WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 8, Issue 10, 1551-1558. Research Article ISSN 2277– 7105

A COMPARATIVE PHARMACEUTICO-ANALYTICAL STUDY OF *GUDUCHI GHANA VATI* PREPARED FROM FRESH AND DRY *GUDUCHI*

Vidyashree[1]*, Ashok Kumar B. N.[2], Radhika Ranjan Geethesh P.[2] and Ravindra Angadi[3]

[1]P.G Scholar, [2]Associate Professor, [3]H.O.D

Department of Rasashastra and Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Kuthpady, Udupi-574118.

Article Received on
17 July 2019,

Revised on 06 August 2019,
Accepted on 27 August 2019,

DOI: 10.20959/wjpr201910-15768

***Corresponding Author**
Dr. Vidyashree
P.G Scholar, Department of Rasashastra and Bhaishajya Kalpana, Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Kuthpady, Udupi-574118.

ABSTRACT

Background and objective: *Guduchi ghana vati* was known for its wide therapeutic effect. Most of the *Guduchi ghana* was prepared from fresh *Guduchi*. To standardise *Guduchi ghana vati* from fresh and dry *Guduchi*. The present study was undertaken to compare pharmaceutical and analytical study of *Guduchi ghana vati* prepared from fresh and dry *Guduchi*. **Aims and objectives:** To study the organoleptic characters and evaluation of *Guduchi ghana vati* prepared from fresh and dry *Guduchi* in terms of physico-chemical analysis and chromatographical parameters. **Material and methods:** Preparation of *Guduchi ghana vati* from fresh and dry *Guduchi* was carried out according to siddha yoga sangraha. both samples were subjected to physico-chemical analysis. **Conclusion:** The analytical parameter shows Water soluble extractive value of DGGV was more than FGGV indicating that it has more water soluble constituents.

KEYWORDS: *Guduchi*, fresh, dry, *ghana* vati.

INTRODUCTION

Ghana kalpana is the modified form of *Kwatha* kalpana. Converting *Kwatha* into different dosage form like *Ghana vati* may help to increase the shelf life without adding any preservatives and without much change in the property of the particular formulation. *Guduchi*

ghana vati was popularly used in the all types of jwara. During preparation of *Guduchi ghana*, fresh *Guduchi* was mentioned. No documents were available about *Guduchi ghana vati* prepared from dry *Guduchi*. Acharyas have explained that the *Guduchi* should be always used in fresh form.[1] In all seasons, its difficult to get fresh drug. Most of the time dry *Guduchi* was used instead of fresh *Guduchi* in the preparation of *Guduchi ghana* vati. Thus, the present study was planned to standardise the *Guduchi ghana vati* prepared from fresh and dry *Guduchi* through analytical parameters.

AIM AND OBJECTIVES

To analyse the sample of *Guduchi ghana vati* prepared from fresh and dry *Guduchi* by using suitable parameters.

To assess the comparative HPTLC profile of *Guduchi ghana vati* prepared from fresh and dry *Guduchi*.

MATERIALS AND METHODS

Collection of raw drug

Raw drug required for the preparation of *Guduchi ghana vati* was collected near Udupi and authentified by Dravya guna department.

Preparation of *Guduchi ghana vati* from fresh and dry *Guduchi* were carried out in the laboratory of Dept. of Rasashatra and Bhaishajya kalpana, S.D.M College of Ayurveda, Udupi.

Method of collection of data

Guduchi ghana vati from fresh and dry *Guduchi* was prepared according to siddha yoga sangraha.[2]

Preparation of Fresh *Guduchi ghana vati* (FGGV)

- The Previously prepared *Guduchi Kwatha* from fresh *Guduchi* was taken in a stainless steel vessel and kept on a gas stove.
- Boiling was done till it attained semisolid consistency.
- Once it attained semisolid consistency, it was taken out of fire and kept for drying in sunlight.
- After removal of moisture content, rolled into pills of 500mg size, dried and stored.

