

## PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF MEDHYA RASAYANA TABLET- A COMPOUND AYURVEDIC FORMULATION

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### ABSTARCT

Behavioral problem in young children is Very common. Enuresis is defined as the voluntary or involuntary repeated discharge of urine into clothes or bed. This problem greatly affects psychosocial life of child as well as family members. It affects small to middle age group of children mainly. It is considered as multifactorial behavioral disorder. In Ayurvedic classics, the brief description regarding *Shayyamutra* is found in *Sharangadhara*<sup>2</sup> and *Vangasena Samhita*<sup>3</sup>. This disease mainly involved *Vata (Apan Vayu)*, *Pitta (Pachaka)*, *Kapha (Tarpaka)*, along with *Manasika Dosha Tama*. There are many treatment option

are now available for disease but traditionally very less information was available for the same. *Medhya Rasayana* is compound of Ayurvedic formulation mentioned in *Charak Samhita* text for the treatment of various psychiatry illnesses<sup>4</sup>. *Medhya Rasayana* contains *Brahmi*, *Shankhapushpi*, *Yastimadhu*, *Guduchi*. The present study was carried out to standardize the finished product *Medhya rasayana* to confirm its identity, purity and quality. The presence of Epidermal cells, Colonchyma cells, Starch grains, Covering trichoma, Crystal fibers, Pitted vessels, Rhomboidal crystals, Cork cell etc were the characteristic features of observed in microscopy of drug. Physico chemical analysis shows loss on drying is 4.88% w/w, water soluble extract is 13.9% w/w, methanol soluble extract is 9.48% w/w, ash value is 5.20% w/w and PH is 6.0. High Performance Thin Layer Chromatography (HPTLC) at 254 nm and 366 nm resulted into 8 & 7 spots respectively.

**KEYWORDS:** *Medhya Rasayana, Shayyamutra*, Pharmacognosy, Pharmaceutics, HPTLC.

## INTRODUCTION

Children in the modern age suffer at large due to physical problems; in addition to that they also suffer from psychological problem too, which affect their personalities. The word enuresis is derived from a Greek word "enourein" means "to void urine". Enuresis is Involuntary discharge of urine after the age by which bladder control should have been established, usually considered to be the age of five years. Enuresis is a condition that has been described since 1500 B.C. People with enuresis wet their bed or release urine at other inappropriate place and times. Release of urine at night is much more common than day time. Its often associated with mental disorders, including behavior disorders and also emotional disorders. According to WHO, enuresis is associated with mainly psychological causes constipation, cystitis, small nocturnal bladder capacity, Urinary Tract Infections, Worm Infestations etc. In Ayurvedic literature only a few classical references are found regarding *Shayyamutra* in a (*Vangsena, Sharangdhara Samhita, Bhaishajya Ratnavali, Vaidya Manorama*). Though there is no description mentioned regarding *Nidanpanchak*, but many *Acharyas* have described specific treatment for the same that shows their awareness about the disease. In Ayurvedic correlation, it is due to *Vata Dushti*, especially *Apana Vayu*. Therefore, the present study has been undertaken to study each and every factor associated with *Shayyamutra* and proper treatment protocol. Ayurvedic management shows considerable improvement in the mental and physical qualities of an individual especially in children.

*Medhya Rasayana* tablet contains are *Brahmi, Shankhapushpi, Yastimadhu, Guduchi* (*Medhya* drugs). The drugs having *Medhya* and *Balya* qualities which play an important role in childhood disorders. *Medhya* drugs act on higher centers and improve the nervous control of the bladder and also regulate the activity of the bladder sphincter. The Pre-clinical studies of *Medhya Rasayan* have already been carried out; in which standardization, pharmaceutical, pharmacological studies and also clinical observations on healthy volunteers were done. To maintain the therapeutic activity of the drug standardization is very much necessary.

## MATERIALS AND METHODS

### Drug Material

Raw drug materials were collected from the pharmacy of Gujarat Ayurveda University. The ingredients and the part used are given in table no 1.

### Methods of preparation of *Medhya rasayana* tablets

All the dried ingredients were taken and First converted into *Churna* (fine powder) was prepared. For the purpose of the binding 10%, gum acacia was mixed in this combination. Then this mixture was converted in to granules by using the granular machine. Lastly, 500 mg tablets were made in tablet making machine.

