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Research Article

## PHYSIOCHEMICAL ANALYSIS OF MANJISHTHA KWATH W.S.R TO PREPARATION BY CLASSICAL & EXTRACT METHOD

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### ABSTRACT

*Ayurved* Pharmacy is grooming industry in India. Herbal formulation has more importance as it has open access to foreign market with compared to herbo mineral combination. Because of advanced technology, various new methods are adopted for preparation of classical *Kalpas* (preparation). Process, raw drug, time duration etc. mentioned in *Ayurvedic* treatises is different from which is practiced today. Though its scientific era & we have short time span then also its our duty to compare the results between *Kalpa* made by Classical method as well as by new advanced technique. *Kwath* is one of the basic *Kashaya Kalpana*. It is used as solely as medicine as well as an ingredient for preparation of different *Kalpas*. Nowadays most of pharmacy instead of preparing *Kwath* by Classical method used wet or dry extract which is prepared by dissolving it in hot water. New process has bigger shelf life; it is fast, devoid of raw material storage, energy & time loss. We have to see whether it gives same result as prepared by classical method. So here an attempt to analyze *Kwath* made from both method i.e by Classical & extract physiochemically.

**Keywords:** Physiochemical analysis, *Kwath*, *Kashaya Kalpana*, Organoleptic Parameter, Preparation of *Manjistha Kwath* by classical & extract method

### INTRODUCTION

Now a day people are more enthusiastic for *Ayurved* & looking towards it as main line of treatment because of awareness of harmful side effects of modern medicine. *Ayurved* is practiced worldwide especially herbal medicine recognized all where. In some countries there is ban on use of mineral drugs (*Rasa Kalpa*) but herbal medicine can be used due to their safety. So herbal medicine industry has very big market & it is grooming field. As in *Ayurvedic* pharmacies there is large scale production, large amount of raw material, processing units and trained technical staff is required. To cut off cost & to increase margin profit these pharmacies adopt newer technique to form medicine. Though it's a digital & technical era, we have to look upon merits & demerits of instrumentation.

For preparation of any medicine, there are some basic formulations described in *Ayurved* classics known as *Panchavidha Kashaya Kalapana*. *Swaras*, *Klaka*, *Kwatha*, *Hima*, & *Fanta* are these basic formulations<sup>1</sup>. These can be used as a medicine themselves or can be used in formulation of different *Kalpas*. From these formulations *Kwath* is mostly used. *Swaras* & *Kalka* are *Guru Kalpanas* & mostly requires

fresh raw material. *Hima* & *Fanta* are *Laghu Kalpanas* & having less potency compared to others so *Kwath* formulation is very important<sup>2</sup>.

According to *Sharangdhar Samhita* process of *Kwath* preparation is as follows- 1 part of *Bharad Churna* (Coarse Powder) is boiled with 16 part of water without lid & provided with equal amount of heat. It is boiled till one eighth part is remained. It is strained with cloth & taken as *Kwath*.<sup>3</sup> Other test is medicinal drug used for preparation of *kwath* should devoid of active principle (*niras*)<sup>4</sup>. As this process is lengthy & requires so much energy & raw material storage, most of pharmacies adopt newer technique for its formation. One of the adopted techniques is formation of *Kwath* from extract. Pharmacies buy dry or wet extract from providers & use it to form basic formulation. With these extracts herb value is given which indicate how much extract should be used for equal amount of crude drug<sup>5</sup>. That amount of extract is dissolved in hot water to formulate the *Kwath*.

So here an attempt is made to analyze the *Kwath* prepared by both techniques physiochemically to conclude the better. Also this research will highlight the merit & demerits of newer techniques adopted for preparation. For this study *Manjistha*

has been selected because of availability of extract & also as a raw drug.

#### Aim & objectives:

1. To compare Kwath prepared by two technique on the basis of physiochemical analysis.
2. To assess the efficacy of newer technique of *Kwath*.

### MATERIALS AND METHODS

#### A. Materials:

##### *Manjistha Kwath*

Sr. No	Ingredients	Quantity
1	<i>Manjistha</i> coarse powder	50 grams
2	<i>Manjistha</i> wet extract	7 grams

#### B. Method:

##### I. Procurement of drug:

Raw drugs were collected from four different sources from Solapur market. Each drug was taken in same quantity i.e 50 grams. It was packed & labeled as sample 1 to 4 & given to the department of Dravyaguna, SGR Ayurved College Solapur for sample selection.

##### II. Sample selection:

The best sample was selected on the basis of primary identification & exomorphic characteristics<sup>6</sup>.

##### III. Preparation:

##### a) Preparation of *Manjistha Kwath* by classical method.

1. The authenticated crude drug was crushed to coarse powder. 50 gms of coarse powder was mixed thoroughly with 16 parts of water in stainless steel container.
2. Continuous mild heat was given until it was reduced to one eighth of its initial quantity.
3. During the heating process, continuous stirring was done to facilitate the evaporation & avoid any deterioration due to burning materials.
4. *Kwath* was filtered through the single folded cotton cloth & collected in separate bottle. This sample was labeled as 'Sample A'.

##### b) Preparation of *Manjistha Kwath* from wet extract.

1. Wet *Manjistha* extract was taken from Tulsi Amrit Pvt. Ltd, Indore for the preparation of *Kwath*.
2. It's HER value was 7:1. It indicates that for 7 parts of crude drug is equal to 1 part of extract. So for *Kwath* preparation 7.14 grams of extract was taken<sup>7</sup>.
3. 7.14 grams of extract was dissolved in 95 ml of hot water to prepare approximately 100 ml of *Kwath*.
4. It was filtered through the single folded cotton cloth & collected in separate bottle. This sample was labeled as 'Sample B'.