Table 1: Ingredients of fresh *Guduchi ghana vati* (FGGV).

Sl.no	Ingredients	Quantity
1.	*Guduchi kwath* from fresh *Guduchi*	2 litre

Preparation of Fresh *Guduchi ghana vati*

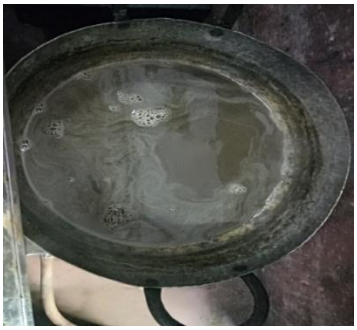

Fig 1: Fresh *Guduchi Kwatha*

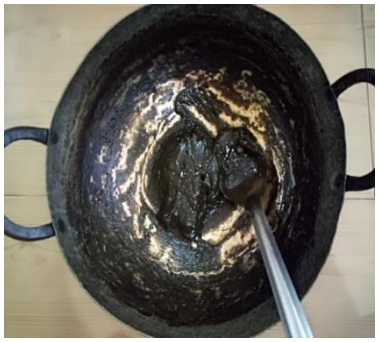

Fig 2. *Rasakriya*.

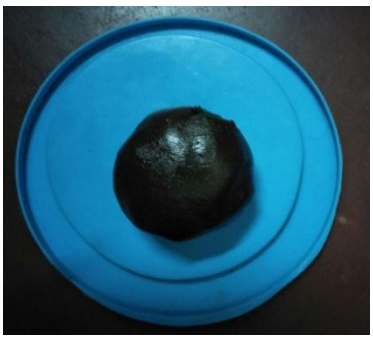

Fig 3: *Ghana.*

Fig 4: *Vati.*

Preparation of Dry *Guduchi ghana vati* (DGGV)

- The Previously prepared *Guduchi kwatha* from dry *Guduchi* was taken in a stainless steel vessel and kept on a gas stove.
- Boiling was done till it attained semisolid consistency.
- Once it attained semisolid consistency, it was taken out of fire and kept for drying in sunlight.
- After removal of moisture content, it was rolled into pills of 500mg size, dried and stored.

Table 2: Ingredients of Dry *Guduchi ghana* vati (DGGV).

Sl.no	Ingredients	Quantity
1.	*Guduchi Kwatha* from dry *Guduchi*	4 litre

Preparation of Dry *Guduchi ghana vati*

Fig 5: Dry Guduchi kwatha

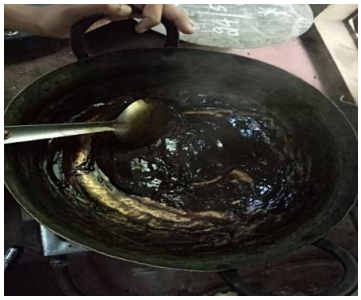

Fig 6**:** Rasakriya

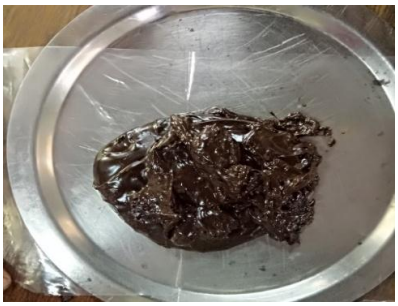

Fig 7: Ghana

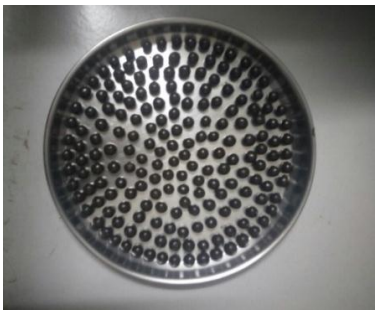

Fig 8: Vati

Precautions

- Moderate fire was maintained throughout the procedure.
- Stirring was done continuously to avoid charring of the drug.
- While rolling pills, ghrita was applied to hands to avoid sticking.

