Journal of Pharmaceutical and Scientific Innovation
www.jpsionline.com
Research Article

A PRELIMINARY PHARMACOGNOSTICAL AND PHYSICO-CHEMICAL EVALUATION OF SARASWATA CHOORNA

Kshama Gupta*, Prasad Mamidi
Associate Professor, Department of Kayachikitsa, Parul Institute of Ayurved, Tal. Waghodia, Vadodara, Gujarat, India
*Corresponding Author Email: drkshamagupta@gmail.com
DOI: 10.7897/2277-4572.034179
Published by Moksha Publishing House. Website www.mokshaph.com

Received on: 27/06/14 Revised on: 06/08/14 Accepted on: 14/08/14

ABSTRACT
Saraswata choorna is an Ayurvedic medicine used in the treatment of psychosis, depression, low intelligence level, loss of memory etc; conditions. Saraswata choorna is mentioned in Bhaishajya ratnavali text in 'Unmada chikitsa'. Regular consumption of Saraswata choorna improves buddhi (higher mental functions), medha (intellect), dhriti (control over mind), smriti (memory power) and kavita shakti (poetic talent). The present study was planned to evaluate the ingredients of Saraswata choorna pharmacognostically and to standardize it on various scientific parameters like organoleptic characters and physico-chemical parameters. Powder microscopic features of all the ingredients of Saraswata choorna were equivalent to the standard profile. Pharmaceutical analysis of Saraswata choorna showed, loss on drying (13.88 % w/w), pH of 5 % aqueous solution (5.45), volatile oil content (1.25 % v/w), particle consistency (% of above 60 mesh - 80.53 % w/w), water extract (26.30 % w/w), alcoholic extract (21.0 % w/w) and ash value (12.33 % w/w). The present study would open up the doors to future workers in the field for identification and to check quality and purity of the Saraswata choorna.
Keywords: Saraswata choorna, Physico-chemical, Pharmacognostical, Pharmaceutical, Standardization

INTRODUCTION

Saraswata choorna is an Ayurvedic medicine used in the treatment of psychosis, depression, low intelligence level, loss of memory etc; conditions. It should be consumed along with ghee and honey. Saraswata choorna contains ingredients like, Kushta (*Saussurea lappa*), Ashwagandha (*Withania somnifera*), Saindhava lavana (Rock salt), Ajamoda (*Apium graveolens*), Sweta jeeraka (*Cuminum cyminum*), Krishna jeeraka (*Carum carvi*), Shunthi (*Zingiber officinale*), Maricha (*Piper nigrum*), Pippali (*Piper longum*), Patha (*Cissampelos pareira*), Shankhapushpi (*Convolvulus pluricaulis*), Vacha (*Acorus calamus*) and Brahmi (*Bacopa monnieri*) swarasa (juice) for bhavana (tirturation) (Table 1). Saraswata choorna is mentioned in Bhaishajya ratnavali text in 'Unmada chikitsa'. Regular consumption of Saraswata choorna improves buddhi (higher mental functions), medha (intellect), dhriti (control over mind), smriti (memory power) and kavita shakti (poetic talent).[1] Even though it is the most commonly used formulation in Ayurvedic practice, till date no work has been conducted on Saraswata choorna regarding to its standardization. The present study was planned to evaluate the ingredients of Saraswata choorna, pharmacognostically and to standardize it on various scientific parameters like organoleptic and physico-chemical parameters.

AIMS AND OBJECTIVES

- Pharmacognostical study of ingredients of Saraswata choorna
- Physico-chemical analysis of Saraswata choorna

MATERIALS AND METHODS

Collection of raw material

All of the ingredients of Saraswata choorna (Table 1) were identified and collected from the pharmacy, Institute for Post Graduate Teaching and Research in Ayurveda (I.P.G.T and R.A), Gujarat Ayurved University (G.A.U), Jamnagar, India.

