Physico-Chemical Analysis of Guduchyadi Yoga

Ashish Premkumar Agrawal PG Scholar, Department of Kayachikitsa, MGACH & RC, SALOD (H),Wardha

Abstract:

Physico chemical parameter and organoleptic characters are the first and foremost step to determine the identity and to assess the quality of plant species. The aim of the study was to evaluate the parameter to determine the quality of the stem of Guduchi (Tinosporacordifolia) and rhizome of Musta(CyperusrotundusL.)These studies comprise to investigate on organoleptic characters like Colour,odour,Taste,Textureand Physico chemical parameters like Loss on Drying at105^oC,Bulk density, Tapdensity, TotalAsh, Acid Insoluble Ash, Water-soluble extractive, Alcohol-soluble extractive. The findings may provide useful information with regard to its identification and standardization in future.

Keywords: Guduchi, Musta, Physico chemical parameter, organoleptic characters.

Introduction:

Guduchyadi Yoga is mentioned for Medoroga in Yogaratnakar. It contains Guduchi (Tinosporacordifolia) and Musta(CyperusrotundusLinn.).Guduchi is an important drug in Ayurvedic system of medicine which belongs to the family Menispermaceae .It is used in the form of different preparations like Swaras, Churna, Vati, Taila, Ghrita etc. In clinical practice, generally it is used for diseases like Jwar (Fever), Shwetapradara (leucorrhoea), Mandagni (diminution of digestive fire), Daurbalya (weakness), Kamla (Jaundice), Prameha (Diabetes) etc. It also acts as a Rasayana (Rejuvenating property)^[1].

Musta belongs to the family Cyperaceae. It plays an important place among medicinal herbs in India since ancient time. It is used as an ingredient of many important formulations which is used in *Jwar* (fever), *Atisara* (Diarrhoea), *Medoroga* (Hyperlipidemia), *Grahaniroga* (Irritable bowel syndrome), *Arsha* (Piles), *Panduroga* (Anaemia), *Raktapitta* (Hemoptysis), *Kasa* (Cough), *Arochaka* (Anorexia) and *Vatavyadhi* (vyadhi caused due to vata dosh)^{[2].}

Guduchyadi Yoga is in the form of Churna. It contains equal amount of Guduchi and Musta. It is a herbal preparation and is used in Medorog. Guduchi is a Rasayan drug and by its Deepan, Pachan properties helps in correcting the Mandagni. Musta has Deepana, Pachan, Lekhana and Sangrahik properties which enhances the Agni and reduces the excessive Meda.

Rationale Of Study:

These herbal drugs single and in combination, contain numerous compounds in the complex matrices in which no single active constituents is responsible for overall efficacy. This creates a challenge in establishing quality standards.

The concept of quality control of herbs can be found in ancient Ayurvedic texts. In those days, identification of herbs was based on habitat and morphological characters. The nomenclature of many Ayurveda herbs denotes their physical and certain chemical characteristic features which areconsidered as primitive standardization tools.

But in modern times, these tests and tools are not sufficient to control the quality. In recent years, herbal drugs of Ayurveda, are widely used in global market, due to the cost effectiveness and lesser side effects. Hence, there is a need to ensure the quality of *Ayurvedic* formulations by using modern control techniques and applying suitable standards. Assessment of complete and accurate

physicochemical value of *Ayurvedic* herbs provides scientific basis of its quality as well as it helps in globalization of *Ayurveda*. Hence for quality assurance of *GuduchyadiYoga*, the present study will be carried out.

Aimand Objectives:

Aim: Study of *Guduchyadi Yoga* on the basis of organoleptic characters and Physico-chemical analysis.

Objectives:

1] To study the organoleptic characters of Guduchyadi Yoga.

2] To study the Physico chemical parameter of the Guduchyadi Yoga.

Review Of Literature:⁽³⁾

In YogaratnakarGuduchyadiYoga is mentioned for Medoroga.It contains Guduchi and Musta.

