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Prospective study of *Medhya* effect of *Guduchi Rasayana* in different *Dehaprakruti*

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A B S T R A C T

Ayurveda has explained the concept of *Rasayana* (Rejuvenating Therapy), a classical medication mainly aiming at protection of the individual's health and secondarily at pacification of disease. Different types of *Rasayanas* are described in *Samhitas* for specific purposes. Improvement of *Medha* i.e., intelligence is one of the benefits of consumption of *Rasayana. Medhya Rasayana* is one of the types of *Rasayana* which majorly deals with enhancement of *Medha* i.e., intelligence along with other benefits of *Rasayana.* The *Medhya* effect of *Guduchi Rasayana* is studied with the help of Intelligent Quotient i.e., IQ. The proper assessment of IQ is done with the help of Catell & Catell Intelligence scale. The normal functioning of *Medha* mainly depends on *Pitta Dosha*. *Pitta* in its normal state is *Katu Rasatmak* (Pungent taste) and related with the *Satva Guna* of *Manas*. *Guduchi*, being *Katu-Tikta Rasatmak* and *Madhura Vipaka Dravya*, purifies the *Pitta Dosha* and enhances *Satva Guna* by removing *Tamas*. *Tikta Rasa* has been described as *Medhya* by *Vagbhatacharya*. This study attempted to analyze any changes in IQ due to consumption of *Guduchi Rasayan*a in different *Dehaprakruti*.

Key words: *Medhya, Guduchi Rsayana, Dehaprakruti, Intelligent Quotient*

INTRODUCTION

Ayurveda is the compilation of observations, experiences and research of a good number of scholars. Success of any science depends on its basic fundamental principles. These principles have remained as everlasting truth and hence it is said to *Anadi* (beginning less)*, Ananta* (infinity) and *Shashwata* (eternal).[1] *Prakruti* (Constitution) is one of the fundamental concept and a special feature of Ayurveda.

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The uniqueness of each and every individual in the world is explained through the concept of *Prakruti*. The meaning of *Prakruti* is mainly interpreted as *Swabhav* (nature). The peculiar type of body constitution and mental temperament of any individual is known as *Prakruti* which is produced by the predominance of three *doshas* viz. *Vata, Pitta* and *Kapha*. Such features are acquired by birth and remain with the particular individual throughout life.[2] Individual's *Prakruti* is formed at the time of fertilization inside the womb. Our physical and mental traits are determined by the predominance of three *Doshas*, five elements and three *Gunas* at the time of fertilization.[3] Every individual differ from other in constitution of these *Gunas* and *Doshas* and hence each individual possess a unique *Prakruti* just like a unique fingerprint.

Ayurveda has explained the concept of *Rasayana* (Rejuvenating Therapy), a classical medication mainly aiming at protection of the individual's health and secondarily at pacification of disease. Different types of *Rasayanas* are described in *Samhitas* for specific

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

ISSN: 2456-3110   **ORIGINAL ARTICLE**   January 2023

purposes. Improvement of *Medha* i.e., intelligence is one of the benefits of consumption of *Rasayana.*[4] *Medhya Rasayana* is one of the types of *Rasayana* which majorly deals with enhancement of *Medha* i.e., intelligence along with other benefits of *Rasayana. Charakacharya* has described four *Medhya Rasayana* in the third *Pada* named *'Karaprachitiya Rasayana Pada'* of first chapter i.e., *Rasayana* in *Chikitsasthana* of *Charak Samhita. Guduchi Swaras* is one among the four *Medhya Rasayana.*[5]

The *Medhya* effect of *Guduchi Rasayana* is studied with the help of Intelligent Quotient i.e., IQ. The proper assessment of IQ is done with the help of Catell & Catell Intelligence scale.[6] This study attempted to analyze any changes in IQ due to consumption of *Guduchi Rasayan*a in different *Dehaprakruti*. Moreover, clear references and explanation about the use of particular *Rasayana* in a particular *Prakruti* is unavailable in the classical texts of Ayurveda. The present study entitled Prospective Study of *Medhya* effect of *Guduchi Rasayana* in different *Dehaprakruti*, attempts to provide judicious use of a *Rasayana* in a person possessing a particular *Prakruti*, thus contributing a humble effort to develop a field of Applied Physiology in Ayurveda.