### Pharmacognostical study

Raw drugs were identified and authenticated by the Pharmacognosy laboratory, I.P.G.T&R.A., Jamnagar. The identification was carried out based on the morphological features, organoleptic features and powder microscopy of the individual drug 5. Later, Pharmacognostical evaluation of the Tablets was carried out. Tablet was dissolved in small quantity of distilled water, filtered through filter paper and studied under the microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.<sup>[6,7]</sup>

### Physicochemical Evaluation

*Medhya Rasayana* Tablets was analyzed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Medhya Rasayan* Tablets at the Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurved University, Jamnagar.<sup>[8,9,10,11]</sup>

## OBSERVATION AND RESULTS

### Organoleptic Evaluation

Various parameters of the material such as colour, odour, touch and taste of the *Medhya Churna* were observed and recorded. Touch were analyzed with the help of *Darshana*, *Sparshana*, *ghrana* and *Rasana Pareeksha* mentioned in Ayurveda. Results were mentioned in the Table no.2.

### Microscopic study

The powder microscopy of *Medhya Rasayana* Tablet confirmed the features of trichoma of *Brahmi*, parenchyma of *Bramhi*, fibers of *Bramhi*, border pitted vessels of *Guduchi*, collenchyma of *Guduchi*, cork cell in surface view of *Guduchi*, simple and compound starch grain of *Guduchi*, pitted vessels of *Yashtimadhu*, Lignified fibres of *Yashtimadhu*, fragment of crystal fibre of *Yashtimadhu*, prismatic crystal of *Yashtimadhu*, epidermal cells of

*Shankhapushpi*, trichoma of *Shankhapushpi*, pollen grains of *Shankhapushpi*, which are depicted in [plate 1].

### Physical tests

Following Physical parameters of *Medhya Rasayan* tablet were analyzed and results were mentioned in the table no. 3. Physical analysis like Shape, Hardness, and Uniformity of weight were recorded.

### Physico-chemical Analysis

Physico-chemical analyses were carried out by following the parameters. Physico-chemical analysis like loss on drying at 110°C, pH value, ash value, water soluble extractive, methanol soluble extractive 12 were recorded. Results were mentioned in the table no. 4.

### High Performance Thin Layer Chromatography (HPTLC)

HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Medhya Rasayana* Tablet. On performing HPTLC, visual observed tablet on under UV light showed few spots but on analyzing under densitometer at 254nm and 366nm it resulted into 8 and 7 spots respectively. Results of HPTLC are given in Table no 5 and densitogram is shown in plate 2.

**Table no 1: Ingredients of *Medhya Rasayana* Tablets.**

Sr. No.	Sanskrit Name	Botanical Name	Part used	Quantity
1.	Brahmi	Bacopa monneri Linn.	Sushka Panchanga	1 part
2	Shankhapushpi	Convolvulus pluricaulis Chois.	Sushka Panchanga	1 part
3.	Yashtimadhu	Glycyrrhiza glabra Linn.	Sushka Moola	1 part
4.	Guduchi	Tinospora cordifolia Wilsld Miers.	Sushka kanda	1 part

**Table no 2: Organoleptic characters of *Medhya Rasayana* Tablets.**

No.	Organoleptic Characters	Results
1	Color	Greenish ash
2	Taste	Sweet, Bitter, Astringent
3	Odor	Slightly aromatic
4	Touch	Hard
5	Sound	Cracking Sound,
6	Appearance	Tablet

**Table No 3: physical analysis of Medhya Rasayana Tablet.**

Sr. No	Parameters	Medhyarasayana tablet	
1	Shape	Round	
2	Hardness	0.7 kg/cm <sup>2</sup>	
3	Uniformity	Max.(mg) wt.	528mg
		Min.(mg) wt.	488mg
		Avg.(mg) wt	513mg

