World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 4.223

EVALUATION OF PHYSIOCHEMICAL STUDY OF KANJIKA

Anu Koul[1]* Rupa S Kadam[2]

[1]PG Scholar, Dravyaguna Dept, Yerela Medical Trust, Kharghar, Navi Mumbai.
[2]Asso Professor, Dravyaguna Dept, Yerela Medical Trust, Kharghar, Navi Mumbai.

***Corresponding Author: Anu Koul**
PG Scholar, Dravyaguna Dept, Yerela Medical Trust, Kharghar, Navi Mumbai.

Article Received on 23/02/2017 **Article Revised on 14/03/2017** **Article Accepted on 06/04/2017**

ABSTRACT

The inimitable fermentation preparation (Shukta Sandhana varga) in Ayurveda has been practiced since thousands of years as a remedy of many ailments. *Kanjika* is one of the significant preparation comes under fermentation. On oral administration it cures many infirmities like fever, inflammation and constipation[1]. Though the character of *Kanjika* is strong and acidic; it has immense potential to improve the loss of power to digest and for the purification (shodhana) of metals respectively. *Kanjika* was prepared under the reference of Ayurvedic Formulary of India (AFI).[2] Hence, the physiochemical properties of *Kanjika* is reported in this research paper. The fermentation process embarks on 7th day and completed on 31st day. The primed *Kanjika* was dusky white light in color with pungent odor and distinctive sour acidic taste. It was highly acidic in nature with a pH of 2.92.The total solids were computed as 7.65 %, density was 1.0117, Specific gravity was observed 1.109 and Refractive index was noted as 1.3404 .Total acidity was 0.595, Total soluble solids were 0.128, Reducing sugar was 35 while Alcohol %, Starch and Bubbles were absent, Flame test was positive and no fungus growth was seen at any juncture of fermentation.

KEY WORDS: *Kanjika*, fermentation.

INTRODUCTION

Kanjika is a sour semi solid medicine prepared from the fermentation. It is an unique *Ayurvedic* preparation which comes under *Sandhana kalpana* (*Ayurvedic* fermentation).*Sandhana Kalpana* are classified as *Madhya kalpana* (alcoholic preparation) and *Sukhta Kalpana* (acidic preparation).*Kanjika* comes under *Sukhta Kalpana*. *Kanjika* is commonly used for the purification of metals and Mercurial processings.In classics, *Kanjika* as a final product of rice is beneficial for health. It alleviates burning sensation, useful in skin diseases and fever by external application. It has been described as digestive stimulant, acts as expectorant, quenches thirst, prevents foul smell of oral cavity, provides good taste to oral cavity when taken as *Gandusha* and reduces vaata kapha diseases and constipation by internal application.

MATERIALS AND METHOD

The methodology can be divided into two steps as
a) Collection and authentication of raw drugs
b) Fermentation process.

A) All the ingredients were collected and authenticated by the Department of Dravyaguna Vidynan, Yerela Medical Trust Ayurvedic Medical College Kharghar Navi Mumbai. A new ceramic pot was taken and carefully washed with water and desiccated. The preconditioning was done by fumigating it by Mariachi (piper nigrum), Sarsapha (Brassica nigra) and trikatu churna (powder of Zingiber officinale, piper nigrum and Piper longum). After fumigation the inner surface was embrocated with layer of Ghritum (saturated fat).

Ingredients used for the preparation of Kanjika as per Ayurvedic Formulary of India (AFI *Paribhasa prakaran*) are given below:-

Preparation of Manda
Requirements
Shastika Rice
Water
Spoon
Measuring Cylinder
A Stainless steel container
Cooking gas

Properly washed one part (250 grams) of *Shastika Rice* and measured 14 parts of water (1400 ml) were taken and put in a stainless steel container and kept on low

flame till it was cooked, this is called as MANDA. It was kept aside to cool for some time.

B) Once all the things were prepared the preconditioned ceramic pot was taken and placed the above prepared MANDA into it. Then 3 parts of water (300ml) was added into the pot and was properly stirred. The mouth of ceramic pot was closed tightly and left undisturbed for appropriate fermentation. *Kanjika* was prepared after 4 weeks.