AIMS AND OBJECTIVES

To study the *Medhya* effect of *Guduchi Rasayana* in different *Prakruti* with special reference to Cattell & Cattell Intelligence Scale.

MATERIALS AND METHODS

1. Review of Literature: All available Ayurveda classical texts, *Samhitas*, available modern texts, magazines, journals and Research papers.

2. Type of study: Open Randomized Prospective study.

3. Sample size: Total number of subjects included in this study were 90. Appropriate number of volunteers were screened so as to recruit 30 volunteers of each *Ekdoshapradhan* type.

Group A - *Vatapradhana Prakruti* - 30 subjects.

Group B - *Pittapradhana Prakruti* - 30 subjects.

Group C - *Kaphapradhana Prakruti* - 30 subjects.

4) Sampling method: Simple Random Sampling method was used.

5) Ethical clearance: Clearance from Institutional Ethics Committee was taken.

Inclusion Criteria

- Normal and healthy individuals between the age group of 14-40 years were included.

- Individuals without any history of major illness and not under any kind of medication were included.

- Male and Female both sexes were included.

- Subjects having, I.Q above 70 (i.e., the physiological lower limit) were included.

- The volunteers willing to abide by the trial procedures and give written informed consent.

Exclusion Criteria

- Person suffering from any major illness or mental disorders.

- Under any kind of medication.

- Age below 14yrs and more than 40yrs.

- Who were illiterate

- Having history of any major illness were excluded from the study.

Withdrawal Criteria

1. The researcher feels that the protocol had been violated or subject has become non-co-operative.

2. Subject not willing to continue the trial.

3. Occurrence of unexpected harmful effect regarding given drug administration and other than it.

Informed consent

Informed written consent was taken from each and every volunteer participating in the study in the prescribed format.

Trial drug

Drug: *Guduchi Rasayana*, *Kalpana* (form of drug): *Swarasa* (Juice). Method of preparation: *Swarasa* was prepared according to the third method of preparation of *Swarasa* as mentioned in *Sharangdhara Samhita*.[7]

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

ISSN: 2456-3110
ORIGINAL ARTICLE
January 2023

Well dried *Guduchi Bharad* (coarse powder) was obtained from a well known, reliable local vendor. The standardization of the *Bharad* was performed from a reputed Ayurveda pharmacy before using it for preparation of *Swarasa*. One part of this standardized *Bharad* was taken and 8 parts of water was added to it. This mixture was boiled until one fourth of the actual amount of water was remaining. The *Swarasa*, thus prepared by this method was administered as *Guduchi Rasayana* in the subjects. *Matra* (Dosage): 1 *Pala* (40ml). *Sevanakala* (Time of administration): *Pratah Kala* (Empty stomach in the morning). *Kalawadhi* (Duration): 30 days. *Pathya Apathya* (Wholesome-unwholesome Diet): General *Pathya* and *Apathya* regarding *Dinacharya* (Daily Regime) and *Rutucharya* (Seasonal Regime) was advised.

Plan of study

1. After taking the written informed consent, *Prakruti* was assessed using proforma. Only significant characters of *Prakruti Parikshan* (Assessment of Constitution) useful for the evaluation of *Prakruti* were included in the proforma.

2. Percentage of each *Dosha* was calculated. Individuals having 60% or more than 60% of characters of a particular *Dosha* were included as *Dosha Pradhana Prakruti* (*Dosha* predominant constitution) of that respective *Dosha*, with *Anubandha Dosha* (adjacent *Dosha*). 3. Intelligent Quotient was assessed in different *Dehaprakruti* with the help of Cattell and Cattell Culture Fair Test for Intelligence.

