



ANALYTICAL STUDY OF VASAKAADI KWATHA (SYRUP)

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ABSTRACT

Our eyes are believed to be *Pitta* predominant i. e. “*Chakshu tejomayi*” and its main fear is from *Kapha*. That is why *Kaphanashaka karma* are always beneficial for maintaining the ocular health.^[1] Our *Acharya*'s have mentioned numerous *Ayurvedic* formulations for the *Kapha dosha shaman*. These could be local or systemic. *Vasakaadi Kwatha* is one such formulation mentioned by *Acharya Chakradutta* and also in *Bhaisajya Ratnavali* and is indicated as “*Raktasravam kapham hanti chakshushyam Vasakaadikam*”.^[2] Thus it is believed to cure *kapha* predominant disease like *Kaphaja abhishyanda*. *Kwatha kalpana* is considered to be the best among ‘*Panchvidha kashya kalpana*’ because all other secondary preparations like *Gutika*, Syrup, *Asava* etc are prepared through it. Here *Vasakaadi kwatha* is modified in syrup form. The reason for the modification is to increase its palatability, shelf-life, less microbial contamination. Thus the purpose of present study is to analyze the physicochemical properties of *Vasakaadi Kwatha*(syrup).

INTRODUCTION

The five basic formulations of *Ayurveda* are *Swarasa*, *Kalka*, *Shrita(Kwatha)*, *Sheeta* and *Fanta*. These are known as *Panchvidha kashaya kalpana*.^[3] Out of them, *Kwatha kalpana* is having upper hand because it act as a base for many secondary formulations like *asava*, *arishta*, *taila*, *gutitka*, syrup etc. *Kwatha kalpana* is also used in various ophthalmic ailments. *Vasakaadi Kwatha* is one *Kwatha kalpana* mentioned by *Acharya Chakradutta* and also in *Bhaisajya Ratnavali* and is indicated as “*Raktasravam kapham hanti chakshushyam vaskaadikam*”. Here, *Vasakaadi Kwatha* is formulated in syrup form due to problems like palatability, preservation and shelf life etc. Syrup is a thick sticky solution of sugar and water often flavoured or medicated.^[4] The main advantage of Syrup over *Kwatha* is its palatability, secondly there are less chances of microbial contamination so can be preserved for longer duration. This form is advanced in terms of shelf life also because decoction can only be kept for 24 hours.

AIMS AND OBJECTIVES

1. To analyze the physical or the organoleptic character of drug.
2. To find out the pH, heavy metal content and microbiological study of *Vasakaadi Kwatha*(syrup).

MATERIAL AND METHODS

COLLECTION OF DRUG- The raw drugs were collected from *Hans Pharmacy Premnagar Ashram, Haridwar, Uttarakhand*.

IDENTIFICATION AND AUTHENTICATION

The raw drugs were identified and authenticated by *Dravyaguna* Department of *Gurukul Campus Haridwar Uttarakhand Ayurved* University and the specimen sample was kept in the Department. The final drug was prepared in *Hans Pharmacy Premnagar Ashram, Haridwar, Uttarakhand*.

Table 1: Ingredients and composition of *Vasakaadi Kwatha* (Syrup).

Dravya	Family	Latin name	Dosha Shamakta	Karma
Vasa	Acanthaceae	Adhatoda Vasica	Kapha Pitta Shamaka	Chedan, Shotha-hara, Vedana Sthapana
Haritaki	Combretaceae	Terminalia Chebula	Tridoshahara	Rasayan, Shothahar, Vedana-sthapana
Nimba	Meliaceae	Azadirachta Indica	Kaphapitta shamaka	Kandughan Daha Prashmana
Amalaki	Euphorbiaceae	Emblica Officinalis	Pitta Shamaka	Rasayan, Chakshushaya, Daha-Prashmana
Nagarmotha	Cyperaceae	Cyperus Rotundus	Pittashamaka	Pachan, Shotha-hara, Rakta-prasadana
Bibhitaki	Combretaceae	Terminalia bellirica	Tridoshashamaka	Chedan, Shotha-Hara, Vedana –sthapana
Patola	Cucurbitaceae	Tricosanthes dioica	Tridoshashamaka	Jwarghana Kandughana



Figure 1: *Azadirachta indica*.



Figure 2: *Terminalia chebula*.



Figure 3 : *Cyperus rotundus*.



Figure 4 : *trichosanthes dioica*.



Figure 5 : *Terminalia bellirica*.



Figure 6 : *Emblica officinalis*.



