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## COMPARATIVE STUDY OF MEDHYA EFFECT OF RITUHARITAKI AND HARITAKI IN SCHOOL GOING CHILDREN

### AUTHORS

1. Prajakta H. Karale, Assistant professor\_Dept. of Swasthavritta,\_Shree RMD Ayurvedic College and Hospital, Waghaldhara, Valsad.
2. Rajesh Ratani, Dept. of Dravyaguna, Principal & Superintendent of Shree RMD Ayurvedic College and Hospital, Waghaldhara, Valsad.

### **Abstract**

In today's competitive world, good memory, attention, concentration, are essential factors to survive in this intellectual race. To improve these skills our system of medicine Ayurved has discussed Medhya Rasayana. Rutu- Haritaki Rasayanaworks more effectively in school going children as compared to plain Haritaki in many conditions as Medhya. As the school going children are the future of our society. So to maintain their physical and mental health this topic has been selected. Conceptual review of Samhitas from Ayurveda was done thoroughly. References regarding Rutu, Rutucharya, Anupana, Haritaki, Madhu, Rituharitaki, Medhya & Rasayana were studied. Then 60 volunteers were enrolled in 2 groups and clinical trials were done for 6 months and follow ups were taken for 3 months after every 15 days and then for 3 months after every 1 month. From the observations & results, Rutu-Haritaki Rasayana works more effectively in school going children as compared to plain Haritaki in many conditions as Medhya. So, that the use of Haritaki with its specified Anupana according to various Rutas unless specified for its plain use is more effective.

### For Corresponds:

**Name of Author: Vd. Prajakta H.  
Karale**  
**Email:prajaktaingolemd@gmail.com**

**Key Words:** Ayurveda, Haritaki, Rituharitaki

## INTRODUCTION

Ayurveda has a vast contribution to maintain our health by maintaining the daily life style as dincharya ,rutucharya, aachar rasayan & Rasayan chikitsa. These are the curative aspect of mental health. And rasayan chikitsa is one of them.

The concept of Rasayana is described in the various ayurvedic texts and rutuharitaki is described as Rasayana, When Haritaki is used with specific Anupana in specific Rutus, it is called as Rutu Haritaki.

### Rutu Haritaki

सिंधूत्य शर्कराशुण्ठी कणामधुगुडैःकमात् । वर्षादिष्वभयापाश्यारसायन गुणषिणा ॥ <sup>1</sup>

( भा.प. हरितक्यादिवर्ग / ३४-७ )

Various Acharya's mentions Rutu Haritaki Rasayana as Chakshushya, Netrya (good for eyes), and Medhya etc.

Previous researches have shown that Rutu-Haritaki works more effectively as compared to plain Haritaki in many conditions like diminished vision and hyper acidity. This paper describes the effect of Rutu Haritaki Rasayana on Medha.

Haritaki is one of the medhya dravyas described in Bhav Prakash Nighantu, Kaiyadev Nighantu and Nighantu Ratnakara, as per classics it is of a great medicinal value and is widely used in various forms and it is easily available but when used with specific 'Anupana' according to specific 'Rutu' as mentioned in ayurvedic texts it acts more effectively. And it gives more beneficial effects, like the Rasayana gunas. Acharya Charaka and Bhavmishra stated the various gunas of Haritaki:

### Haritaki Gunas:-

हरितकी पञ्चरसा ऽलवणा तुवरा परम् ।  
रूक्षोष्णा दीपनी मेध्या स्वादुपाका रसायनी ॥  
चक्षुष्या लघुरायुष्या बृहणी चानुलोमनी । <sup>1</sup>

- भा.प्र . . हरितक्यादिवर्ग / २०-५

Also in ayurvedic texts, the various gunas of Rasayana are described. Rasayana acts on physical and mental health. So nowadays the effect of Rasayana on human being should be assessed. Since mind and body are two sides of a single coin, diseases of mind affect body and vise-a-versa. All the Medhya Rasayanas therefore act on the body, mind & soul triangle & improve cognition. Medha is the intellect comprising the power of grasping, retention & recall (Dhi, Dhriti & Smriti). Medhya Rasayanas improve the function of Medha i.e. they improve grasping, retention & recall.

