ISSN 2581-6217

World Journal of Pharmaceutical Science & Technology

Journal homepage: www.wjpst.com

Original Research Article

PHARMACOGNOSTICAL AND PHYTOCHEMICAL SCREENING OF SUTIKA DASHMOOLA.

Sipika Swati[1], Harisha CR[2], Shukla VJ[3], Laxmi Priya Dei[4]

1. Assitant Professor, Institute of Teaching and Research in Ayurveda (ITRA),Jamnagar, Gujarat, India
2. Head, Department of Pharmacognosy, Institute of Teaching and Research in Ayurveda (ITRA), Jamnagar, Gujarat, India
3. Head, Department of Pharmaceutical Chemistry, Institute of Teaching and Research in Ayurveda (ITRA),Jamnagar, Gujarat, India
4. Head, Department of PTSR, Institute of Teaching and Research in Ayurveda (ITRA),Jamnagar, Gujarat, India

Address for correspondence:

Sipika Swati, Assitant Professor, Institute of Teaching and Research in Ayurveda (ITRA),Jamnagar, Gujarat, India

E-mail- drsipikaswatibhu@gmail.com

Received: 15-02-2021, Revised: 25-02-2021, Accepted: 28-02-2021

ABSTRACT

Background: *Sutika Dashmool* is a a safe and effective formulation indicated for *Sutika* to protect her from *Sutika kaalin vyadhi* (disorders in puerperium) in order to promote early recovery

Aim and Objectives: To develop pharmacognostical and pharmaceutical profile of *Sutika Dashmoola.*

Materials & Methods: The study includes the preparation of *Sutika Dashmoola* following all SOPs using raw drugs, which were previously authenticated. Pharmacognostical study, physicochemical and phytochemical study and Hogh performance thin layer chromatography was performed by following standard procedures.

Results: *Sutika Dashmoola* is light brownish in colour with characterstic odour and astringent in taste. The pharmacognostical study reveals the presence simple and stellate trichomes, Acicular and prismatic crystals, lignified vessels, raphids, presence of epicarp cells of different ingredienyts etc. Pharmaceutical analysis

showed that the loss on drying value was 7.50%, ash value was 5.65%w/w, water soluble extract was 5.32%, methanol soluble was 10.08%, , and pH is 5.4. Methanolic extract of *Sutika Dashmoola* shows presence of alkaloids, flavonoids, phenols, tannin, sugar, steroids, saponin, cardiac glycosides and carbohydrates. HPTLC fingerprinting profile of *Sutika Dashmoola* revealed 3 spots at 254 nm and 1 spots at 366nm.

Conclusion: The present investigation will be helpful in assessing the pharmacognostical, phytochemical analysis and laying down pharmacopoeial standards for *Sutika Dashmoola*.

KEYWORDS

Sutika Dashmool, Sutika paricharya, Puerperium, Pharmacognostic, Phytochemical.

INTRODUCTION

In Ayurveda term "*Sutika*" is used for a woman who has just delivered a baby with expulsion of complete placenta[1]. *Sutika* is not a diseased condition rather it is a physiological condition in the fertile period of a woman. According to Acharya Charak *Sutika* is said to be '*Shoonya Sharira'* after delivery due to exertion of labour, loss of *Kleda* and *Rakta*[2]. There is also profuse *Dhatu kshaya* due to development of foetus. These changes lead to *Ati-aptarpana* during *sutika kala* and causes *Vata vriddhi* which is responsible for several types of health problems such as *stanyadusti*, anaemia, prolapse of uterus, subinvolution and puerperal sepsis etc. So there is a need for proper management which not only improves her physiological condition but also protect her from upcoming diseases. Aacharya Sushruta has also mentioned that after 1.5 month of regulated and restricted specific dietetics and mode of life the women become free from the epithet of *Sutika* and have cited the opinion of others that the woman should be called sutika till she does not restart her menstrual cycle[3]. The *Sutika Kala* is mentioned as six months by Aacharya Kashyapa. He also described the specific dietetic management for one month only[4].

According to Acharya Charaka the *Sharira* of *Sutika* is *Shoonya* due to exertion of labour pains & loss of *Kleda* and *Rakta* & there is a profuse *Dhatukshaya* due to development of foetus. That's why her body is prone to several diseases (Sutika Roga)[2]. There are many complications which occur in puerperal phases which effects the general health of the women like Postpartum haemorrhage, Puerperal sepsis, depleted store of iron and calcium in the body leading to lethargy, fatigue, backache, anaemia etc. It hampers all the upcoming life and health of the female. Even some of the complications are fatal too and some effect the fertility of the patients also. By following proper pathya-apathya and using specific ayurvedic sutika paricharya and drug regimen one can avoid such complications, improve maternal health and decrease morbidity and mortality.