Method of preparation of saraswata choorna

All of the ingredients (Plate 1, Figure A, B, C, D, E and F and Plate 2, Figure A, B, C, D and E) were collected, cleaned. They were powdered in a pulverizer separately. All of the eleven ingredients except vacha, were weighed separately and mixed together in equal parts. Then eleven parts of powdered vacha added to this. *Brhami swarasa* was collected from fresh Brahmi whole plant (Plate 2, Figure F). The powder was kept in fresh Brahmi swarasa and it was subjected to three bhavana's. After bhavana, the powder was dried in a shade. Then again it was powdered and passed through sieve number 60-80 to obtain a homogeneous blend. It was packed in air tight containers to protect from light and moisture. Saraswata choorna (Plate 3, Figure A) was prepared at pharmacy of I.P.G.T and R.A, GAU, Jamnagar, India.

Pharmacognostical study

Microscopic study of the powders of the ingredients of Saraswata choorna was done at Dept. of Pharmacognosy, I.P.G.T and R.A, GAU, Jamnagar, India.

Physico-chemical study

Saraswata choorna was analyzed on various parameters like, loss on drying, ash value, water soluble extract, methanol soluble extract, pH value, volatile oil content and particle consistency at pharmaceutical chemistry laboratory of I.P.G.T and R.A, GAU, Jamnagar, India.

RESULTS AND DISCUSSION

The preliminary step in the standardization of traditional medicine is to strictly follow the parameters of pharmacognosy and phyto chemistry. Pharmacognosy study helps in authentication of the commonly used drugs through morphological and organoleptic parameters. The accurate identification and guarantee of purity through pharmacognosy and pharmaceutical chemistry measures is inescapable ladder needed for the quality assurance and standardization of all herbal formulations.[2] The objective of

the present article is to explore, analyze and standardize the Saraswata choorna through pharmacognostical measures and by physico-chemical analysis. Small quantity of powders of the ingredients of Saraswata choorna were dissolved separately in little amount of distilled water, studied under carl zeiss trinocular microscope (20X) attached with camera with and without stain. The photographs were also taken under the microscope. Powder microscopic features of Kushta (Plate 4, Figure A, B, C, D and E), Ashwagandha (Plate 5, Figure A, B, C, D, E and F), Ajamoda (Plate 6, Figure A, B, C, D, E and F), Sweta jeeraka (Plate 7, Figure A, B, C, D, E, F, G and H), Krishna jeeraka (Plate 8, Figure A, B, C, D, E and F), Shunti (Plate 9, Figure A, B, C, D, E and F), Maricha (Plate 10, Figure A, B, C, D, E, F and G), Pippali (Plate 11, Figure A, B, C, D and E), Patha (Plate 12, Figure A, B, C, D, E, F and G), Shankhapushpi (Plate 13, Figure A, B, C, D, E, F and G), Vacha (Plate 14, Figure A, B, C, D and E) and Brahmi (Plate 15, Figure A, B, C and D) were equivalent to standard profile.[3-14] Total ash value helps in determining both the physiological ash (plant tissue) and non physiological ash (extraneous matter like sand and soil), whereas acid insoluble ash gives an idea about the amount of silica present, especially as sand and siliceous earth[15]. Physico-chemical parameters like loss on drying, ash value, water soluble extract, methanol soluble extract, pH value, volatile oil content and particle consistency were studied on Saraswata choorna (Table 2). Even though Thin Layer Chromatography (TLC) and High Performance Thin Layer Chromatography (HPTLC) are indicated in the standardization of herbal formulation[16], unfortunately in the present study these were not done. It is thus expected that, the present study would open up the doors to future workers in the field for identification and to check quality and purity of the Saraswata choorna. These results may help to carry out further works like isolation of active molecules and standardization technique.