Haritaki is mentioned as a cognitive enhancer & it also said to possess vayasthapana, Rasayana, medopachan, anuloman properties. Review suggests that following activity of Haritaki have been screened. Purgative activity, anti atherosclerotic activity, cardio protective activity, anti-diabetic activity, antioxidant activity, anti-ageing activity. Medhya effect of Haritaki is yet to be screened.

### Rasayana Gunas:-

दीर्घमायु स्मृति मेधामारोग्यं तरुणं वयः ।  
प्रभा वर्णं स्वरोदार्यं देहेंद्रियबलं परम ॥  
वासिद्धिं प्रणति कान्ति लभते ना रसायनात्  
लाभोपायो हि शस्तानां रसादीनां रसायनम् ॥ <sup>2</sup>

-च.चि .१ / पा .१ / ७-८

Medhya Rasayana is a group of herbs which is supposed to be having influence on brain functions. Medhya Rasayan relaxes the mind, enhances the memory and sharpens the intellect. Mankind has always tried to attain peace and happiness through all available means in today's fast lifestyle.<sup>2</sup>

The need of attaining mental peace is increasing day by day in the view of tremendous increase in physical and mental stress. In ayurveda, Rasayana is used to improve the Medha (cognition enhancement) So Rutu Haritaki Rasayana is selected to assess the Medhya effect and Vasant Rutu is selected to assess the Medhya effect of Rasayana. In vasant rutu honey is given with haritaki as anupan and Honey is also described as medhya dravya, so this anupan may be useful to increase the haritaki medhya effect, so vasant rutu is selected.

In today's competitive world, good memory, attention, concentration, are essential factors to survive in this intellectual race. To improve these skills our system of medicine Ayurved has discussed Medhya Rasayana. As the school going childrens are the future of our society. So to maintain their physical and mental health this topic has been selected.

#### **AIM & OBJECTIVE:**

- **AIM :**  
To compare Medhya effect of Rutu Haritaki and Haritaki in School going children.
- **OBJECTIVE :**  
To observe adverse effect of Rutu Haritaki and Haritaki
- **HYPOTHESIS :**  
Rutu Haritaki is more effective than Haritaki as Medhya.

#### **MATERIAL AND METHODS**

##### **MATERIALS**

- 1) Volunteers (60)
- 2) Drug (Rutu Haritaki Rasayana)

##### **METHODS**

- Study will be conducted in Vasant Rutu as it is suitable to see the Medhya effect of the drug.
- Special Proforma of case paper will be prepared for the study. Written consent of the volunteers will be taken prior to commencement of clinical trials.
- Total 60 volunteers will be selected for the study irrespective of Gender, Religion
- Total 60 Volunteers will be selected for study divided in to 2 groups;
- GROUP A 30 Volunteers will receive Haritaki tab with madhu.
- GROUP B 30 Volunteers will receive only Haritaki tab.
- Findings will be recorded before and after the clinical trials.
- Results, observations and conclusion will be carried out with the help of special performed case paper.

##### **LEVEL 1: REVIEW OF LITERATURE:**

Conceptual review of Samhitas from Ayurveda was done thoroughly. References regarding Rutu Haritaki, Medhya & Rasayana were studied & compiled.

##### **LEVEL 2: DRUG STANDARDIZATION:**

- Collection of raw material was done from reliable market sources.
- Authentication & Analysis of Haritaki & Madhu (Honey) was done at Dept. of Botany, Pune University.
- Drug standardization was done from Pune University.

### LEVEL 3: CLINICAL TRIALS:

- Group A - Rutu Haritaki group.
- Group B - Plain Haritaki group.
  
- Haritaki tablets were prepared using Haritaki Churna.
- For the convenience of patients drug was prepared in tablet form.
  