Sutika Dashmool is a combination of *laghupanchmool, Sahachar*, P*rasarini, Vishva*, *Guduchi*, *Mushtaka* as described in *Bhaishajyaratnavali*, is a safe and effective formulation indicated for *Sutika* to protect her from *Sutika kaalin vyadhi* (disorders in puerperium) in order to promote early recovery.[5] So, this study has been planned to establish Ayurvedic safe and effective preparation and standardization of *Sutika Dashmoola*.

MATERIALS AND METHODS

Collection and Authentification

Authentication of the raw materials was done in the Pharmacognosy Laboratory, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University. All the drugs were subjected to morphological, organoleptic study and powder microscopy as per the standard procedures[6]. Microscopic studies with and without stain to find out the lignified materials along with other cellular constituents was done. The micro photographs were taken under Carl Zeiss Trinocular microscope attached with camera.

Pharmaceutical Study

Preparation of *Sutika Dashmoola*

The ingredients of *Sutika Dashmoola* mentioned in *Bhaishajya Ratnavali Sutikaroga chikitsaprakarana 69/*12[4] are mentioned in Table no. 1

Table No. 1 Ingredients of *Sutika Dashmoola*

Sr.no.	***Name***	***Latin name***	**Part used**	**Proportion**
1	*Shalparni*	*Desmodium gangeticum DC.*	*Panchanga*	1part
2	*Prishniparni*	*Uraria picta Desv.*	*Panchanga*	1part
3	*Brihati*	*Solanum indicumLinn.*	*Panchanga*	1part
4	*Kantakari*	*Solanum xanthocarpum Schard & Wendl.*	*Panchanga*	1part
5	*Gokshura*	*Tribulus terrestris Linn*	*Panchanga*	1part
6	*Sahchara*	*Barleria prionitis Linn*	*Panchanga*	1part
7	*Prasarini*	*Paederia foetida Linn*	*Panchanga*	1part
8	*Shunthi*	*Zinziber officinale Roscoe*	*Dry Rhizome*	1part
9	*Guduchi*	*Tinospora cordifolia Willd.*	*Stem*	1part
10	*Mustaka*	*Cyperus rotundus Linn*	*Modified root*	1part

All the ingredients were coarsely powdered separately and then mixed properly.

Physicochemical and Phytochemical evaluation

Assessment of the various physicochemical parameters such as foreign matter, moisture content, ash value, pH, watersoluble extractive, and alcohol-soluble extractive was carried out by following standard procedures recommended by Ayurvedic Pharmacopoeia of India. Phytochemical evaluation for qualitative analysis of the presence of various secondary metabolites was done as per reference[7,8].

HPTLC study

5µl of extract was loaded on E. Merck aluminium plate pre coated with silica gel 60 F_{254} of 0.2 mm thickness and the plate was developed in Toluene: Ethyl acetate (9:1) in twin trough chamber previously saturated with solvent system. After development densitometric scan was performed with a Camag TLC scanner III in reflectance absorbance mode at 254 and 366 nm under control of Win CATS Software (V 1.2.1. Camag) (Stahl, 1969). The plate was then dipped in sulphuric acid reagent and heated in a hot air oven at 105ºC until the colour of the spots appeared and profile photo was documented under white light.

RESULTS AND DISCUSSION

Pharmacognostical

Organoleptic characters: The organoleptic characteristics were as shown in Table. 2

Table 2: Organoleptic characters of *Sutika Dashmoola*

Drug name	**Organoleptic characteristic**	
Sutika Dashmoola	**Colour**	Light brownish
	Odour	Characteristic
	Taste	Astringent
	Touch	Rough

Microscopic characters

Powder microscopy of *Sutika Dashmoola* showed the striking characters of all individual drugs. The data was shown in Figure 1-3.