Figure 7 : *Adhatoda vasica*

METHOD OF PREPARATION

The medicine was prepared according to *Kwatha Kalpana* as mentioned in *Ayurvedic* literature. The processing of recommended drug was started on 30/07/22. The *Kwatha* of the recommended drug of

Vasakaadi syrup was prepared according to the instructions given in *Sharangdhar Samhita*.

Preparation of *Kwatha* (Decoction)

14kg amount of raw drugs was pounded to coarse powder (*yavkuta*) form and then soaked overnight in

eight parts of water (112 litre). On next day, this mixture was heated on medium flame in stainless steel vessel till the quantity of liquid was reduced to one fourth(28 litre) of the total and then filtered.^[5]

Preparation of syrup

To this filtered *Kwatha*, 15kg of sugar was added (add sugar in concentration of 66.7%)^[6] and then stirred till it got dissolved completely, then the whole mixture was

heated again on low flame until the solution became thick and attained one thread consistency. Then for better shelf life class 2 preservative i.e, KMS(potassium metabisulfite) was added to the syrup at the rate of 0.3% w/v. Total amount of 20.5 litre syrup was obtained.

Storage of medicine

After cooling the syrup was packed in 500ml and 250ml sterile air tight bottles and labelled.

PHARMACODYNAMICS OF VASAKAADI KWATHA(SYRUP)

Table 2: Pharmacodynamics of *Vasakaadi Kwatha*(Syrup).^[7]

DRAVYA	RASA	GUNA	VIRYA	VIPAKA	PART USED	RATIO
<i>Vasa</i>	<i>Tikta, Kashaya</i>	<i>Ruksha, Laghu</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Moola</i>	1 part
<i>Haritaki</i>	<i>Panchrasa (Alavana)</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Phala</i>	1 part
<i>Nimba</i>	<i>Tikta, Kashaya</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Twaka</i>	1 part
<i>Amalaki</i>	<i>Panchrasa (Alavana)</i>	<i>Guru, Ruksha, Sheeta</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Phala</i>	1 part
<i>Nagarmotha</i>	<i>Tikta, Katu Kashaya</i>	<i>Ruksha, Laghu</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kanda</i>	1 part
<i>Bibhitaki</i>	<i>Kashaya</i>	<i>Ruksha, Laghu</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Phala</i>	1 part
<i>Patola</i>	<i>Tikta</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Patra</i>	1 part

ORGANOLEPTIC PROPERTIES OF VASAKAADI KWATHA(SYRUP)

The syrup was evaluated for various organoleptic properties like colour, odour and taste.

Table 3: Organoleptic properties of *Vasakaadi Kwatha*(Syrup).

Organoleptic properties	Result
APPEARANCE	A brown colour liquid
ROOPA(COLOUR)	Brown colour
RASA (TASTE)	Mild bitter
GANDHA(ODOUR)	Characteristic
CONSISTENCY	Liquid

PHYSIOCHEMICAL ANALYSIS OF VASAKAADI KWATHA(SYRUP)

Various tests for physical and chemical parameters of *Vasakaadi Kwatha*(syrup) was carried out such as pH, total acidity, specific gravity, total solid content, fat content, reducing sugar, non-reducing sugar and total sugar was carried out.

Table 4: Physicochemical parameters of *Vasakaadi Kwatha* (Syrup).

Parameters	Result
Ph	3.36
Total acidity	0.24%
Specific gravity at 25 ⁰ C	1.2443
Total solid content	55.68%
Fat content	Nil
Reducing sugar	12.94%
Non-reducing sugar	65.48%
Total sugars	52.54%

MICROBIOLOGICAL ANALYSIS

Vasakaadi Kwatha (Syrup) was evaluated for the total fungal count and total bacterial count.

Table 5: Microbiological limit test of *Vasakaadi Kwatha* (Syrup).

Microorganism	Results
Total viable aerobic count	820 cfu/ml
Total fungal count	<10 cfu/ml
E.Coli	Absent
Salmonella	Absent
Staphylococcus aureus	Absent
Pseudomonas aeruginosa	Absent

AFLATOXINS

Table 6: Aflatoxins in *Vasakaadi Kwatha*(Syrup).

(B1, G1)	Nil
(B2, G2)	Nil

HEAVY METAL IN VASAKAADI KWATHA(SYRUP)

Spectrometry was carried out for the existence of heavy metals like Lead(Pb), Cadmium(Cd), Mercury(Hg) and Arsenic(As). All the heavy metals in syrup are within normal range.

Table 7: Heavy metals in *Vasakaadi Kwatha*(Syrup).