- **Dose** : 250mg. (2 tablets od.)
- **Kala** : Rasayana kala i.e morning (at 7-8am) and nishakala ( at 9-10 pm)
- **Duration** : 2 months (1 Rutu).
- **Period** :15th February 2015 to 16th April 2015.(Vasant Rutu)
- **Follow-ups** : 15 days for 3 months and then, at the interval of 1month for next 3 months
- **Anupana** : Luke warm water and Madhu.
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### INCLUSION CRITERIA: -

- i. School children of age group 12-15 years from 7th to 9th standard will be selected for clinical trial.
- ii. Volunteers whose parents will give written consent will be selected.

### EXCLUSION CRITERIA:-

- i. Age group below 12 years & above 15 years.
- ii. Mentally retarded or subnormal volunteers.
- iii. Congenital anomalies like 'Down syndrome etc.
- iv. Association with any metabolic organic disease like Graves disease, diabetes etc.
- v. Volunteers taking any other Medhya dravya or Medicines.

### PROCEDURE-

This is about four tests:

- 1. PRADNYA 1:** Cognition of Figural Classes- Intelligence (dhi). This is the ability to recognize class concepts based on common properties in items of figural information.
- 2. PRADNYA 2:** Cognition of Figural Relations. (dhi& dhruti). This is the ability to recognize figuralrelations between visual objects.
- 3. PRADNYA 3:** Cognition of Figural Systems. (dhi & dhruti). This is the ability to comprehend arrangements and positions of visual objects in space.
- 4. PRADNYA 4:** Convergent Production of Figural Transformations. (dhi, dhruti & smruti). This is the ability to correctly pinpoint the previously seen visual figures in camouflaged complex background.

### SCORING:

1. To calculate average standard score of these four test of pradnya kasoti the four standard score should be added and divided by four.
2. Individual difference between PR1and PR99 will not be reliable.
3. High score means high ability however low score do not necessarily mean low ability.
4. Percentile rank means position of the individual in group of 100. Candidate PR90 means 90%candidatesof the same age lie below the individual.

### Guidelines:

Generally, in our country, we do not use machine-scored answer books, at least for young candidates. Answer-books which can be scored by hand, using a key, are more customary. Such answer books can be designed in such a way that the responses, especially when the items are of forced choice

type, can be easily transferred to data-card for computerization. Answer sheet for this test-battery is designed in this fashion. Proper care should be taken while scoring both objective and open end test. It is desirable to assign this job to trained assistants. Trained experts should score the tests where the response is free, as in the divergent production test. Interjudge reliability will have to be established in such cases. Here are some general guidelines:

1. Answers of the candidates to the sample problems should be assessed though they are not given any points.
2. For the objective tests, making use of the given key, the problems should be scored by making right (✓) and wrong (X) signs in front of the answers.
3. Sometimes, answers are not written legibly. In such cases, individual styles of handwriting should be taken into consideration before judging the answers.
4. Even when the scoring is mechanical and done by hand, rechecking is essential. Usually every fifth answer sheet is rechecked by another scorer. Sometimes, For open end tests, it is necessary to recheck every answer book by another expert.

#### Pradnya Kasoti test:

Avg Standard Score	Percentile Rank	Grade	IQ
1-10	1-20	Very Low	Below 75
11-13	21-41	Low	75-90
14-16	42-65	Moderate	90-110
17-21	66-91	High	110-120
22 & above	92 & above	Very High	120+

#### Scholastic performance score test

This test is assessed by considering total percentage of marks in school examination before treatment and after giving treatment. It was assessed by total percentage in student progress cards. However, improvement in each subject was not assessed.

#### Scholastic performance score test:

GRADES	MARKS
grade A	91 to 100
grade A1	81 to 90
grade B	71 to 80
grade B1	61 to 70
grade C	51 to 60
grade C1	41 to 50
grade D1	32 to 40
grade E1	Below 32

#### DISCUSSION: -

The concept of Rasayana is described in the various ayurvedic texts and rutuharitaki is described as Rasayana, When Haritaki is used with specific Anupana in specific Rutus, it is called as Rutu Haritaki. Acharya's mentions Rutu Haritaki Rasayana as Chakshushya, Netrya (good for eyes), and Medhya etc.