Observations

The observations made during the formation of *Kanjika* are tabulated in Table. Fermentation was completed on 31st day then it was removed and filtered. Temperature maintained was 25^0C. *Kanjika* was analyzed by various systematic parameters. Organoleptic features were scrutinized by the perception of *Gyanendriya* like *Roopa (*Color*), Rasa (*Taste), *Gandha (*odor*), Sparsha (*consistency*)* and Physicochemical tests were Total Solids (%), Alcohol(%), pH, Test for Starch, Density, Specific gravity, while Chemical test were also examined by Reducing sugar, Total acidity, Total Soluble solids. Flame test, Bubble test, fungal growth test and Float/sink test was also done during the process were tabulated in Table 2

S. No	Observations	Parameters	Days				
			00	07	14	24	31
1	Organoleptic	Roopa (colour)	White	Dusky white	Dusky white	Dusky white	Dusky white
		Rasa (Taste)	Tasteless	Slightly bitter	Slightly bitter	Sour	Sour-acidic
		Gandha (Odour)	Pleasant	Unpleasant	Unpleasant	Unpleasant	Unpleasant
		Sparsha (Consistency)	Thin liquid	Thick liquid	Thick liquid	Thick sticky liquid	Thick sticky liquid
2	Physio Chemical	Specific Gravity	1.331	1.301	1.241	1.215	1.109
		Total Solid content (%)	12.82	10.46	10.18	9.79	7.65
		Total Ash (%)	4.95	4.80	4.62	4.38	4.25
		pH	6.78	5.18	4.25	3.19	2.92
		Density	1.4373	1.3025	1.2327	1.1200	1.0117
		Refractive index	1.4874	1.4567	1.4236	1.3862	1.3404
		Alcohol	Absent	Absent	Absent	Absent	Absent
		Starch	Absent	Absent	Absent	Absent	Absent
3	Chemical	Total acidity	0.810	0.748	0.706	0.669	0.595
		Total soluble solids	0.285	0.208	0.163	0.142	0.128
		Reducing sugar	50	48	43	39	35
4	Test	Flame test	Absent	Absent	Flame was turned off	Flame continued to burn	Flame continued to burn
		Bubble test	Absent	Small+	Bigger++	No bubbles	Nil
		Float/sink test	Floating	Floating	Floating	Sunken	Sunken
		Fungal growth test	Absent	Absent	Absent	Absent	Absent

RESULTS

The fermentation process embarks on 7th day and completed on 31st day. The primed *Kanjika* was dusky white light in color with pungent odor and distinctive sour acidic taste. It was highly acidic in nature with a pH of 2.92.The total solids were computed as 7.65 %, density was 1.0117, Specific gravity was observed 1.109 and Refractive index was noted as 1.3404 .Total acidity was 0.595, Total soluble solids were 0.128, Reducing sugar was 35 while Alcohol %, Starch and Bubbles were absent, Flame test was positive and no fungus growth was seen at any juncture of fermentation.

DISSCUSSION AND CONCLUSION

Kanjika was tested and analyzed by Ayurvedic parameters i.e. *Sanyukht siddhi lakshana and Gyanendriya parikshan viz. Roopa (*Color*), Rasa (*Taste), *Gandha (*odor*), Sparsha (*consistency*)* and by Modern Parameters which includes Total Solids (%), Alcohol (%), pH, Test for Starch, Density, Specific gravity, Reducing sugar, Total acidity, Total Soluble solids.The initial neutral character of solution was finally converted into highly acidic near to the pH of gastric juice which validates the *Dipaniya* property of the preparation.[3] The high pH value and nil value of alcohol % confirms the acidic fermentation. An optimum concentration of sugar is required for the fermentation process and also checks the fungal and bacterial growth.[4] Acetic acid producing

bacteria produce acetic acid which reduces the pH to a level that prevents the growth of food poisoning organisms.[5] This study concludes that this Analytic study of *Kanjika* would be employed as a useful tool in the Standardization process. It also facilitates to bestow in collection, preparation and genuineness of the drug.

Figure 1: Preparation of Manda

Figure 2: Fumigation.

Figure 3: immersion of Manda

Figure 4: Pouring three parts of water

Figure 5: Kanjika on Day First. Figure 6: Kanjika after four weeks.

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