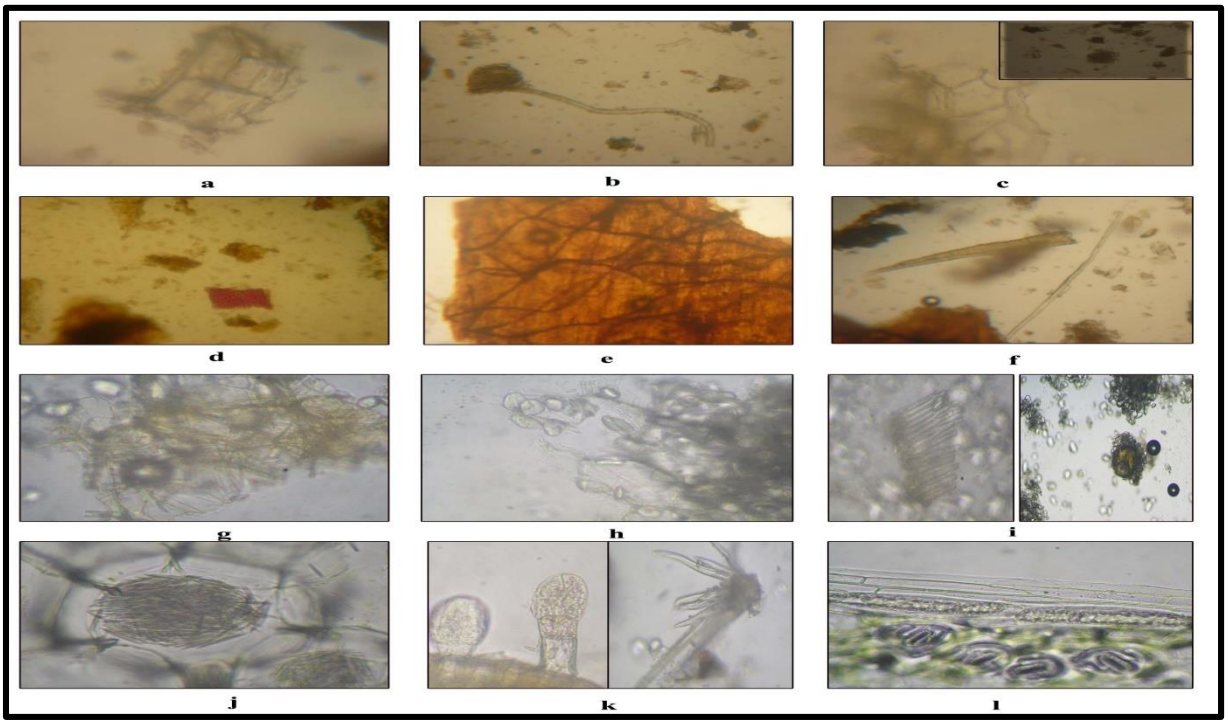

Figure 1: Pharmacognostical profile of Sutika Dashmoola In this, **Microscopic characters of Vatsnabh a.** Cork in surface view, **b.** Fiber, **c.** Parenchyma cells and starch grains, **d.** Pitted vessels, **e.** Resin content, **f.** Trichomes with fiber, **Microscopic characters of Shunthi g.** Cork in surface view, **h.** Parenchyma cells with starch grains, **i.** Scalriform vessels and oleo-resins, **Microscopic characters of Sala j.** Cystolith **k.** Glandular Trichome and Systolith **l.** Stomata with epidermal cells