सिंधुत्यशर्कराशुण्ठीकणामधुगुडैः क्रमात् । वर्षादिष्वभया प्राश्या रसायनगुणषिणा ॥ <sup>[1]</sup>

As study is carried out in Vasanta rutu,haritaki is given with honey as anupana. Along with “Ruksha”, “Ushna” & ”Laghu” Gunas of Haritaki, Honey helps to compensate the Kapha dosha with its “Ruksha”, “ushna” & “Laghu” Gunas & its Kashaya anurasa along with yogavahi property, it removes srotorodha and nourishes mansa-majjadi dhatu and Dhee, Dhruvi, Smruti. Memory is a process involving encoding, storing, and recalling information. Thus, memory records various facts and events, make it available for further use, and hence can be considered as most valuable health asset. Memory is the ability of an individual to record sensory stimuli, information and etc., retain them over a short or long period of time and recall the same whenever needed in due course of time While, learning is the process of acquiring knowledge about the world and memory could be considered as the retention of the acquired knowledge, which can be retrieved as and when, required.

In Ayurveda, healthy mind is included in a definition of a healthy individual. Ayurveda has described Memory in all the aspects according to Age, Sharir and Manas Prakruti.

There are many drugs called as “Medhya Rasayana” that plays an important role for not only enhancing Memory but also in prevention and treatment of mental disorders and in maintenance of mental health. Out of them Haritaki is Medhya Rasayana mentioned by Charaka. There is no study on combined effect of Haritaki and madhu for Medhya activity, which enhance memory , intellect and grasping power i.e. Dhee,Dhruvi, Smruti. Considering the importance of this subject the topic was chosen for the study. Acharya Charaka has described Haritaki as Medhya in the Rasayana Adhyaya. Also the topic of the study was involving both Haritaki & its Rasayana effect. Here not only study of Haritaki & Madhu was done individually but also combined effect of Haritaki & its various Anupana was studied for better understanding of cause & effect of the drug. The trial was taken on 60 volunteers who completed the trial successfully. Observations were collected & analyzed accordingly. Rutu-Haritaki- Rasayana showed positive results on pradnyakasoti test and scholastic performance test score

**They are discussed as follows: -**

**Age and some other factors: -**

Age: - 60 volunteers were selected randomly from school as described in methodology.

The purpose of selection of school going children was to study the medhya effect as they prove to be the future of the society & their good physical and mental health has good impact on overall progress of the society. Also all subjects are of students’ age group, they must need a good

Intelligence and cognition to achieve their goals in school examination Gender, Occupation, diet, Prakruti & Religion, in all these factors no significant changes were observed. While in factors like Agni and exercise no significant changes were observed.

**DISCUSSION ON PRADNYA KASOTI TEST:**

Good significant changes were seen in Rutu haritaki group than plain haritaki group. Statistically or mathematically difference between both the groups seen above might not seem to be Remarkable. Haritaki is Tridosahara along with its ushna virya & Ruksha, laghu guna & due to its srotoshodhak property it removes Srotorodha caused by Vikrut Kapha. Acharya Charaka stated that in Rasayana Adhyaya, Haritaki has dipana, pachana, and anulomana properties, by which haritaki can improve Dhatwagni.

So by srotoshodhana & dhatwagni dipana, transportation of Rasa dhatu get enhanced; which is good for the nourishment of further dhatu so dhi dhruvi smruti gets nourished. According to Bhavaprakash & Charaka, Haritaki is Rasayani, Amruta, Medhya, Kayastha, Vayastha, Aayusha, Balaprada & Poushtiki etc. These synonyms explain the action of haritaki itself. Medhya means

improving Medha. This means use of Haritaki provides nourishment to brain cells. So it helps to aggravate its Rasayana & Medhya action on all nerves of brain cells.

