their scientific potential in central nervous system depression, anxiolytic, tranquillizing, neurodegenerative, anti-amnesic, antioxidant, hypolipidemic, immunomodulatory, analgesic, antifungal, antibacterial, antidiabetic, antiulcer, anticatatonic and cardiovascular activity.⁵



Material and method:

Collection and identification of drug

The plant *Shankhpushpi (Convolvulus pluricaulis)* of weight 6 kg has been collected from Rohatak, Hariyana and it was verified by botanical survey of India (BSI), Dehradun.

Pharmaceutical preparations

a) Preparation of Shankhpushpi Churna

Equipment required- A mortar and pestle, A fine sieve of 80 or 100 number, Mask and gloves, Disintegrator & The raw drug 3 kg in clean and well dried state.

Process of preparations of Churna-

Preparation of *Churna* was carried out at Hans Herbal Pvt. Ltd., Sidcul, Haridwar. The drug *Shankhpushpi* was cleaned and dried then weighed 3 kg which was taken for *Churna* preparation. Dried drug *Shankhpushpi* (whole plant) was powdered with the help of disintegrator. After powdering the drug *Shankhpushpi* was sieved with the help of 100 number sieves to make it more refined for better therapeutic value.

Result- Out of 3kg of dried *Shankhpushpi* 2kg *Churna* was obtained.

Precautions to be followed during preparation-

Churna preparation should be avoided during rainy season because it may be spoiled by moisture from atmospheric condition. Mask and gloves should be

worn during sieving & utmost care should be taken to avoid loss of *Shankhpushpi Churna*.

Preservation-

After preparation of *Churna* the sieved drug was packed in air tight container which gives damp proof protection.



Organoleptic evaluation-

Organoleptic evaluation refers to evaluate the colour, odor, taste and texture of give formulations. *Shankhpushpi churna* was found greenish in colour, odorless, slightly bitter in taste and smooth in texture.

b) Preparation of Kwatha (aqueous extract) of Shankhpushpi

Equipment required- Clean and dried drug in *Yavkuta* form -3 kg, Borosilicate beaker, Clean cloth & Gas stove / induction.

Process of preparation of Kwatha-

For preparing *Kwatha*, *yavkuta* form of drug *Shankhpushpi* was soaked in eight times of water. Next day for the preparation of decoction, soaked drug was boiled until one fourth part of water was left. The prepared *Kwatha* was filtered with the help of fine cloth.

Result- After filtration *Kwatha* of *Shankhpushpi* was obtained in a beaker.

Precautions to be followed during preparation of Kwatha-

Kwatha has to be prepared by utilizing *yavkuta* form of drug *Shankhpushpi*, and Preparation of *Yavkuta* should be avoided in rainy season because in rainy season it may lose its potency, so as per requirement *Yavkuta* should be prepared. Dry drug should be preserved in a glass container. A *Kwatha* has not been allowed to evaporate after the proper strength is

reached, nor it has to be boiled again being once taken off the fire.

Preservation - *Kwath* has to be prepared and used in fresh form.



Physicochemical evaluations

Following Physicochemical evaluation of drug *Convolvulus pluricaulis* have been carried out at **Multani Pharmaceuticals Limited (Analytical division), Makkanpur, Bhagwanpur, Haridwar.**

- Loss on drying
- Alcohol soluble extractive value
- Water soluble extractive value
- Ash value
- pH

Determination of Loss on Drying

Loss on drying was calculated by placing 10 gm of sample into oven at 105°C for three hours and then weight calculated after every thirty minutes until the weight of sample were constant.

Procedure-

Weight of dried & empty Petridis = W_1 gm

Weight of the drug sample = X gm

Weight of the Petridis with drug before drying (W_3) = ($W_1 + X$)

Weight of Petridis after drying = W_2 gm

Loss on drying in % = $W_3 - W_2 \times 100 / X$

Determination of Alcohol Soluble Extractive Value-

For determination of alcohol soluble extractive value 5 gm of course powder of air dried drug (*Shankhpushpi*) were taken and macerated into 95% solution of alcohol (95 ml alcohol+5ml water) in a closed flask for 24 hours, shaking it for six hours and

Results of physicochemical evaluations

was allowed to stand for eighteen hours. Further it was filtered rapidly while taking precautions against loss of solvent. 25ml of filtrate was taken into Petridis (flat bottom) and dried at 100°C until it attained constant weight & then the percentage of alcohol soluble extractive value was calculated.

Determination of Water soluble extractive value-

The procedure of water soluble extractive value was same as the determination of alcohol soluble extractive value but distilled water was used instead of alcohol.