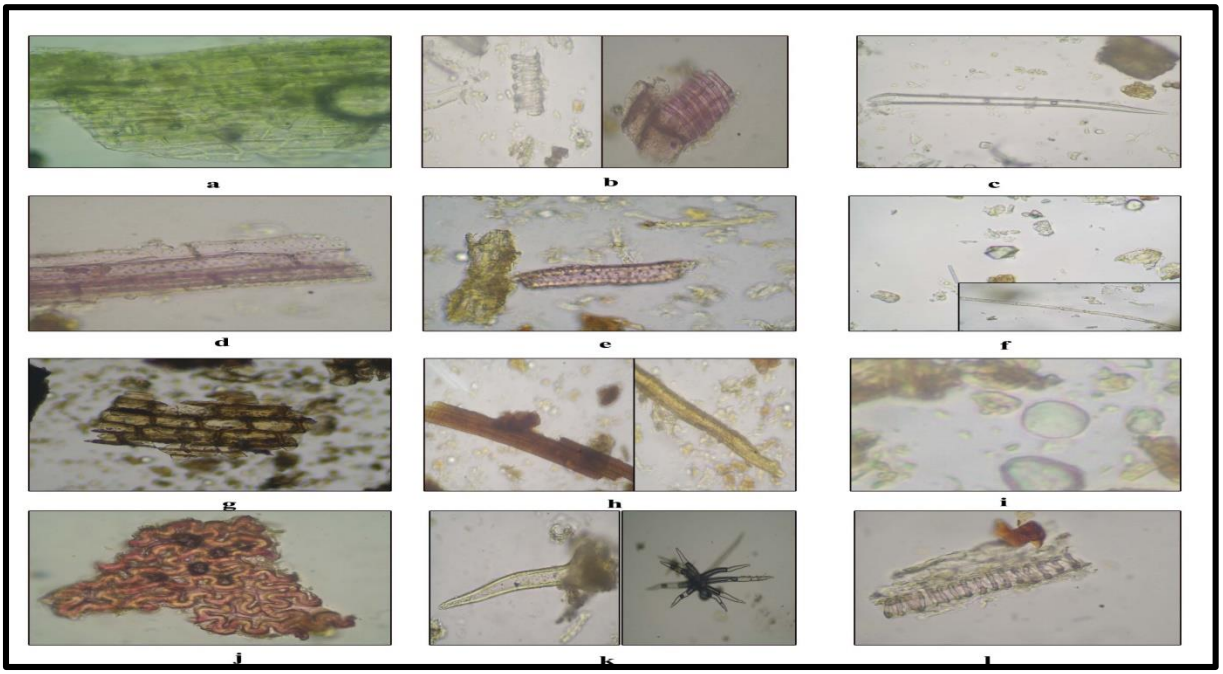

Figure 2: Pharmacognostical profile of Sutika Dashmoola In this, **Microscopic characters of Sahachara a.** Wavy Parenchyma cells, **b.** Spiral vessel and Annular vessel, **c.** Trichome, **d.** Lignified Pitted vessels, **Microscopic characters of Prsna e.** Pitted Vessel, **f.** Rhomboidal crystal and Fibre, **Microscopic characters**

of Musta g. Cork in surface view, **h.** Fiber with brown content and simple fibre, **i.** Starch grains, **Microscopic characters of Kantkari j.** Epicarp cells **k.** Simple Trichome and Stellate trichome **l.** Lignified vessel