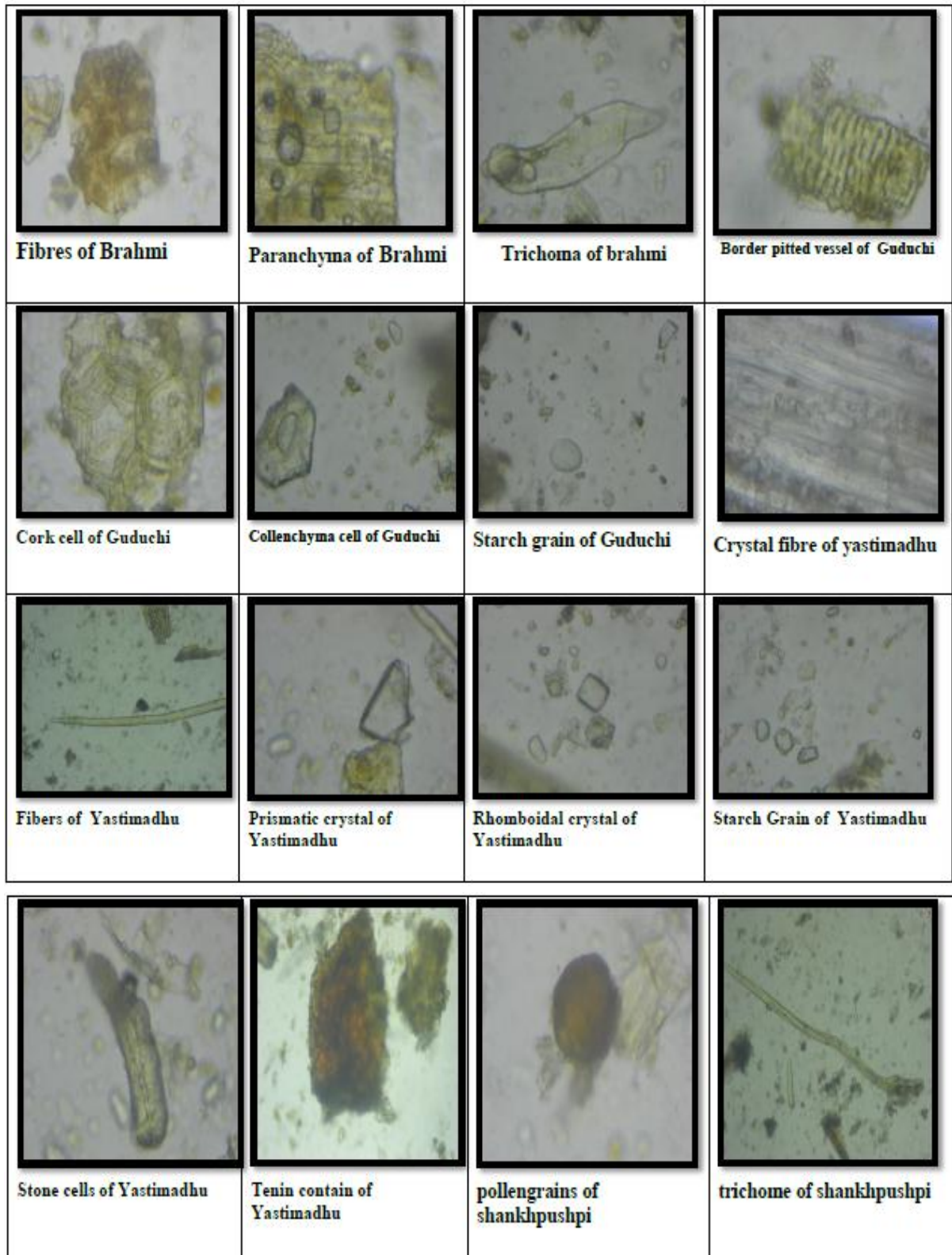
**Table: 4: Physico-chemical analysis of Medhya Rasayana Tablets.**

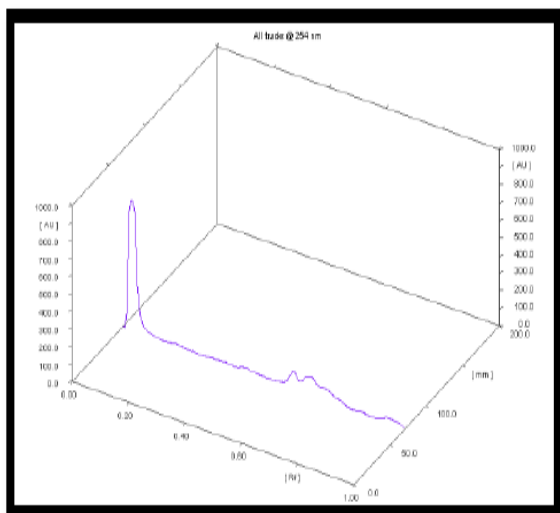
Sr.no	Parameters	Medhya Rasayana Tablets
1	pH 10% Aqueous Sol. (%w/w)	6.0
2	Lose on drying at(110°C)	4.88% w/w
3	Ash value	5.20% w/w
4	Water soluble extractive	13.9% w/w
5	Methanol soluble extractive	9.48% w/w