Table 1: Ingredients of Sarasvata Choorna

S. No.	Ingredient	Part used	Quantity
1	Kushta	Root	One part
2	Ashwagandha	Root	One part
3	Saindhava lavana	-	One part
4	Ajamoda	Fruit	One part
5	Sweta jeeraka	Fruit	One part
6	Krishna jeeraka	Fruit	One part
7	Shunthi	Rhizome	One part
8	Maricha	Fruit	One part
9	Pippali	Fruit	One part
10	Patha	Root	One part
11	Shankhapushpi	Whole plant	One part
12	Vacha	Rhizome	Eleven parts
13	Brahmi	Whole plant	Quantity sufficient for three times bhavana

Table 2: Physico-chemical parameters of Saraswata choorna

S. No	Test	Result
1	Loss on drying at 105^0 C	13.88 % w/w*
2	Ash value	12.33 % w/w
3	Water soluble extract	26.30 % w/w
4	Methanol soluble extract	21.0 % w/w
5	pH (5 % aqueous solution)	5.45
6	Volatile oil content	1.25 % v/w**
7	Particle consistency A. % of above 60 mesh B. % of between 60- 85 mesh C. % of between 85-120 mesh D. % of below 120 mesh	 80.53 % w/w 8.37 % w/w 4.38 %w/w 0.08 %w/w