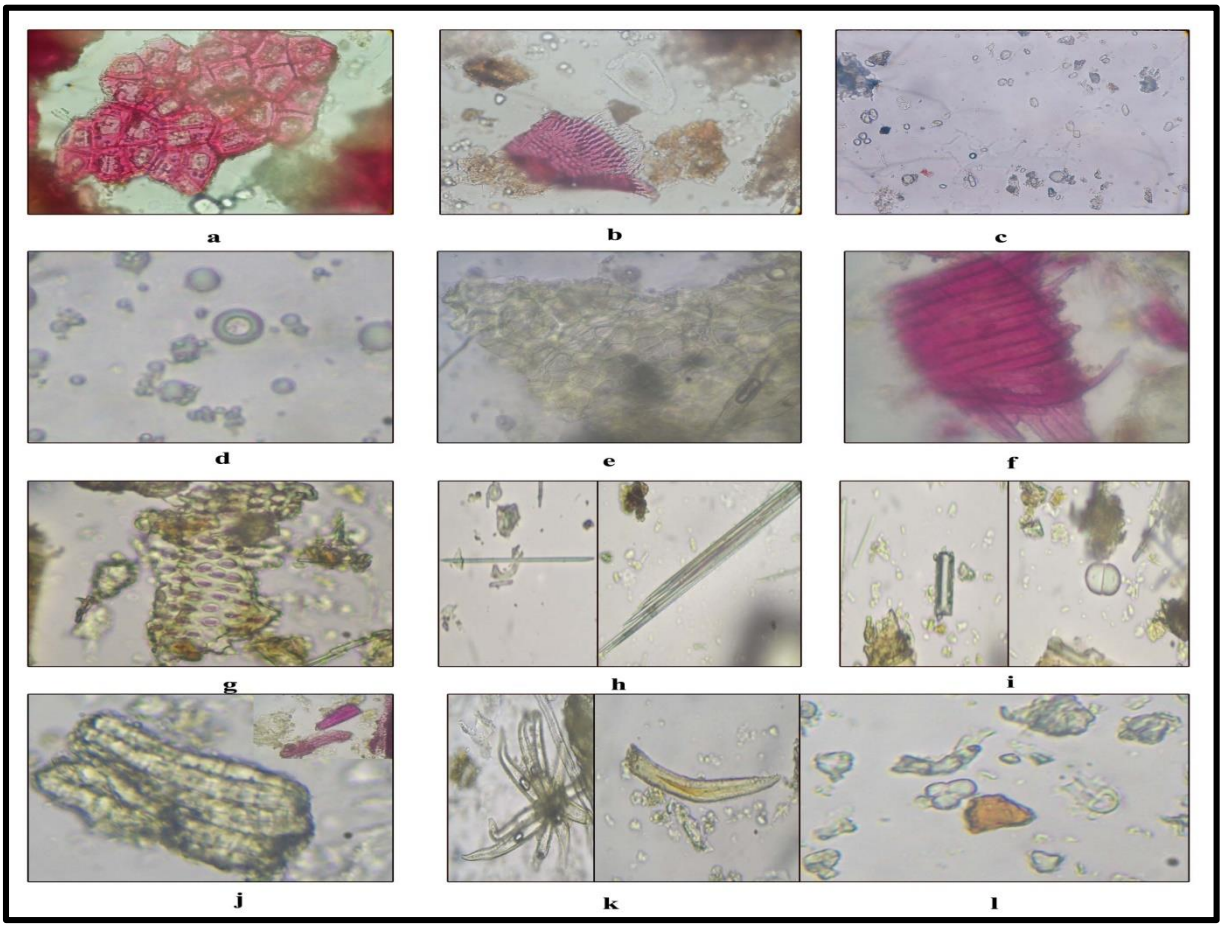

Figure 3: Pharmacognostical profile of Sutika Dashmoola In this, **Microscopic characters of Guduchi a.** Collenchyma cells, **b.** Border pitted vessel, **c.** Simple and compound starch grains, **Microscopic characters of Gokshur d.** Aleurone grains with oil globule, **e.** Endosperm cells with oil globules **f.** Stone cells, **Microscopic characters of Gandhprasarini g.** Pitted vessel, **h.** Acicular crystal and Raphid, **i.** Prismatic crystal and Compound Starch grains, **Microscopic characters of Brihati j.** Stone cell **k.** Stellate trichome and Simple Trichome and **l.** Starch grains

Pharmaceutical Study

Sutika Dashmoola was analysed using various standard physicochemical parameters at the modern pharmaceutical chemistry laboratory, IPGT & RA, Jamnagar. The pharmaceutical parameters such as water extractive value, alcohol extractive value, pH, total ash, acid-insoluble ash, loss on drying and qualitative test were found within the permissible limits for *Churna*. The physicochemical parameter of was *Sutika Dashmoola* shown in table no.3

Table 3: Physicochemical parameter of *Sutika Dashmoola Churna*

Parameters	Results
Foreign matter (w/w)	NA
Loss on Drying at 105ºC (% c)	7.50%
Ash value at 450ºC (%w/w)	5.658%w/w
Water extractive value (% w/w)	5.32%
Methanol extractive value (% w/w)	10.08%
pH	5.4

Qualitative Analysis: The Results of qualitative test was performed on methanolic extract of *Sutika Dashmoola* was shown in Table 4.

Table 4.: Qualitative test of *Sutika Dashmoola*

Sr. No.	Parameter	Test	Methanolic Extract
1	Alkaloids	Dragendroff Test	+
2	Flavonoids	Lead Acetate Test	+
3	Phenols	Lead Acetate Test	+
4	Tannin	Lead Acetate Test	+
5	Sugar	Fehlings Test	+
6	Steroids	Salkowski Test	+
7	Saponin	Foam Test	+
8	Fats And Oils	Filter Paper Test	-
9	Cardiac Glycosides	Keller Killani Test	+
10	Protein	Biuret Test	-
11	Amino Acid	Ninhydrin Test	-

12	Carbohydrates	Molish Test	+

'+' shows present, '-' Shows absent.

HPTLC Study

The HPTLC profile of *Sutika Dashmoola* was shown in the Figure 2.