When haritaki is used with honey as a Rutuharitaki rasayana, its guna were aggravated. It might be due to Sukshma srotogami & Yogvahi properties of Madhu along with its Madhur vipaka. And also because of lekhan and pachan gunas of haritaki and madhu it removes awaran of raj and tama in the form of kaph and kled from buddhi. So improvement in component of medha. The study was carried out in Vasant rutu, so Madhu (honey) was given with Haritaki as Anupana i.e. Rutuharitaki rasayana.

So action of haritaki combinely seen on medha was very good & improving Dhee, Dhriti, Smriti. Some of constituents of haritaki also acts as antioxidants that were proved by recent studies. Means Haritaki can acts as an Antioxidant agent.

As Madhu (honey) and Haritaki are having antioxidant properties it can improve O<sub>2</sub> carrying capacity by reducing the oxidation of free radicals. So the O<sub>2</sub> transportation to all organs gets improved. They perform nutritive action as both of them are nutropics (nourishing intelligence, grasping and memory)

### **DISCUSSION ON SCHOLASTIC PERFORMANCE SCORE TEST:**

It was assessed by total percentage in student progress card. However improvement in each subject was not assessed. Results suggest that in initial stage rutuharitaki and haritaki groups didn't show any significant improvement in scholastic performance score test. however significant improvement was observed in Group A after 6 months of treatment, as compared to group B.

It shows that rutuharitaki has slow but lasting effect on cognitive faculties and hence perform its medhya action. Rutuharitaki improves medha (cognition) in this age group. It might be due to its , Medhya action along with Rasayana karma helps to overcome the psychological effect of the body; this not only works on Sharira Bhavas but also on Manas Bhavas as rightly said in Ayurveda. Similarly when used in combination with MADHU which along with its Sukshma-Strotogami & Yagavahi action, works equally on Manasa Bhavas. Vatanuloman guna of haritaki can improve sleep by reducing the raja guna of mana. All these properties are useful to overcome the psychological action of the body.

Haritaki being Tridosahara along with its ushana virya & Ruksha, laghu guna works on kapha-avrodha & with its madhura vipaka & pancharasatmakaproperties along with Rasayana karma provides nourishment to dhatus. With Madhu again the same action is seen aggravated, & also its action on Kapha dosha is proven, which gives more beneficial effects as compared to Haritaki alone. Overall improvement in scholastic performance.

### **OBSERVATION & RESULT:**

Observations were taken under following criteria and symptoms.

**AGE-** Age group included in the study was 12 – 15 years. On stratification of the sample it is seen that, 43 (71.7%) volunteers were from the age group 13 years and 14 (23.3%) volunteers from the age group 14 years and 3(5%) volunteers were from age 15.

**GENDE:** As per the sample selected for the study, out of 60 volunteers 24 were males and 36 were females. out of 30 volunteers 12 were males and 18 were females included in Group 'A' and out of 30 volunteers 12 males and 18 Females were recruited to Group 'B'

**RELIGION -** Most of the volunteers were from religion Hindu (71.6%) followed by boudha (21.7%) followed by jain (6.7%)

**Education and Occupation wise distribution:** All volunteers are students so there was no education and occupation wise distribution observed.

**DIET:** Most of the volunteers were vegetarian diet consumers followed by mix diet consumers.

**EXERCISE:** In total 60 volunteers 16.7% volunteers were not doing exercise and 83.3% volunteers were doing regular exercise, so there was significant data available from the observations related to exercise.

**AGNI** - In total 60 volunteers, 66.7% of the volunteers were having mandagni, followed by 28.3% volunteers were having vishamagni and 5.0% of volunteers were having tikshnangni. The data was not significant.

**SHARIRIC PRAKRUTI** – KaphaPitta (43.3%), PittaKapha (36.7%), PittaVata (6.7%), VataPitta (13.3%)

**MANAS PRAKRITI:** It is observed from the data that, majority of individuals were of Rajasa (50%), followed by satvik (45%) & tamasa (5%) prakruti.