*Weight/weight; ** Volume/Weight

A. Kushta root

B. Ashwagandha root

C. Ajamoda fruit

D. Shveta jeeraka fruit

E. Krishna jeeraka fruit

F. Sunthi rhizome

Plate 1: Ingredients of Saraswata choorna – I

A. Maricha fruit

B. Pippali fruit

C. Patha root

D. Shankhapushpi whole plant

E. Vacha rhizome

F. Brahmi whole plant

Plate 2: Ingredients of Saraswata choorna – II

A. Saraswata choorna

Plate 3: Saraswata choorna

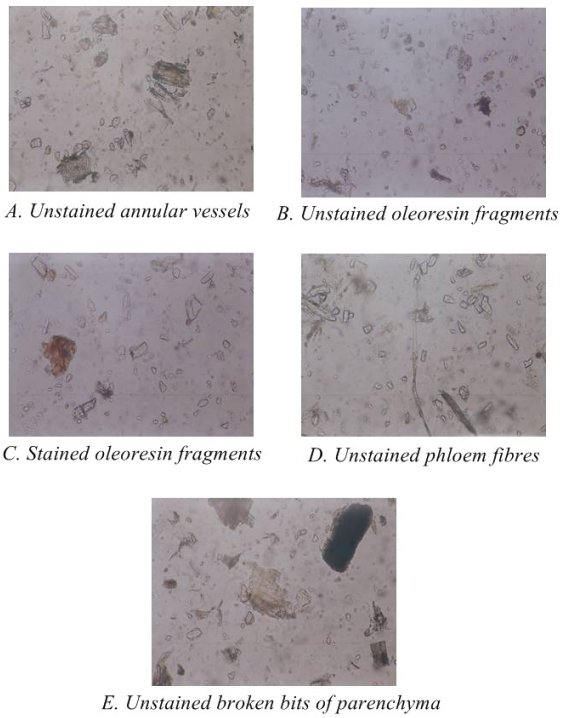


Plate 4: Powder microscopic features of Kushta

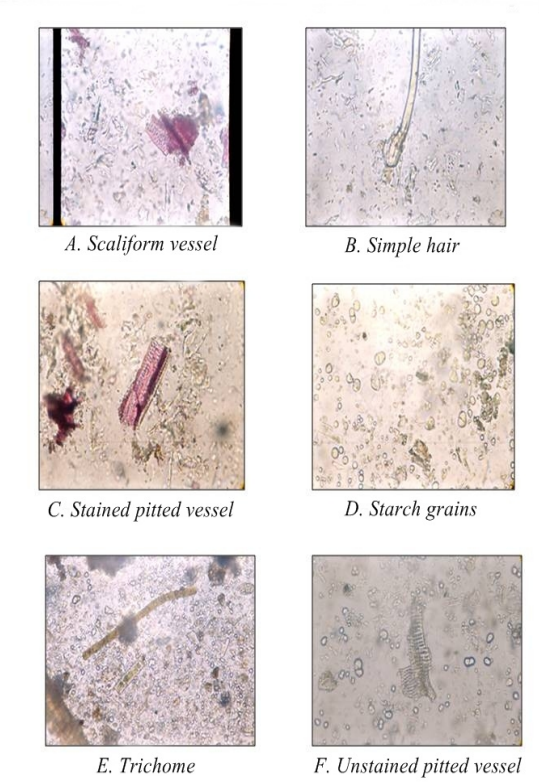


Plate 5: Powder microscopic features of Ashwagandha

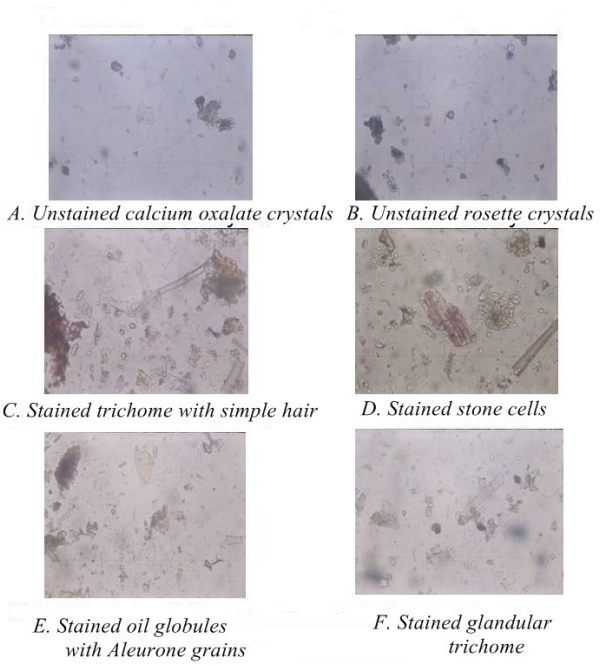


Plate 6: Powder microscopic features of Ajamoda

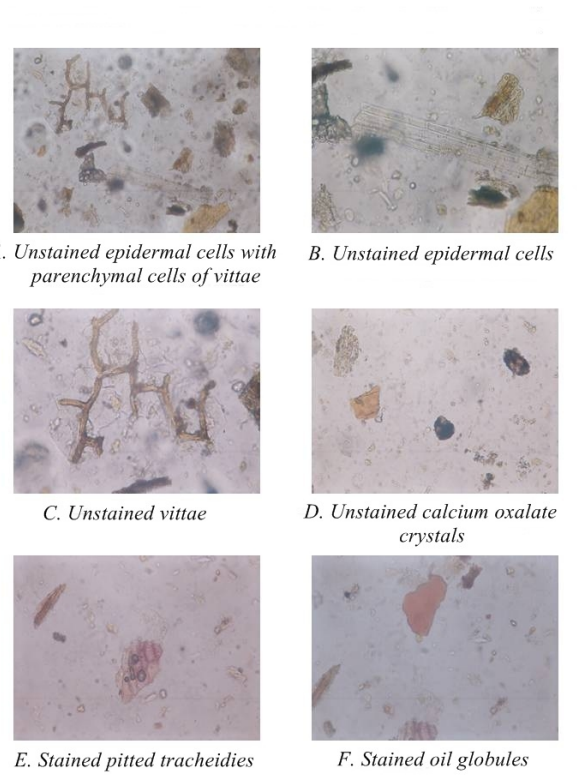