Table 5: HPTLC profile of *Sutika Dashmoola*

Conditions		R_f values
Short ultra violet (254 nm)	3	0.06, 0.25, 0.71
Long ultra violet (366 nm)	1	0.06

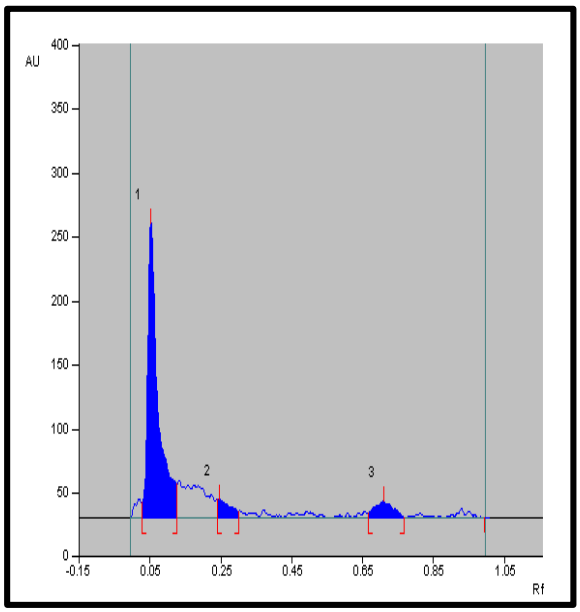

Figure 4 Densitogram at 254nm

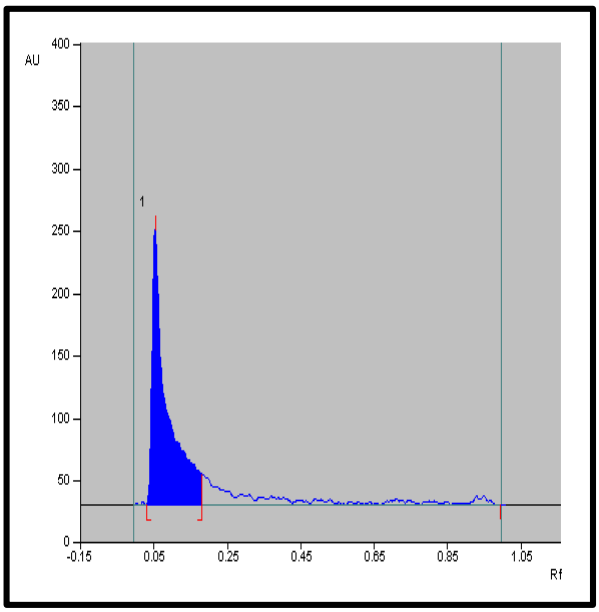

Figure 5 Densitogram at 366nm

CONCLUSION

Sutika dashmoola is an important formulation mentioned in classical texts to avoid puerperal disorders and to maintain the normal condition by suppression of aggrevated doshas and increasing the strength of women. The sutika paricharya is mentioned in Ayurveda by different Acharyas. The results obtained from the physicochemical parameter, qualitative, and quantitative study will serve as standardization values providing information regarding authentification and act as standards for quality assurance.

REFERENCES

1. Kashyapa Samhita by Vriddha Jeevaka revised by Vatsya with Sanskrit introduction by Pt. Hemaraj Sharma with Vidyotini hindi commentary by Shri Satyapala Bhishagacharya, Khila sthana, Chapter 11, Verse 6, Varanasi: Chaukhambha Sanskrit Sansthan, 305.

2. Charaka, Charaka Samhita of Agnivesha revised by Charaka and Drudhabala with Ayurveda-Dipika commentary of Chakrapanidatta and with Vidyotini hindi commentary by Pt. Kashinatha Shashtri edited by Dr. Gangasahaya Pandeya, Sharira sthana, Chapter 8, Verse 48, Varanasi: Chaukhambha Sanskrit Sansthana, 842.
3. Sushruta, Sushruta samhita edited with Ayurveda Tattva Sandipika, Hindi commentary by Kaviraj Ambikadutta Shastri, Sharira sthana, Chapter 10, Verse 18, Varanasi: Chaukhambha Sanskrit Sansthana, 103.
4. Das Govind, *Bhaishajya Rratnavali*, Vidyotini Hindi Commentary, Ambika Dutta Shastri (Ed.10th), Chikitsa Prakarana, chapter 69 verse 12, Varanasi: Chaukhambha Sanskrit Sansthan, 1993.
5. Brahmananda Triphati. Sarandhar asamhita, Madhyam khanda adhyaya, Chapter 2 verse 3-6
6. Khandelwal KR. Practical Pharmacognosy. 19th Ed. Pune: Nirali Prakashan, 2008.
7. Anonyms. The Ayurvedic Pharmacopoeia of India. Part-II. 1st Ed. New Delhi: Government of India, Ministry of Health and Family Welfare, Department of Ayush, 2008
8. Evans WC. Trease and Evans Pharmacognosy. 16th Ed. London: W.B. Sanders company Ltd, 1996.