3. *Guduchi Rasayana* was administered orally in all the subjects of different *Dehaprakruti* for a period of one month.

4. After completion of the regime of *Rasayana Therapy* i.e., oral administration of *Guduchi Rasayana*, intelligent quotient was reassessed with the help of Cattell and Cattell Culture Fair Test for Intelligence.

5. Analysis of the changes in intelligent quotient before and after the administration of the above said drug was performed.

6. Co-relation of *Prakruti* with intelligent quotient was done.

Methods

1. *Prakruti* Assessment: *Prakruti* was evaluated by using proforma[8]

2. Criteria for assessment of *Prakruti: Prakruti* was assessed as follows: *Vata Pradhana* >60% *Vataprakruti* characters, *Pitta Pradhana* >60% *Pittaprakruti* characters, *Kapha Pradhana* >60% *Kaphaprakruti* character.

3. Intelligence Assessment: Cattell and Cattell Culture Fair Intelligence Test was used to assess the I.Q score of all the 90 subjects enrolled in the study. This intelligence scale comprises of 4 subtests which totally consists of 50 questions. In the first subtest, the individual was presented with an incomplete, progressive series. His task was to select, from among the choices provided, the answer which best continues the series. Total 13 questions were there in this subtest and a period of 3 minutes was allotted to solve this test. Each corrected answer was rewarded 1 mark. No negative marking was used done. In the second subtest, the individual was presented with 5 figures and he was asked to correctly identify 2 figures which were in some way different from three others. Total 14 questions were there in this subtest and a period of 4 minutes was allotted to solve this test. Each corrected answer was rewarded 1 mark. In the third subtest, matrices were provided to the subject and the task was to correctly complete the design or matrix presented at the left of each row. Total 13 questions were there in this subtest and a period of 3 minutes was allotted to solve this test. Each corrected answer was rewarded 1 mark. In the final subtest, Conditions or Topology, the individuals were asked to select, from the 5 choices provided, the one which duplicates the conditions given in the left box. Total 10 questions were there in this subtest and a period of 2.5 minutes was allotted to solve this test. Each corrected answer was rewarded 1 mark. Before each subtest, examples were given so

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

ISSN: 2456-3110   **ORIGINAL ARTICLE**   January 2023

that the task requirements were clear to the examinee. After administration of the Intelligence test, 1 mark was allotted to each correct answer and a raw score out of total marks 50 was obtained from the answer sheets or booklets. This raw score was converted in to interpretable Standard Score with the help of conversion tables provided in the manual. This calculated Standard Score was the I.Q. score of that particular individual. Likewise, I.Q. score of all the 90 individuals was calculated in the same manner.

4. Total effect of *Guduchi Rasayana*: The total effect of *Guduchi Rasayana* with respect to the subjects would be assessed as follows: Improved: Any change of value in I.Q. was considered as improved. Not Improved: No change of value in I.Q. was considered as not improved.

5. Statistical Analysis: As I.Q. is a parametric data, Paired t test was applied to each sample to determine the significance of *Medhya* effect of *Guduchi Rasayana* within each sample (each *Prakruti*). Further, the differences from each group were compared with the help of One Way Anova test, to evaluate the significance of *Medhya* effect of *Guduchi Rasayana* in between all the three groups i.e., different *Dehaprakruti*.