Total Heavy metal (mg/kg)	Result
Lead	2.2ppm
Cadmium	<0.30
Arsenic	<10
Mercury	<1

RESULT AND DISCUSSION

The pharmacological analysis of the drug was prepared on the final form of drug i.e *Vasakaadi Kwatha*(syrup). The analytical study carried deals with both physical and chemical properties of the drug prepared. Although values found were in their normal limits as described by the WHO guidelines for Herbal Preparation.^[8] On the basis of above analysis *Vasakaadi Kwatha*(Syrup) was found to be safe for use.

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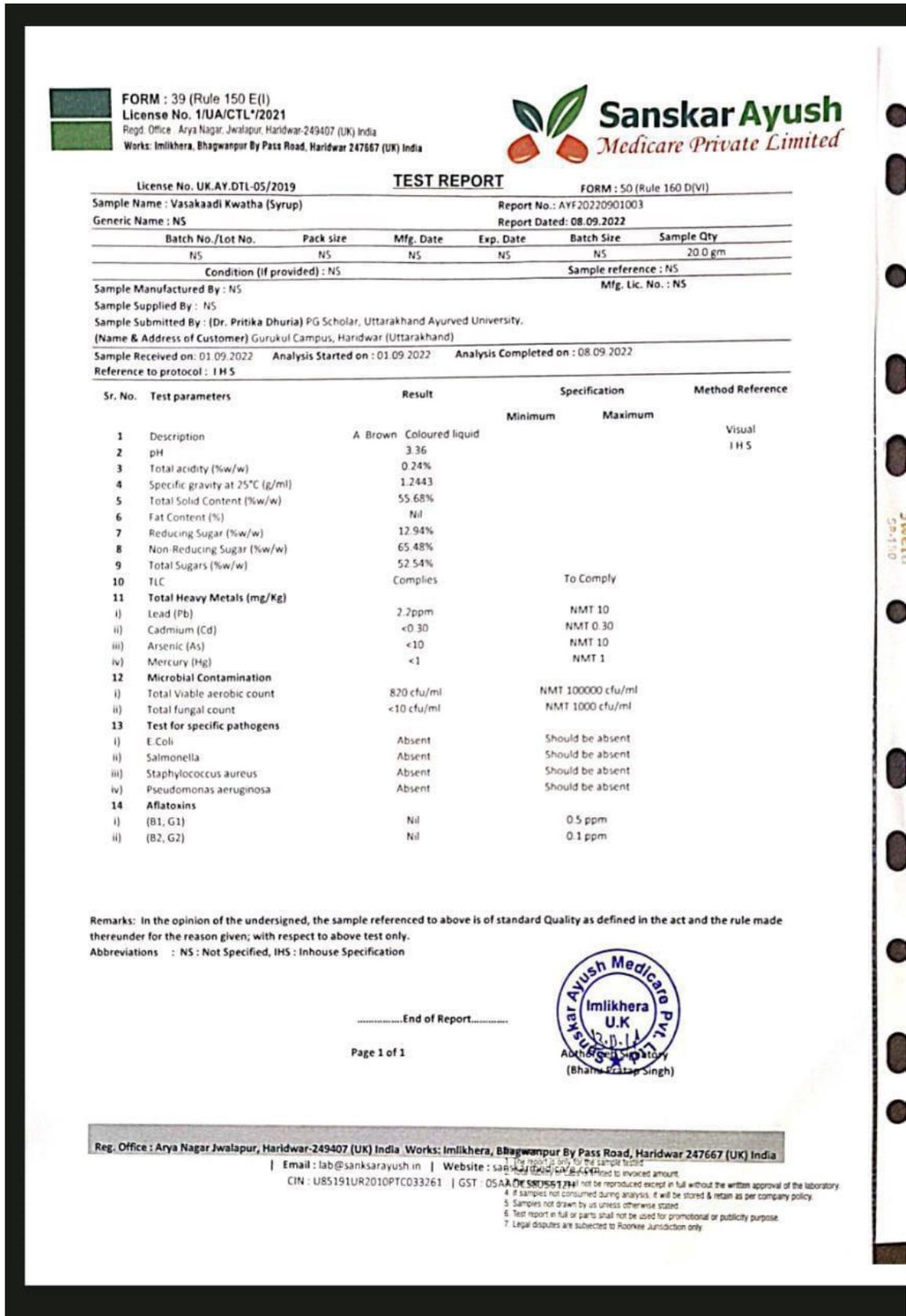


Figure 8: Analytical Report.