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PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF *SARSVATA CHOORNA* IN THE MANAGEMENT OF *CHITTODVEGA* W.S.R. TO GENERALISED ANXIETY DISORDER

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ABSTRACT

Anxiety is a problem that ranges from mild uneasiness to distress in physical, mental & emotional setup. Generalized Anxiety Disorder (GAD) is the most common anxiety disorder which comes across in the primary care settings. *Sarsvata choorna* is compound *Ayurvedic* formulation mentioned in "*Bhavprakash Samhita*" text for the treatment of various psychiatry illnesses like *Durmedhasaam*, *Vichetasaam*, like condition. In this formulation *Medhya Rasayana* drugs like *Shankhpushpi*, *Brahmi*, *Kushtha*, *Vacha*, *Ashwagandha* etc. are present. These *Medhya* drugs are well proved in management of the Anxiety disorder. Pharmacognostical & Analytical study of *Sarsvata Choorna* has been carried out for the evaluation of its efficacy in the Generalised anxiety disorder (GAD) On pharmacognostical study, stone cells of *Patha*, *Pippali* and *Maricha*, border pitted cells of *Ashwagandha*, Epidermal cells of *Krishna jiraka* and *Ajmoda*, Epidermal cells of *Brahmi* with stomata, oil globule of *Shweta Jiraka*, Fibers & trichoma of *Shankhpushpi*, corck cells of *Kustha*, Scallari form vessel & oleoresin contain of

Vacha, simple starch grain of *Shunthi* were identified. Analytic study showed 7 spots at 254nm and 10 spots at 366nm.

KEYWORDS: Generalised anxiety disorder, *Medhya Rasayana*, *Sarsvata Choorna*.

INTRODUCTION

Generalized anxiety disorder (GAD) is a chronic anxiety disorder characterized by resistant, excessive, difficult to control worry and other associated symptoms like fatigue, difficult to concentrate, insomnia etc. It is a most prevalent and impairing psychiatric disorder that requires prompt recognition and effective treatment.[1] In Ayurveda GAD is similar to condition with *Chittodvega*[2] according to previous work[3], *Chittodvega* has been used by *Charaka* more classically and listed under *Manas Dosha Vikara. Rajah* and *Tamah Manas Doshas* are vitiated in *chittodvega* and person having *Alpa Satva* are more prone to the disease as *Alpa satva* indulges in *Prajnaparadha.* So, *as a medhya* Formulation *Sarsvata Choorna*[4] can be effecctive in GAD. They are called *Medhya* because they are beneficial to *Medha* (intellect). Pharmaceutical treatments for GAD are usually associated with various side effects hence formulation like *Sarsvata Choorna* can be used in managing this condition due to its anti-stress, anti-depressent, tranquilizer, sedative, anxiolytic activity. *Sarsvata Choorna* is a *Medhya* compound formulation which is indicated in many psychiatric conditions and for improving the cognitive functions like *Buddhi, Smriti, etc. Medhya rasayan* drugs are claimed to be nutraceutic agents. *Anupan* of *Sarsvata Choorna* is *Madhu* and *Go Ghrita* which are also having *Rasayan* properties.

MATERIALS AND METHODS

Collection of raw drug

All the drugs of *Sarsvata Choorna* were obtained from Gujarat Ayurved University Pharmacy and the drugs which were not available from the pharmacy of Gujarat Ayurved University were procured from local market of Jamnagar. The ingredients & parts used in the preparation of the final product are listed in the Table 1.

Preparation of drug

The final product i.e. *Sarsvata Choorna* was prepared in the pharmacy, Gujarat Ayurved University, Jamnagar.

Pharmacognostical study

Pharmacognostical Study was carried out in two steps. The contents of the *Sarasvata Choorna* were used in the dry powder form for this study.