OBSERVATION AND RESULTS

The data collected from the study was analyzed to study the relation between *Prakruti* and Intelligence (I.Q)

Table 1: Showing the effect of *Guduchi Rasayana* in *Vatapradhana Prakruti*

SN	IQ				Remarks
	BT	AT	Difference	%	
1.	116	117	01	0.86	Improved
2.	96	100	04	4.16	Improved
3.	113	137	24	21.23	Improved
4.	91	116	25	27.47	Improved
5.	106	106	00	0	Not Improved
6.	91	91	00	0	Not Improved
7.	109	109	00	0	Not Improved
8.	85	88	03	3.52	Improved
9.	113	116	03	2.65	Improved
10.	128	137	09	7.03	Improved
11.	128	128	00	0	Not Improved
12.	131	133	02	1.52	Improved
13.	113	117	04	3.53	Improved
14.	100	106	06	6.00	Improved
15.	103	109	06	5.82	Improved
16.	113	113	00	0	Not Improved
17.	121	140	19	15.70	Improved
18.	91	94	03	3.29	Improved
19.	109	116	07	6.42	Improved
20.	121	121	00	0	Not Improved
21.	94	100	06	6.38	Improved
22.	113	113	00	0	Not Improved
23.	124	128	04	3.22	Improved
24.	88	88	00	0	Not Improved
25.	100	106	06	6.00	Improved
26.	113	121	08	7.07	Improved
27.	128	133	05	3.90	Improved

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

ISSN: 2456-3110   **ORIGINAL ARTICLE**   January 2023

28.	113	113	00	0	Not Improved
29.	103	106	03	2.91	Improved
30.	91	91	00	0	Not Improved

Application of 'Paired t test' to *Vata Prakruti* Sample: P value. Two-tailed P value is 0.0003, considered extremely significant. t = 4.061 with 29 degrees of freedom. 95% confidence interval Mean difference = -4.933 (Mean of paired differences). 95% confidence interval of the difference: -7.418 to -2.449. Correlation coefficient (r) = 0.8952. One-tailed P value is < 0.0001, considered extremely significant. Effective pairing results in a significant correlation between the columns. With these data, the pairing (or matching) appears to be effective.

Table 2: Showing the effect of *Guduchi Rasayana* in *Pittapradhana Prakruti*

SN	IQ				Remarks
	BT	AT	Difference	%	
1.	103	103	00	0	Not Improved
2.	121	121	00	0	Not Improved
3.	96	103	07	7.29	Improved
4.	117	121	04	3.41	Improved
5.	91	91	00	0	Not Improved
6.	91	109	18	19.78	Improved
7.	117	121	04	3.41	Improved
8.	121	124	03	2.47	Improved
9.	106	113	07	6.60	Improved
10.	106	106	00	0	Not Improved
11.	113	113	00	0	Not Improved
12.	131	131	00	0	Not Improved
13.	100	100	00	0	Not Improved
14.	85	91	06	7.05	Improved
15.	103	106	03	2.91	Improved
16.	103	113	10	9.70	Improved
17.	109	117	08	7.33	Improved
18.	103	103	00	0	Not Improved
19.	116	116	00	0	Not Improved
20.	116	117	01	0.86	Improved
21.	88	106	18	20.45	Improved
22.	109	116	07	6.42	Improved
23.	124	133	09	7.25	Improved
24.	140	140	00	0	Not Improved
25.	91	100	09	9.89	Improved
26.	155	155	00	0	Not Improved
27.	106	109	03	2.83	Improved
28.	91	96	05	5.49	Improved
29.	109	117	08	7.33	Improved
30.	103	103	00	0	Not Improved

Application of 'Paired t test' to *Pitta Prakruti* Sample: P value. Two-tailed P value is < 0.0001, considered extremely significant. t = 4.690 with 29 degrees of freedom. 95% confidence interval Mean difference = -4.333 (Mean of paired differences). 95% confidence

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

ISSN: 2456-3110 **ORIGINAL ARTICLE** January 2023

interval of the difference: -6.223 to -2.444. Correlation coefficient (r) = 0.9472. One-tailed P value is < 0.0001, considered extremely significant. Effective pairing results in a significant correlation between the columns. With these data, the pairing (or matching) appears to be effective.