Plate 7: Powder microscopic features of Sweta jeeraka

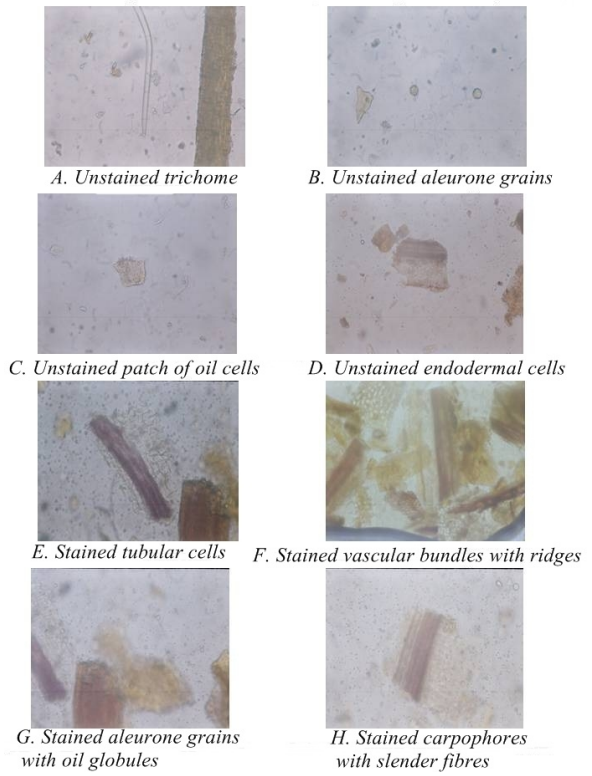


Plate 8: Powder microscopic features of Krishna jeeraka

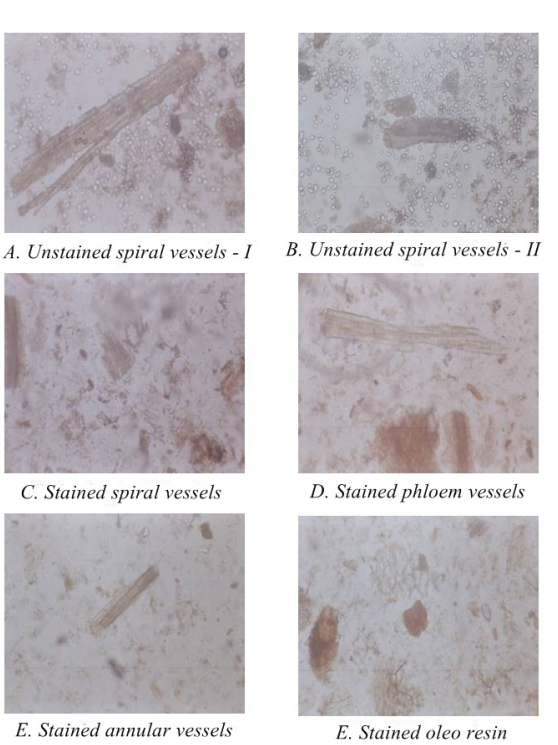


Plate 9: Powder microscopic features of Shunthi

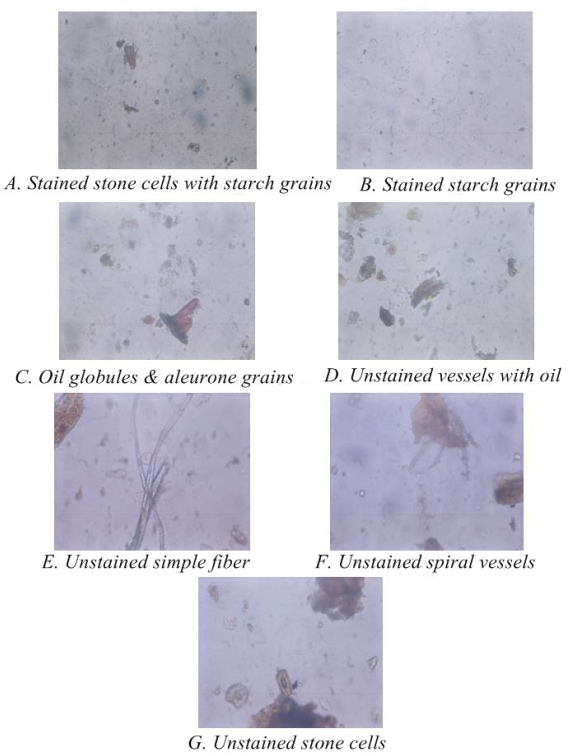


Plate 10: Powder microscopic features of Maricha

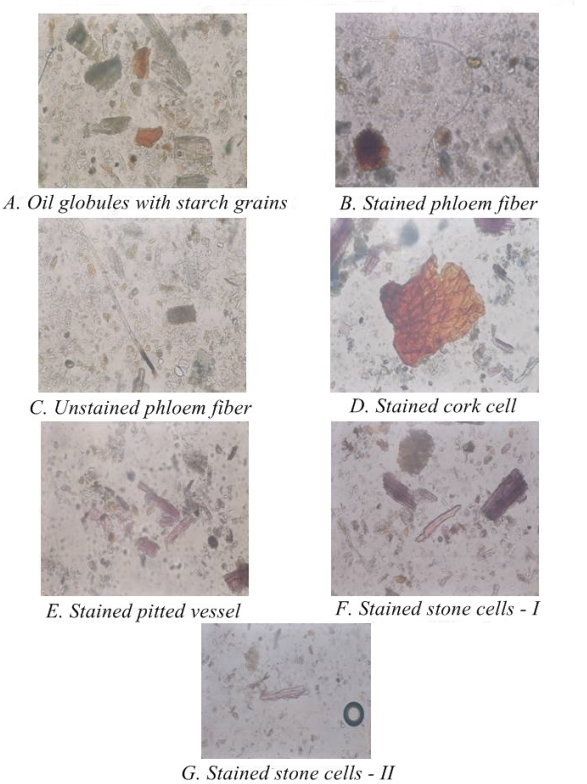
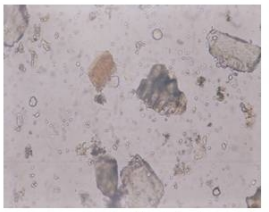
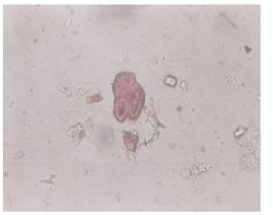


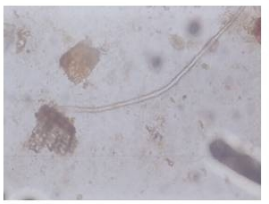
Plate 11: Powder microscopic features of Pippali



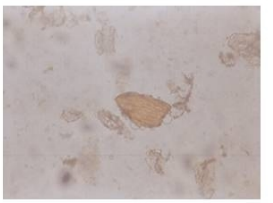
A. Unstained oil globules



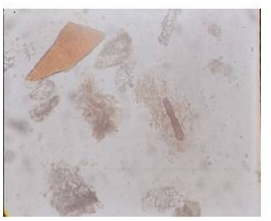
B. Stained stone cells



C. Stained simple fibres



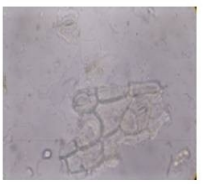