"गुडूचीभद्रमुस्तानांप्रयोगस्त्रैफलस्तथा ।

तकारिश्टप्रयोगश्चप्रयोगोमाक्षिकस्य च "।। ६।।; यो.र.द्ध

Guduchi:⁽⁴⁾⁽⁵⁾

Gana:	Triptighna, Daha Prashamana, Trishnanigraha, Vayasthapana			
Botanical Name :	<i>Tinosporacordifolia</i> Willd			
Family Name :	Menispermaceae O			
Vernacular Names:				
English Name:	Tinospora 5			
Sanskrit:	Guduchi, Amrita, Manduparni			
Hindi :	Giloe, Gurcha			
Marathi:	Gulvel			
Gujara <mark>ti</mark> : 🛇	Galac, Garo			
Ayurvedic properties:				
Rasa :	Tikta,Kashaya			
Guna:	Laghu			
Virya:	Ushna			
Vipaka:	Madhur			
Doshakarma:	Tridosha Shamak			
Rogaghnata:	Medoroga, Prameha, Pandu, Jvara, Kamala, Vatarakta, Kushta			
Property:	Medhya, Deepan, Balya, Jvaraghna, RaktaShodhak			
Action & uses:	Medohara, Deepaniya, Rasayana, Samgrahi , Jwarhara, Kandughna, Dahaprashamana			
Part use:	Stem, leaf, areal & roots			
Chemical constituents:	Berberine, giloin, volatile oil, starch Tinosporine, tinosporon, tinosporic acid, tinosporol, 1,2-substituted 18- norclerodanediterpene-Oglucoside,octacosanol, nonacosan			

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Musta: (0)(7)

Gana:	Lekhaniya, Sangrahic, Truptighna, Trishnanigrahana,Kandughna	
Botanical Name :	<i>Cyperusrotundus</i> Linn	
Family Name :	Cyperaceae	
Vernacular Names:		
English Name:	Nut grass	
Sanskrit:	Mustaka, Bhadramusta, Vaarida	
Marathi:	Moth,Nagarmoth	
Hindi :	Motha,Nagarmotha	
Gujarati :	Moth, Nagarmoth	
Ayurvedic properties:		
Rasa :	Tikta, Katu, Kashaya	
Guna:	Laghu,Ruksha	
Virya:	Sheeta	
Vipaka:	Katu	
Doshakarma:	Kapha-Pitta Hara	
Rogaghnata:	Kaphapittavikara, Agnimandya, Ajirna, Trishna, Sangrahani, Jwara, Atisara, Amavata, Raktavikara	
Property:	Lekhaniya, Deepan, Pachan, Grahi , Jwarghna, Shothahara, Krimighna, Tvakdoshahara	
Action & uses:	: uses: Sthaulyahara, Trishnanigrahana, Jwarhara,	
Part use:	Rhizomes	
Chemical constituents:	Cineol(+) copadiene, Copaene, Cyperol, Cyperolone, a- Cyperone,(+) epoxyguaiene, isocyperol, isokobusone, Kodusone, Mustakone, Patchilene, (+) rotundone, a- & b- selinene, Sugenol, b- sitosterol etc.	

MATERIAL AND METHOD:

01.Study Centre: Mahatma Gandhi Ayurveda College Hospital and Research Center Salod,HirapurWardha

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02. Collection of drugs: -Raw material *Guduchi* stem and *Musta*rhizomes were procured from the local market and were authenticated from Department of *Dravyaguna*.

After that Guduchyadi Yoga was prepared in the DattatreyaRasashala attached to Mahatma Gandhi Ayurved College.

03. Preparation of *Guduchyadi Yoga:*⁽⁸⁾ After collection, raw materials were cleaned and dried properly. Both the drugs were finely powdered and sieved separately. Then both were taken in equal quantity and were mixed thoroughly. Thus, by using standard operating procedures fine powder of

Guduchi stem and Musta rhizomes was prepared. After preparation, it was preserved in airtight containers.