Analytical study

Analytical study was conducted to understand the nature of the compounds of the prepared samples. Both samples were subjected to evaluate organoleptic characters, physico-chemical analysis and HPTLC profile to develop possible analytical profile.

RESULTS

Both the samples were prepared according to classical reference. Observation during preparation mentioned in table 3 and organoleptic characters and physico chemical analysis were explained in table 4 and 5.

Table 3: Organoleptic characters of FGGV and DGGV.

Parameter	**FGGV**	**DGGV**
Colour	Brown	Dark brown
Odour	Characteristic smell	Characteristic smell
Taste	Bitter	Bitter
Appearance	Round pill shaped	Round pill shaped

Table 4: Comparison of observation of FGGV and DGGV.

Parameters	FGGV	DGGV
Quantity of *Kwatha*	2 litre	4 litre
Time taken for total evaporation	3 hr	5hr 15 min
Temperature of heat given	60 – 80^0c	60 – 80^0c
Total weight of *Ghana* obtained	115g	200g
Total weight of *Ghana* obtained after drying	55g	150g
Loss of weight after drying	60g	50g
Total duration for drying	1 day	1 day

Table 5: Physico-chemical analysis of FGGV and DGGV.

Parameter	Results n = 3 %w/w	
	Guduchi Ghana vati (Fresh)	*Guduchi Ghana vati* (dry)
Ph Refractive index Loss on drying	5.33 1.33461 18.39±0.01	5.42 1.33590 10.88±0.00
Total Ash	10.54±0.03	12.98±0.60
Acid Insoluble Ash	0.40±0.00	0.58±0.14
Water soluble Ash	7.23±0.03	7.61±0.45
Alcohol soluble extractive value	2.21±0.00	3.75±0.00
Water soluble extractive value	31.03±0.00	55.34±0.00
Tablet (average wt±SEM)	0.482±0.01	0.490 ±0.00
Tablet wt variation	0.482	0.490
Hardness (Kg/cm)	2.0	3.0
Disintegration test time (min)	36	40
Friability	Passes the test	Passes the test

DISCUSSION

Pharmaceutical study

The raw drug required for the study were procured from the near udupi. They were again verified by the scholars of dravyaguna department of SDM College of Ayurveda, Udupi. The source taken for the study was tinpspora cordifolia.

1. Preparation of Fresh *Guduchi Ghana vati*

Kwatha prepared from fresh *Guduchi* was taken and reduced further till it attain a semisolid consistency. In between preparation more froath formation takes place. Stirring is an important factor to distribute the heat and to prevent the drugs from getting burnt. The temperature was maintained throughout the procedure between the range 60 – 80^0c. When it attain semisolid consistency it was taken out from the pan and to remove the moisture content it was subjected to drying in a hot air oven. After considerable drying dry *Guduchi churna* was added to it and pounded to make it a homogenous paste. Then it was rolled into vati.

While rolling the vati, ghee has to be smeared to avoid stickiness. The procedure completed in 3hrs and obtained end product was 55g.

2. Preparation of Dry *Guduchi Ghana* vati

Kwatha prepared from dry *Guduchi* was taken and reduced further till it attain a semisolid consistency. the stickiness was less in *Guduchi Ghana vati* prepared from dry *Guduchi*. The reason may be after drying the starch content reduced. After considerable drying dry *Guduchi churna* was added to it and pounded to make it a homogenous paste. Then it was rolled into *vati*. While rolling the *vati*, ghee has to be smeared to avoid stickiness. The procedure completed in 5hrs 15min and obtained end product was 150g.