Table 3: Showing the effect of *Guduchi Rasayana* in *Kaphapradhana Prakruti*

SN	IQ				Remarks
	BT	AT	Difference	%	
1.	149	152	03	2.01	Improved
2.	124	124	00	0	Not Improved
3.	121	131	10	8.26	Improved
4.	117	121	04	3.41	Improved
5.	121	128	07	5.78	Improved
6.	72	94	22	30.55	Improved
7.	116	131	15	12.93	Improved
8.	91	94	03	3.29	Improved
9.	85	94	09	10.58	Improved
10.	113	117	04	3.53	Improved
11.	117	117	00	0	Not Improved
12.	109	121	12	11.0	Improved
13.	113	117	04	3.53	Improved
14.	96	109	13	13.54	Improved
15.	106	121	15	14.15	Improved
16.	91	116	25	27.47	Improved
17.	128	128	00	0	Not Improved
18.	91	100	09	9.89	Improved
19.	117	117	00	0	Not Improved
20.	116	116	00	0	Not Improved
21.	78	94	16	2.51	Improved
22.	113	113	00	0	Not Improved
23.	116	116	00	0	Not Improved
24.	121	124	03	2.47	Improved
25.	117	121	04	3.49	Improved
26.	106	106	00	0	Not Improved
27.	131	133	02	1.52	Improved
28.	103	103	00	0	Not Improved
29.	117	128	11	9.40	Improved
30.	113	121	08	7.07	Improved

Application of 'Paired t test' to *Kapha Prakruti* Sample: P value. Two-tailed P value is < 0.0001, considered extremely significant. t = 5.231 with 29 degrees of freedom. 95% confidence interval Mean difference = -6.633 (Mean of paired differences). 95% confidence interval of the difference: -9.227 to -4.040 Correlation coefficient (r) = 0.9083. One-tailed P value is < 0.0001, considered extremely significant. Effective pairing results in a significant correlation between the columns. With these data, the pairing (or matching) appears to be effective.

Application of 'One way ANOVA test' to all the three samples: One-way Analysis of Variance (ANOVA). P value is 0.3426, considered not significant. Variation among column means is not significantly greater than expected by chance. Post tests were not calculated because the P value was greater than 0.05.

ORIGINAL ARTICLE
January 2023

DISCUSSION

Medhya Rasayana are the drugs which are known to have a cognition enhancing effect on the body. Their prime action is on the mental faculties of an individual. These drugs possess some extraordinary attributes which bring about *Medhya Karma*, irrespective of their *Rasa* (Taste)*, Veerya* (Potency)*, Vipaka* (Post Digestive Juice) etc. This *Medhya* effect is mainly due to the *Prabhava* (unimaginable effect of the drug) of these *Rasayana* Drugs.

Only *Charakacharya* and *Dhanwantari Nighantu* have described *Guduchi* as a *Medhya Dravya*. None of the other *Acharyas* have stated this. *Bhavaprakash*, while explaining the *Guna-Karmas* (qualities) of *Guduchi*, have discussed about 'Rasayana' *Karma* of *Guduchi*. *Guduchi* possess *Katu-Tikta Rasa* (Pungent-Bitter Tastes), *Ushna Veerya* (Hot Potency) and *Madhura Vipaka* (Sweet Post digestive Juice). The probable modes of action of *Guduchi Rasayana* are as follows:

Guduchi was used in the form 'Swarasa' for this study. *Swarasa* being a *Guru* (heavy to digest) and *Drava Kalpana* (liquid state), its action is directed more on the *Rasa-Rakta Dhatu*. The drug *Guduchi* is mostly indicated in *Jwara* (Fever) and *Vata-Rakta* (Gout disease).