Determination of Ash value-

The total ash value is to measure the amount of drug or sample remaining after ignition. A cleaned silica crucible was dried well and weighted it empty. In this crucible 2 gm fine powdered drug sample was taken. The drug sample was spread evenly into a thin layer. This sample containing crucible was kept into a muffle furnace and it ignited at temperature of approximately 400°C for four hours or more until the ash was totally free from carbon. Then, crucible containing drug sample ash was to be collected from desiccators and weighted to constant weight then percentage of ash value of dried drug was calculated.

Determination pH value-

The common logarithm of reciprocal of the hydrogen ion concentration expressed in gram per liter of any aqueous solution is known as pH value. The pH of *Shankhpushpi Churna* was measured with the help of digital pH meter. First Standardized the pH meter. Tablets of different pH were taken and each tablet was dissolved in 100 ml of distilled water to prepare solutions of different pH and the instrument was switched on and left for some time until required different pH solutions appeared. After that buffer solution was taken in the beaker and the electrode was dipped in it. Same procedure was repeated for the other buffer solution after washing the electrode thoroughly with distilled water and 10% aqueous solution of *Shankhpushpi Churna* was taken (10% aqueous solution) and electrode was dipped in it and the value of pH was noted.

S.N.	Test parameters	Results	Method reference
1.	Description	Greenish colored powder	Visual
2.	Loss on drying (%w/w)	4.62	-
3.	Total ash (%w/w)	13.68	Not more than 17%
4.	pH (as such)	7.88	-
5.	Water soluble extractive (%w/w)	21.64	Not less than 10%
6.	Alcohol soluble extractive (%w/w)	7.46	Not less than 6%

DISCUSSION

LOD is a physical test to detect the percentage of moisture contain. LOD of *Shankhpushpi Churna* was found 4.62%. If LOD is least, then better will be drug. It means it has least moisture content & rare chance for bacterial and fungal growth. In API, reference range of LOD of *Shankhpushpi* is not mentioned.

Total ash indicates presence of inorganic constituent. Total ash value of *Shankhpushpi* was found 13.68%. According to API reference range of total ash of *Shankhpushpi* is mentioned as total ash value not be more than 17%, it means sample drug have no any other adulterants and is safe to use.

pH value helps to determine the nature of sample whether it is acidic or basic. pH of *Shankhpushpi* was found 7.8. So, it was slightly basic.

Water soluble extractive value helps to indicate the nature of chemical constituents present in drug. Water soluble extractive value of *Shankhpushpi* was found 21.64%. According to API reference range of alcohol soluble extractive value should not be less than 6%.

Alcohol soluble extractive value is applied for drug which contains alcohol soluble constituents. For *Shankhpushpi* alcohol soluble extractive value was found 7.46%. According to API reference range of alcohol soluble extractive value should not be less than 6%.

CONCLUSION

Shankhpushpi Churna was evaluated for loss on drying (4.62%w/w), total ash (13.68%w/w), pH (7.88), value water soluble extractive value (21.64%w/w), alcohol soluble extractive value (7.46%w/w) and value of all these parameters were found in the range of API guideline. In my study drug sample which was taken having least moisture content, no any other

adulterants and it is slightly basic in nature. It is an effort of scholar to disclose the physicochemical properties about the wonderful drug *Shankhpushpi*.

REFERENCES

1. Pandit Kashinath Shastri and Gorakhnath Chaturvedi elaborated Vidyotini Hindi commentary, *Charaka Samhita* vol 2, Chapter1/3, Chaukhambha Bharati Academy, Varanasi, redition 2012, page no.39.
2. Krishna Chandra Chunekar, *Bhavprakash Nighantu, Guduchyadi varga*, Shlok no.270, Chaukhamba Bharati Academy, Varanasi, reprint 2004, page no.454.
3. Prof. Priyavrata Sharma, *Kaideva Nighantu, Aushadi varga*, shlok no.1494-95-96, Chaukhambha orientalia, Varanasi, 1st Edition 1979, page no.622.
4. Dr.JLN Shastri, *Drvyaguna vijyana* vol.2, Chaukhambha orientalia, Varanasi, 2nd edition 2005, page no.360.
5. Agarwal P, Sharma B, Fatima A, Jain SK. An update on *Ayurvedic herb Convolvulus pluricaulis* Choisy. *Asian Pacific Journal of Tropical Biomedicine*, 2014; 4(3): 245-252.

Source of Support: Nil

Conflict Of Interest: None Declared

How to cite this URL: Romesh Kumar Jaiswal Et Al: Study Of Pharmaceutical & Physicochemical Evaluations Of Convolvulus Pluricaulis Chois - A Research Article. *International Ayurvedic Medical Journal* {online} 2019 {cited October, 2019} Available from: http://www.iamj.in/posts/images/upload/1830_1833.pdf