D. Stained oil globules & epidermal cells



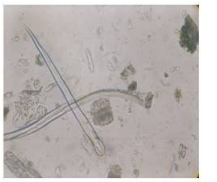
E. Stained oil globules with stone cells, parenchyma

Plate 12: Powder microscopic features of Patha

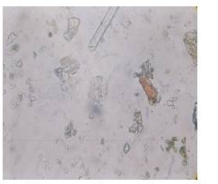
A. Unstained stomata - I



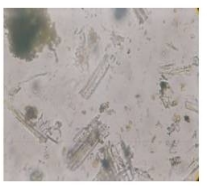
B. Unstained stomata - II



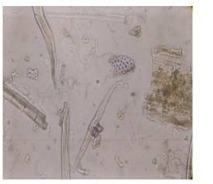
C. Unstained unicellular hairs



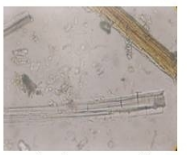
D. Unstained spiral vessels



E. Unstained pitted vessel

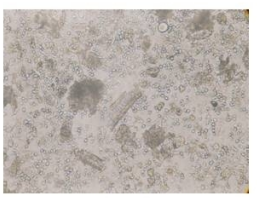


F. Stained pitted & spiral vessels

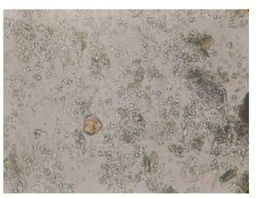


G. Stained aseptate fiber

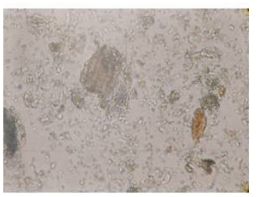
Plate 13: Powder microscopic features of Shankhapushpi