The normal functioning of *Medha* mainly depends on *Pitta Dosha*. *Pitta* in its normal state is *Katu Rasatmak* (Pungent taste) and related with the *Satva Guna* of *Manas*. *Guduchi*, being *Katu-Tikta Rasatmak* and *Madhura Vipaka Dravya*, purifies the *Pitta Dosha* and enhances *Satva Guna* by removing *Tamas*. *Tikta Rasa* has been described as *Medhya* by *Vagbhatacharya*. The *Ushna Veerya* of *Guduchi* brings about *Paachan* (digestion) of *Sama Pitta* and increases the *Jatharagni* (Digestive fire). This is ultimately responsible for improvement of *Medha.*

According to *Charakacharya*, individuals having *Rakta Sara* possess good *Medha*. *Tikta Rasa* of *Guduchi* brings about *Rakta-Prasadan* (purification of blood) and improves *Medha*.

CONCLUSION

According to 'Paired t test' *Medhya* effect of *Guduchi Rasayana* is statistically extremely significant in the subjects of all three types of *Prakruti*. *Medhya* effect of *Guduchi* is due to its *Tikta Rasa & Raktaprasadan* effect & action on *Pitta Dosha, Satva Guna.* According to 'One Way ANOVA Test,' the *Medhya* effect of *Guduchi Rasayana* is insignificant within the three groups. Hence, it means that the *Medhya* effect of *Guduchi Rasayana* do not depend on *Doshapradhana Prakruti*. Furthermore, according to *Bhavprakash Nighantu, Guduchi* has been described as *Tridoshshamak* drug which means it pacifies all the three *Doshas*. Therefore, the *Medhya* effect of *Guduchi* is independent of *Prakruti.* A study based on same topic of the present study can be done with a large sample size. Survey studies can also be conducted on this topic. The same study can be conducted by increasing the duration of oral administration of *Guduchi Rasayana* e.g., 6 months or 1 year.

REFERENCES

1. Sushruta Samhita Sutrastha 1/19 with Dalhana-Teeka edited by Vd. Yadavji Trikamji Acharya and Narayan Ram Acharya Kavyateertha published by Chaukhamba Surbharati Prakashan, Varanasi- (2008) Pg. No. 5.

2. Sushruta Samhita Sharir Sthan 4/63 Dalhana-Teeka edited by Vd. Yadavji Trikamji Acharya and Narayan Ram Acharya Kavyateertha published by Chaukhamba Surbharati Prakashan, Varanasi- (2008) Pg. No. 360.

3. Ashtanga Samgraha (Sutrasthana) 1/15 with Shashilekha Commentary by Indu edited by Dr.Shivprasad Sharma published by Chaukhambha Sanskrit Series Office, Varanasi year- (2012) Pg No 5.

4. Agnivesha, Charaka, Dridhabala. In: Charaka Samhita, Chikitsa Sthana, Rasayana Adhyaya, 1/1/7-8. 5th ed. Vaidya Jadavaji Trikamji Aacharya., editor. Varanasi: Chaukhamba Sanskrit Sansthan, 2009; Pg No 376.

5. Agnivesha, Charaka, Dridhabala. In: Charaka Samhita, Sutra Sthana, Rasayana Adhyaya, 1/3/30-31. 5th ed. Vaidya Jadavaji Trikamji Aacharya., editor. Varanasi: Chaukhamba Sanskrit Sansthan, 2009; Pg No 385.

6. Culture Fair Intelligence Test Cattell, R. B. (1940). *Culture Fair Intelligence Test (CFIT)* [Database

Parag M. Salvi et al. Prospective study of Medhya effect of Guduchi Rasayana

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record]. APA PsycTests. https://doi.org/10.1037/t14354-000

7. Sharangadhara Samhita Madhyam Khand Adhyay 1/2, Brahamanand Tripathi Chaukhamba Surbharati Reprint (2007) Pg No 125.

8. Developing guidelines for clinical research methodology in Ayurveda," by the institute for postgraduate teaching & research in Ayurveda, Gujarat Ayurved university Jamnagar; comprising of 23 questions.

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