##### c) Analysis:

The both samples were subjected to various analytical parameters.

##### 1. Organoleptic Parameters<sup>8</sup>:

- *Rupa* (color)
- *Rasa* (taste)
- *Gandha* (odour)
- *Swarupa*

##### 2. Physiochemical Parameters<sup>9</sup>:

- pH
- Total ash
- Water soluble extractive
- Specific gravity
- Total solids
- Viscosity
- Density.

##### d. Study Design:

1. Analytical study
2. Single blind method.

### RESULTS

Results of Organoleptic tests & physiochemical test for both samples are given in following tables. Also an analytical report of wet extract of *Manjistha* from Tulsi Amrit pvt. Ltd, Indore is also tabulated.

#### Organoleptic Tests:

Name of test	Sample A	Sample B
Color	Dark reddish brown	Dark reddish brown
Taste	Madhur-Tikta-Kashaya	Same but kashaya excess
Odour	Specific <i>Manjistha</i>	Not specific.
Appearance	Liquid	Liquid
Touch	Watery	Watery but little sticky

#### Physiochemical test:

Name of test	Sample A	Sample B
pH	6.19	4.7
Specific gravity	1.0158	1.0162
Total solids	4.10%	3.95%
Total ash	0.80%	0.16%
Viscosity	1.062	1.016
Density	1.029	1.019
Extractive in water	22.80	19.0

## Heavy metal analysis:

Name of heavy metal	Sample A	Sample B
Arsenic	Not detected	Not detected
lead	Not detected	Not detected

## Pesticide residual value:

Name of Pesticide	Sample A	Sample B
Organophosphrus pesticide	Not detected	Not detected

## DISCUSSION

First *Manjistha Kwath* was prepared by classical method given in *Sharangdhar Samhita* in *Madhyam Khand*. According to it 50grams of coarse powder of crude drug *Manjistha* was taken. It is boiled with sixteen parts of water that was 800ml. Mild even heat in a stainless steel vessel with no lid was given till one fourth quantity remains as compared to original quantity. The procedure adopted to prepare sample B was dissolving wet extract in hot water. As HER value was 7:1 given in analytical report, 7.14 grams of wet extract was dissolved in 193ml hot water to produce the 200 ml *Kwath* approximately. Organoleptic parameters for both samples are as follows-color of both samples was same with negligible a variation that was dark reddish brown. Taste of sample A was madhur-tikta-kashaya<sup>10</sup> & in sample B there was excess bitter taste. Odour of sample A was that of characteristics of *Manjistha* while in sample B as it preserved one, intensity of odour was less. Texture or consistency of both samples were watery but sample B was little sticky in nature.

The pH conventionally represents the acidity & alkalinity. The pH of both samples showed to be weak acidic in nature. As we know pH nearby 7 is quality parameter, sample A shows more qualitative index. Ash value depends upon the inorganic substances presents in particular drug. This parameter has importance in quality control & standardization of drugs. The higher inorganic substances present in drug, more will be ash value. Total ash value of sample A was 0.80% & that of sample B was 0.16%. It means that *Kwath* prepared by classical method contents more inorganic substances. It may be due to excessive heating during the procedure<sup>12</sup>. Various components have their solubility in particular media. Here solubility of samples was seen in water. Extractive in water value of sample A was 22.80% & that of sample B was 19%<sup>13</sup>. More the extractive in water more will be the bioavailability of drug in water medium. So *Kwath* prepared by classical method have more bioavailability in water medium than *Kwath* prepared from extract. So it will have more results.

Total solid indicates insoluble components from the formulation. It should be nearby zero. For sample A, it is 4.10% & for sample B it is 3.95%. Both have negligible difference & strongly indicate presence of insoluble components. Viscosity of sample A was 1.062 & that of sample B was 1.016. Lesser the viscosity greater will be the result. As the viscosity increases formulation becomes hard for disintegration & digestion. Difference between both sample is very less, but then also sample B *Kwath* prepared from extract shows less viscosity. Specific gravity should be greater than one. If it is equal or less than one it will be just like water. So

it must be greater than one. Specific gravity of sample A is 1.0158 & that of B is 1.0162. Again sample B shows more productivity. Heavy metals (arsenic & lead) were not detected. It shows purity of raw drugs & finished product.<sup>14</sup> Medicinal plant materials are liable to be affected by pesticide residues which accumulate from agricultural practices as well as from administration of fumigants during storage. They were found below the detection limit. It indicates quality land practices & safe storage of drug<sup>15</sup>.

## CONCLUSION

The study reveals that sufficient quality control parameters were followed during the preparation of formulation. Organoleptic parameters, physicochemical analysis, heavy metals analysis & pesticide residue analysis were carried out as per norms of WHO guidelines. Absence of heavy metal & pesticide in finished product indicate genuineness. After comparing the results of both samples there is negligible difference in the value. Sample A is better in color, taste, odor, pH, & extractive in water while sample B is better in specific gravity, total solid, viscosity, total ash. Thus *kwath* prepared by classical method is more productive formulation but other sample prepared from wet extract also shows approximately similar value.

So the alternative method used by most of pharmacies for *Kwath* preparation is also good as it has same values with short time span, little energy consumption & devoid of raw material shortage.

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