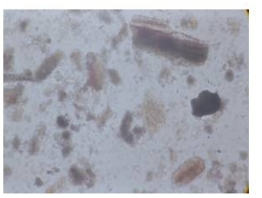
A. Unstained annular vessels with starch grains



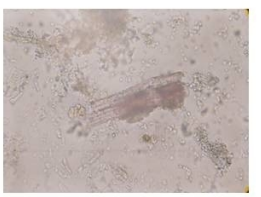
B. Unstained oil globules



C. Unstained pitted vessels



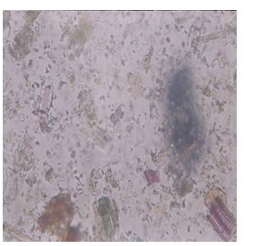
D. Stained annular vessels - I



E. Stained annular vessels - II

Plate 14: Powder microscopic features of Vacha

A. Stained pallicid parenchyma with coli spiral vessels



B. Fragment of pitted vessels

C. Unstained starch grains

D. Stained barrel shaped parenchyma

Plate 15: Powder microscopic features of Brahmi

CONCLUSION

The present study may be useful to supplement the information with regard to the standardization, identification and also in carrying out future works on Saraswata choorna.

ACKNOWLEDGEMENT

The authors would like to acknowledge Thakar AB, Associate professor, Dept. of Panchakarma, Harisha CR, Head, Dept. of Pharmacognosy and Shukla VJ, Head, Dept. of Pharmaceutical chemistry, I.P.G.T and R.A, GAU, for their support and guidance.

REFERENCES

1. Govinda Das, Bhaishajya ratnavali, with 'Vidyotini' Hindi Vyakhya by Ambikadatta Shastri, edited by Rajeshvaradatta Shastri, 19th edition, Chaukhamba Sanskrit Sansthana, Varanasi, Unmada chikitsa, 24/26-29; 2008. p. 513.
2. Gupta D, Dhiman K, Harisha CR and Shukla VJ. Pharmacognostical and physico-chemical evaluation of Saraswata choorna. Universal Journal of Pharmacy 2013; 2: 125-129.
3. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 106.
4. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 19.
5. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 4.
6. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 142-143.
7. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 102.
8. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 138-139.
9. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol III, New Delhi; 2001. p. 115-117.
10. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol IV, New Delhi; 2001. p. 105-106.
11. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol I, New Delhi; 2001. p. 122-123.
12. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol II, New Delhi; 2001. p. 155-157.
13. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol II, New Delhi; 2001. p. 177-179.
14. Anonymous. The Ayurvedic Pharmacopoeia of India. Ministry of Health and Family welfare. Dept of AYUSH. Government of India. Part I, Vol II, New Delhi; 2001. p. 25-26.
15. Nasreen S, Radha R. Assessment of quality of *Withania somnifera* Dunal (Solanaceae) – Pharmacognostical and phyto physico-chemical profile. Int J Pharm Pharm Sci 2011; 3: 152-55.
16. Anonymous. Pharmacopeial standards for Aurvedic formulations, Central Council for Research for Ayurveda and Siddha, Revised Ed. Government of India, Ministry of Health and Family Welfare, New Delhi; 1987. p. 1–20.

Source of support: Nil, Conflict of interest: None Declared

QUICK RESPONSE CODE	ISSN (Online) : 2277 –4572
	Website http://www.jpsionline.com

How to cite this article:

Kshama Gupta, Prasad Mamidi. A preliminary pharmacognostical and physico-chemical evaluation of Saraswata choorna. J Pharm Sci Innov. 2014;3(4):382-388 http://dx.doi.org/10.7897/2277-4572.034179