Analytical study

Analytical study was carried out to know the physico chemical changes in both the samples. Observation of physico-chemical parameters shows FGGV and DGGV being weak acidic of pH 5.33 and 5.42 respectively is absorbed throughout the GIT. Refractive index of a substance is a dimensionless number that describe how light, or another radiation, propagates through that medium. Refractive index of FGGV and DGGV was 1.33461 and 1.33590 respectively. Loss on drying of FGGV was 18.39±0.01 and DGGV was 10±0.00 which indicates presence of moisture contents and volatile principles. Total ash value of FGGV was 10.54±0.03 and DGGV was 12.98±0.60 which indicates presence of inorganic contents in both samples. The total ash usually consists of carbonates, phosphates, silicates and silica which include both physiological ash and non physiological ash. Acid insoluble ash 0.40±0.00 for FGGV and 0.58±0.14 for DGGV which is indicative of more silicatious contents in DGGV. Water soluble ash value of FGGV was 7.23±0.03 and DGGV was 7.61±0.45 which indicates the percentage of alkali content in both the sample. Alcohol soluble extractive value of FGGV was 2.21±0.00 and DGGV was 3.75±0.00. This indicates that in DGGV, alcohol soluble constituents are more extracted. The water soluble extractive value shows number of water soluble constituents present in *Ghana vati*. It was more in DGGV i.e 55.34±0.00 while less in FGGV was 31.03±0.00. The tablet (average wt±SEM) value of FGGV was 0.482±0.01 and DGGV was 0.490 ±0.00. Tablet wt variation of FGGV was 0.482 and DGGV was 0.490 which tablet wt variation of both sample was within the normal limit. The hardness of FGGV was 2kg/cm whereas hardness of DGGV was 3kg/cm. This indicates hardness of both *Ghana vati* was within the normal limit. The disintegration time taken for FGGV was 36min whereas for DGGV was 40min. The friablity value should

not exceed more than 1% w/w. Both FGGV and DGGV passes the friability test, which indicates these vatis are easy to handle and transport.

HPTLC

Rf value at short UV

HPTLC of FGGV shows three spots at the Rf value 0.09, 0.18, 0.23 while DGGV shows four spots at the Rf value 0.09, 0.18, 0.23, 0.40. the alkaloid at spot with Rf value is common in 0.09, 0.18, 0.23.

At long UV

HPTLC of FGGV shows three spots 0.16, 0.22, 0.57. while DGGV shows seven spots at the Rf value 0.08, 0.17, 0.22, 0.43, 0.45, 0.59, 0.82. the alkaloid at spot with Rf value 0.22 is common in both.

After derivatisation

HPTLC of FGGV shows 6 spots at the Rf value 0.10, 0.17, 0.56, 0.66, 0.76, 0.87 while DGGV shows 6 spots similar to FGGV.

Densitometric scan at 254nm

FGGV shows maximum area at Rf value 0.04 i.e 56.60% and 57.52%. DGGV shows maximum area at Rf value 0.04 i.e 49.90% and 51.38%.

Densitometric scan at 366nm

FGGV shows maximum area at Rf value 0.04 i.e, 81.94% and 88.42%. DGGV shows maximum area at Rf value 0.04 i.e 73.09% and 81.89%.

Densitometric scan at 620nm

FGGV shows maximum area at Rf value 0.15 i.e 22.90%% and 24.99%. DGGV shows maximum area at Rf value 0.08 i.e 19.98%% and 25.59%.

CONCLUSION

In pharmaceutical study, the final product obtained was more in dry *Guduchi ghana vati*. The analytical parameter shows Water soluble extractive value of DGGV was more than FGGV indicating that it has more water soluble constituents.

REFERENCES

1. Sharangadhara, Sharangadhara Samhita with Deepika Commentary of Adhamalla and Gudaarth Deepika Commentary edited by Pandit Parusurama Shastri, 1st Ed. Varanasi: Chaukamba Orientalia, 2016; 11: 398.
2. Trikamji Yadavji's Sidda yoga sangraha, 8th Edition, Kolkatta, Baidyanath Ayurveda limited, 1984; 4: 76.