1. Organoleptic Study

Organoleptic evaluation can be done by means of sense organs which provide simplest and quickest means to establish the identity of a particular drug. The raw drugs and its powder were separately evaluated by organoleptic characters like taste, odour, colour and touch. Powder characteristics of the sample were identified with the help of Pharmacognosy laboratory, I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar, Gujarat, India.[5]

2. Powder microscopy

Powder of the drug was studied microscopically and microscopic characters of the powder were drowned.[6]

Physico-chemical analysis

Sarsvata Choorna was analyzed using various standard physico-chemical parameters such as Loss on drying, water soluble extract, alcohol soluble extract etc.[7]

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was performed as per the guideline provided by API. Methanolic extract of drug sample was used for the spotting. HPTLC was performed using Toluene+ Ethylacetate+ Acetic acid (14:4:2) solvent system and observed under visible light. The colour and R_f values of resolved spots were noted.[8]

RESULTS

Organoleptic characters of *Sarasvata Choorna*

Organoleptic characters of *Sarasvata Choorna* such as colour, odour, taste etc. examined by sensory organs and results are shown in Table 2.

Microscopic characters of *Sarsvata Choorna*

Diagnostic characters of *Sarasvata Choorna* were observed under the microscope and presence of all ingredients showed their different characters. Parenchyma cell of brown contain, Compound starch grain & Cork cell of *Kushtha*, Parenchyma cell with starch grains, border pitted cell & starch grain of *Ashwagandha*, Parenchyma cell with oil globule & Epidermal cell of *Ajmoda*, Oil globule of *Shweta Jiraka*, Weavy parenchyma cell,

Parenchyma cell with oil globule, Paraquit cell, Epidermal cell of *Krishna Jiraka*, Scalariform vessel & Simple starch grains of *Sunthi*, Black debris and Stone cell of *Maricha*, Lignified stone cell & Stone cell of *Pippali*, Stone cell of *Patha*, Pitted vessel, Trichoma, Fibers of *Shankhpushpi*, Scallariform vessel & oleoresin contain of *Vacha*, Epidermal cell with stomata of *Brahmi*. [Plate1. Fig 1-25].

Physicochemical parameters of *Sarsvata Choorna*

Physicochemical parameters of *Sarsvata Choorna* such as Ash value, water soluble extracts, alcohol soluble extract, pH etc. results are shown in Table 3.

HPTLC Study

Chromatogram shows 7 prominent spots at 254nm with maximum Rf value 0.03, 0.10, 0.66, 0.72, 0.76, 0.85, 0.97 and 10 spots at 366nm with maximum Rf value 0.03, 0.10, 0.18, 0.31, 0.53, 0.66, 0.72, 0.79, 0.84, 0.95. [Plate 2 Fig.1-2].

Table 1: Ingradients of *Sarsvata Choorna*

Sr.No.	Name of Drug	Botanical Name	Part used	Part
1.	***Kushtha***	*Saussurea lappa* C.B. Clarke	Dried Root	1part
2.	***Ashwagandha***	*Withania somnifera*(f) Dunal	Dried Root	1part
3.	***Saindhav Lavan***	*Sodium chloride*	-	1part
4.	***Ajamoda***	*Appium graveolens-semen*	Dried Fruit	1part
5.	***Shweta Jeeraka***	*Cuminum cyminum* Linn.	Dried Fruit	1part
6.	***Krishna Jeeraka***	*Carum carvi* Linn.	Dried Fruit	1part
7.	***Sunthi***	*Zingiber officinale* Linn.	Dried Rhizome	1part
8.	***Maricha***	*Piper nigrum* L.	Dried Fruit	1part
9.	***Pippali***	*Piper longum* L.	Dried Fruit	1part
10.	***Patha***	*Cissampelos pareira* Linn.	Dried Root	1part
11.	***Shankhpushpi***	*Convolvulus pluricaulis*	Whole plant	1part
12.	***Vacha***	*Acorus calamus* L.	Dried Rhizome	11 parts
13.	***Brahmi***	*Bacopa monnieri* (L) wettstein	Whole plant	Q.S. for *Bhavna*