Composition of Drug:

Sr. No.	Name of drug	Botanical name	Part used	Ratio
1	Guduchi	Tinosporacardifolia	Stem	1 Part
2	Musta	Cyperusrotundus	Rhizomes	1 Part

Composition Of Guduchyadi Yoga:



Fig.No.01: Showing Stem of Guduchi (Tinosporacordifolia)



Fig. No.02: Showing Rhizomes of Musta (Cyperusrotundus)



Fig.No.03: Showing Guduchyadi Yoga

Email id's:- aiirjpramod@gmail.com,aayushijournal@gmail.com | Mob.08999250451 Page No. website :- www.aiirjournal.com 9 Study design:-

Type of study:- LaboratoryAnalytical Study

Physico-Chemical Parameters For Churna :

Description (Organoleptic characters):

- 1]Color
- 2]Odour
- 3]Taste
- 4]Texture

Physico chemical parameters:

- 1]Loss on Drying at 105^oC
- 2]Bulk density
- 3]Tap density
- 4]Total Ash
- 5]Acid Insoluble Ash
- 6] Water-soluble extractive
- 7] Alcohol-soluble extractive

Observation And Results:

e Ash e extractive ble extractive **nd Results: Description (Organoleptic characters): (Table No.1)**

	S	r.no	Test Parameter	Test Result	R
-		1	Colour	Yellowish Green	9
i	I	2	Odour	Non-specific	
C		3	Taste	Bitter	
11	2	4	Texture		
17	2			Fine powder	

Physico chemical parameters:(Table No.2)

Sr.no	Specification	Observation
1	Loss on Drying at 105 ⁰ C	8.8%
2	Bulk density	0.657
3	Tap density	0.822
4	Total Ash 2349-0	8.25%
5	Acid Insoluble Ash	2.95%
6	Water-soluble extractive	20.0%
7	Alcohol-soluble extractive	29.0%

Discussion:

The present analytical study has been carried on the formulation *Guduchyadi Yoga* prepared by using standard operating procedures fine powder of *Guduchi* stem and *Musta* rhizomes was prepared to establish the quality of the finished product. Organoleptic and physico-chemical analysis were carried out and established the standard quality parameters of the formulation.

The organoleptic characters of *Guduchyadi Yoga*were as shown in Table No.1, showed that the color wasYellowish Green while soft and slimy in touch and bitterin taste.

Physicochemical parameters such as Loss on drying, Bulk density, Tap density, Total ash, Acid insoluble ash, Water soluble ash, Alcohol-soluble extractive content were shown in Table 2.Ash value used to determine quality and purity of crude drug. The extractive values are useful to evaluate

the chemical constituents present in crude drug and also help in estimation of specific constituents soluble in particular solvent.

The results of extractive values are shown in Table 2. Higher extractive value of alcohol extract is due to presence of Phenolic compounds, flavonoids, glycosides, saponins, alkaloids, and tannins. The preliminary phytochemical screening of different extracts of rhizome of *C*. *Rotundus*Linn. Showed the presence of phenolic compounds, flavonoids, alkaloids and absence of triterpenoids, anthroquinones and coumarins in all the extracts. Steroids were present in petroleum ether and n-hexane extracts, reducing sugars and glycosides were present in acetone, alcoholic and aqueous extracts, saponins and tannins were present in alcoholic and aqueous extracts. The results of fluorescent characters of various extracts of C. *Rotundus*rhizome gave distinct color difference in day and UV light. It is shown in Table 2. The findings of preliminary phytochemical screening was helpful to identify the nature of herbs and also useful to detect of different constituents present in different polarity solvent. ^(9, 10)

Since herbal medicines are from materials of organic origin they are prone to contamination, deterioration and variation in composition. This gives rise to inferior quality of herbal products with little or no therapeutic efficacy. Most often the desired biological response is due to not one but a mixture of bio active constituents and the relative proportion of active constituents can vary from plant to plant of the same species and also in different parts of the plant. Hence quality control of the plant's raw materials is the most important challenge in bringing any of the traditional medicine for phytomedicines to the acceptance of concerned people. And hence this detailed Physico-Chemical Analysis had provided authentication procedures and the organoleptic characters and Physico chemical characteristics of *Guduchyadi Yoga*.

Conclusion:

All studied standardization parameters such organoleptic characters and Physico chemical characteristics was carried out and it could provide the knowledge in authentication of *Tinosporacordifolia andC. rotundus*rhizome Physicochemical parameters such as Loss on drying, Bulk density, Tap density, Total ash, Acid insoluble ash, Water soluble ash, Alcohol-soluble extractive and Successive extractive values were observed. These values can be useful to detect adulteration.

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