**Table 5: Results of HPTLC of Medhya rasayan Tablets: Solvent system – Toluene:**

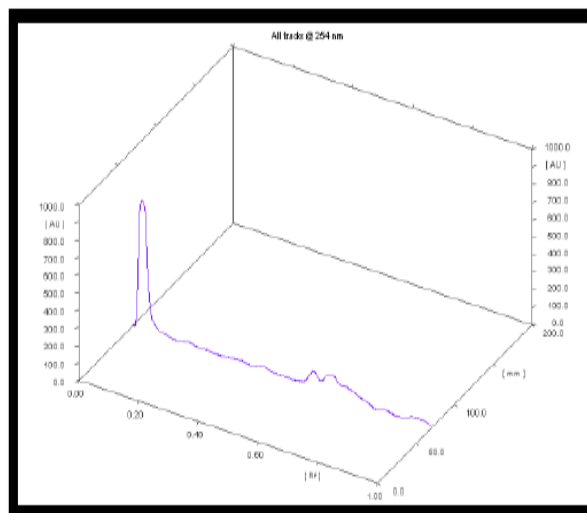
Ethyl acetate: Acetic Acid (7:2:1).

Wave Lengths	Short UV (254nm)	Long UV (366nm)
No of Spots	8	7
Max. Rf value	0.03, 0.18, 0.44, 0.61, 0.67, 0.71, 0.85, 0.94	0.01, 0.31, 0.47, 0.56, 0.64, 0.70, 0.94

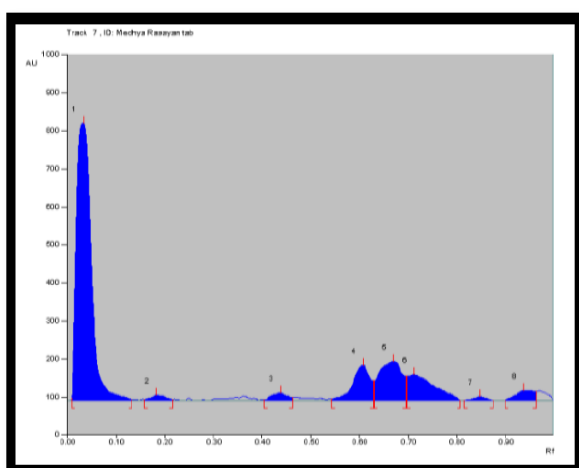




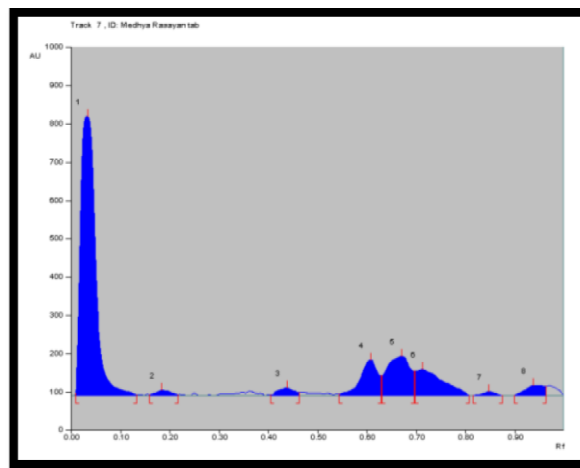
**3D Graph: 254nm of Medhya rasayana Tablet**



**3D Graph: 366 nm of Medhya rasayana Tablet**



**Chromatographic Results (Peak display) of Medhya Rasayana Short ultra violet (254 nm)**



**Chromatographic Results (Peak display) of Medhya Rasayana Long ultra violet (366nm)**

## DISCUSSION

Pharmacognosy and pharmaceutical evaluation of *Medhya rasayana* tablet was performed which is a potent medicine in the management of *shayyamutra*. In physiochemical analysis, Uniformity of Tablets, Hardness of Tablets, Loss on Drying (110° C), Ash Value, Water Soluble Extract, Methanol Soluble Extract, and pH (10% Aqua solution) were assessed. Though the groundwork requisites for the standardization of *Medhya Rasayana* Tablet are covered in the current study, additional important analysis and investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

**CONCLUSION**

Pharmacognostical study findings confirm that all characters were found in ingredient drugs of *Medhya Rasayana*. 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 *Medhya rasayana* Tablet. Thus Outcome of the study may be taken as standard references for the further studies.

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