**PRADNYAKASOTI TEST-**

Pradnyakasoti test score	Pre		Post		Wilcoxon Signed Ranks Test Z	P
	Mean score	sd	Mean score	sd		
Rituharitaki	4.23	1.331	5.47	1.358	4.574	< 0.001 HS
Haritaki	3.43	1.135	5.00	0.788	4.062	< 0.001 HS

Pradnyakasoti test score	Mean difference	sd	Mann Whitney Z	P
Grp A	1.233	0.727	1.329	0.184 NS
Grp B	1.566	0.971		

According to Wilcoxon signed ranked test and Mann Whitney Z Test Pradnyakasoti test is highly significant in Group A than Group B. In Pradnyakasoti test 'Medha'(cognition) comprises of the power of intelligence-dhee, grasping-dhruti, & memory-smruti.

1. PRADNYA 1: Cognition of Figural Classes- Intelligence (dhi). This is the ability to recognize class concepts based on common properties in items of figural information.
2. PRADNYA 2: Cognition of Figural Relations. (dhi& dhruti). This is the ability to recognize figural relations between visual objects.
3. PRADNYA 3: Cognition of Figural Systems. (dhi& dhruti). This is the ability to comprehend arrangements and positions of visual objects in space.
4. PRADNYA 4: Convergent Production of Figural Transformations. (dhi, dhruti & smruti).



**SCHOLASTIC PERFORMANCE SCORE TEST -**

Scholastic performance score test score	Pre		Post		Wilcoxon Signed Ranks Test Z	P
	Mean Score	sd	Mean Score	sd		
Rutuharitaki	2.20	1.126	3.00	0.695	4.263	<0.001 HS
haritaki	2.467	1.008	2.83	0.699	3.051	<0.001 HS

Scholastic performance score test score	Mean difference	sd	Mann Whitney Z	P
Grp A	0.80	0.761	2.416	0.016 Sig
Grp B	0.37	0.556		

The result suggests that during initial stage rutuharitaki and haritaki didn't show any significant improvement in scholastic performance. However significant improvement was observed in group A after 6 months of treatment as compared to group B.

**CONCLUSION: -**

From the observations & results obtained it can be concluded that, Rutu- Haritaki Rasayana works more effectively in school going children as compared to plain Haritaki in many conditions as Medhya. So, that the use of Haritaki with its specified Anupana according to various Rutus unless specified for its plain use is more effective.

Haritaki with its various properties might be working on the factors as discussed in earlier chapters. It can also work on manas bhav, which leaves the scope for further research.

Hypothesis of Rutu-Haritaki being better than plain Haritaki was approved on the basis of results & statistical analysis of the collected data.

**SCOPE:**

1. Rutuharitaki can be studied experimentally on higher brain functions using more advanced assessing tools.
2. As the study drug is effective in improving memory, it has a potential to be used as a 'Medhya Rasayana' in neurodegenerative disorders like MCI (Mild cognitive impairment), 'Alzheimer's disease' and Dementia. Medhya action of study drug can be studied in various other mental disorders.
3. Better tools for Manasa parikshana (assessment in Ayurvedic point of view) can be developed and standardized.

**LIMITATION:**

The study was carried out using appropriate psychometric tools. However due to constraints of monitory funds it was not possible to evaluate neurotransmitters as an objective parameter. As sample size for present study was small may not gave accurate results so study should be carried out on large scale.

**REFERENCES**

1. Bhavprakash Nighantu, edited by The 'Vidyotini' Hindi Commentary, Notes and Appendix. By Sri Brahmasankara Mishra and Sri Rupalalaji Vaisya. Eleventh Edition: 2007 Chukhambha Sanskrit Bhawan, Varanasi.
2. Caraka-samhita Edited by Dr.Tripathi Brahmanand, edition 2006, Varanasi -Chaukhamba Ayurvijnan Granthamala.
3. Dr.kunte, Anna Moreswar Astangahridayam, edition 2000, Varanasi,Chaukhamba press, Varanasi
4. Dr. Brahmanand Tripathi; Sharangdhara Samhita; Chaukhamba Ayurvijnan Granthamala; series 28; reprint 2012.
5. Madhava, (2005), Madhava Nidana, Commentary by Yadunandan Upadhyay, Chaukhamba Publication.
6. www.google.com

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