Table 2: Orgenoleptic characters of *Sarsvata Choorna*

Sr. No.	Character	Results
1	Color	Brownish
2	Odor	Bitter
3	Taste	Bitter
4	Touch	Fine

Table 2: Orgenoleptic characters of *Sarsvata Choorna*

No.	Parameters/ Sample	*Sarasvata Choorna*
1.	Loss on drying	9.4% w/w
2.	Water soluble extractive	25% w/w
3.	Methanol soluble extractive	18.08% w/w
4.	Ash value	10.3% w/w
5.	pH value	6.5

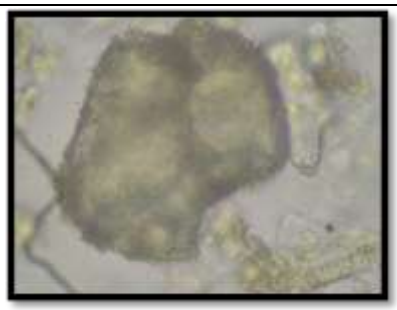

Fig 1. Black debris of *Maricha*

Fig 2. Stone cell of *Maricha*

Fig 3. Border pitted cell of *Ashwagandha*

Fig 4. Parenchyma cell with starch grains of *Ashwagandha*

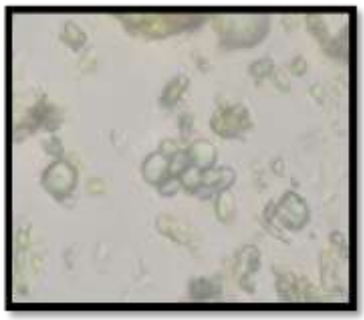

Fig 5. Starch grain of *Ashwagandha*

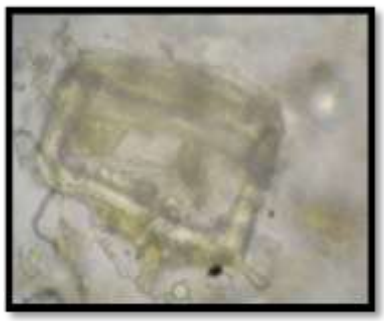

Fig 6. Stone cell of *Patha*

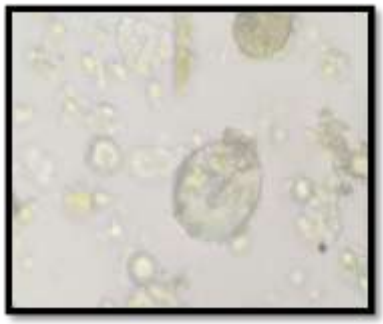

Fig 7. Oil globules of *Shweta jiraka*

Fig 8. Lignified stone cells of *Pippali*

Fig 9. Stone cells of *Pippali*

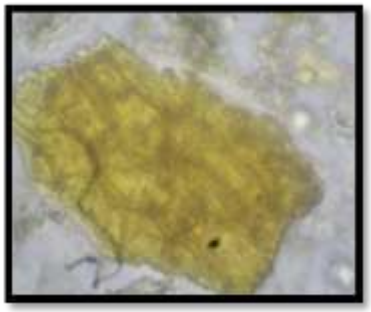

Fig 10. Cork cell of *Kushtha*

Fig 11. Compound starch grains of *Kushtha*

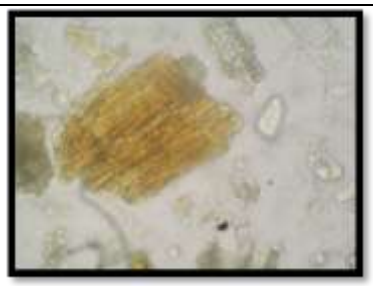

Fig 12. parenchyma cell of brown contain of *kustha*

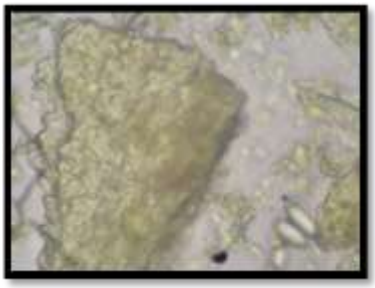

Fig 13. Epidermal cell of *Krishna Jiraka*

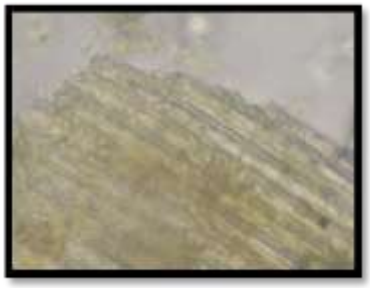

Fig 14. Weavy parenchyma of *Krishna jiraka*

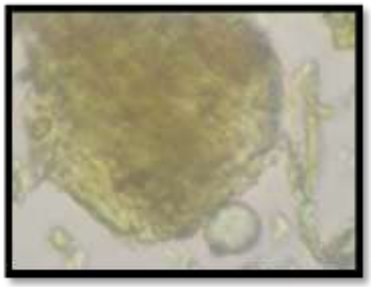

Fig 15. Parenchyma cell with oil globule of *Krishna Jiraka*

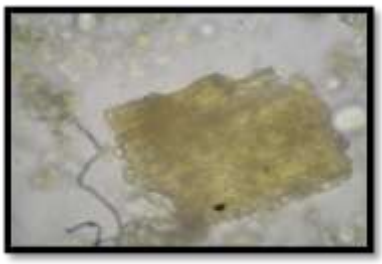

Fig 16. Paraquit cell of *Krishna Jiraka*

Fig 17. Epidermal cell of *Ajmoda*

Fig 18. Parenchyma cell with oil globule of *Ajmoda*

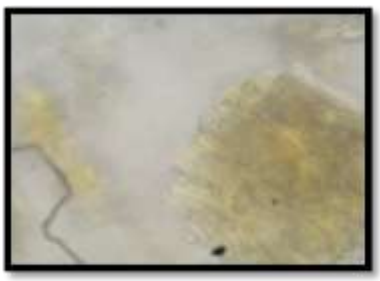

Fig 19. Epidermal cell of *Brahmi* with Stomata

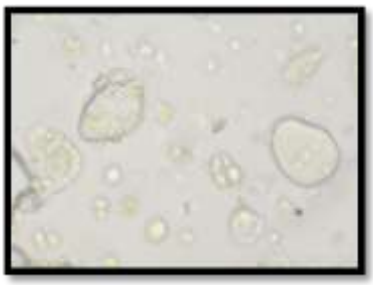

Fig 20. Simple starch grain of *Sunthi*

Fig 21. Scalariform vessel of *Sunthi*

Fig 22. Fibers of *Shankhpushpi*

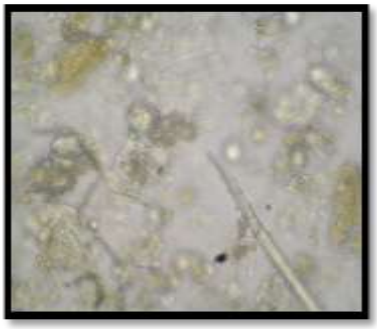

Fig 23. Trachoma of *Sankhpushpi*

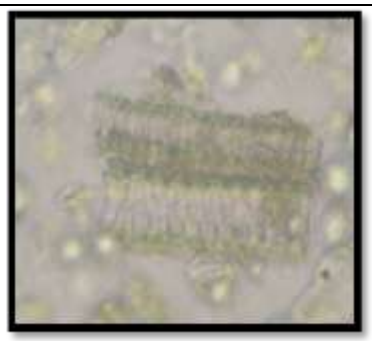

Fig 24. Pitted vessel of *Sankhpushpi*

Fig 25 Scalariform vessel of *Vacha*

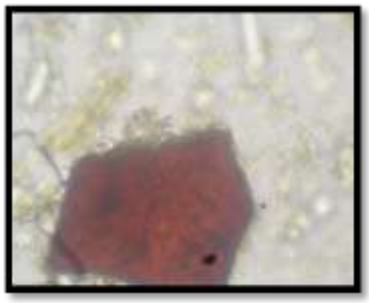

Fig 26 oleoresin contain of *Vacha*

Plate: 1 (Fig. 1-26) Microphotographs of *Sarsvata Choorna*

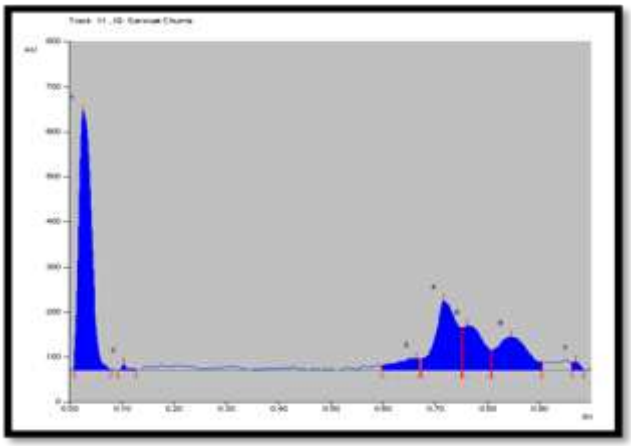

Fig 1. 254nm Peak display

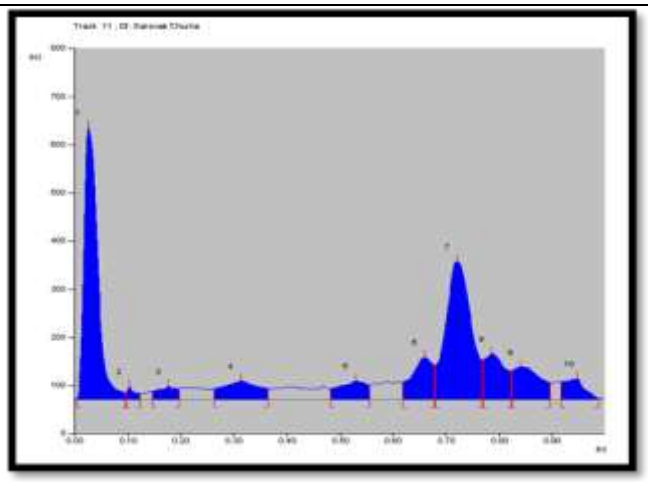

Fig 2. 366nm Peak display

Plate 2: (Fig. 1-3) HPTLC: at 254 & 366nm of *Sarsvata Choorna*

DISCUSSION

Pharmacognostical study reveals authentification of *Sarasvata Choorna* was cross verified with standard reference API. The Starch grains, stone cells, oil globule, trichomes, Paraquit cell, fibers, Weavy parenchyma cell, scalariform vessel, simple pitted vessels are observed under the microscope which were used as ingredients. All the physico-chemical parameters i.e. Loss on drying, Water soluble extract, Methanol soluble extract and pH value were

analyzed and found to be within the normal reference range. The physicochemical analysis showed Loss on drying (9.4% w/w), Water soluble extract (25% w/w), Methanol soluble extract (18.08% w/w), pH (6.5). HPTLC profile of the methanolic extract of the drug showed 7 spots at 254 nm and 10 spots at 366 nm, which shows the presence of 6 to 8 active principles present in the sample.

CONCLUSION

Pharmacognostical study findings confirm that all characters were found in ingredient drugs of *Sarasvata Choorna*. The physicochemical analysis are inferred that the formulation meets maximum qualitative standards and all the parameters discussed here may be used as identifying tools for the quality assessment of *Sarsvata Choorna.*

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