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Honey as Natural Preservative

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Abstract

A preservative is a substance or a chemical that is added to pharmaceutical drugs to prevent decomposition by microbial growth. Chemically synthesized preservatives have been used to decrease both microbial spoiling and oxidation of food. Even there are many natural preservatives like *neem* oil, salt, sugar, lemon, honey, grape fruit seed extract and citric acid.

Materials and methods: In the present study an attempt has been made to evaluate preservative action of honey. *Vasavaleha* was prepared as per the reference obtained from authentic books of *Ayurveda*.

Observation: The product was divided into two groups. Honey was added to one group and honey was not added to other group at the end stage of *Avaleha* preparation. It was packed in air tight container and observed for changes. Till 15th day, there was no change in color and consistency, in both the groups but from 20th day fungal growth and color change was observed in the group B, which increased with further observation.

Discussion: Honey when exposed to atmosphere produces hydrogen peroxide from enzyme glucose oxidase and gluconic acid, these behave as chelating agent which act as preservative.

Conclusion: Natural preservative action of honey is established with this work.

Keywords

Vasa, Avaleha, Honey, Natural Preservative

Greentree Group

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INTRODUCTION

A preservative is a substance or a chemical that is added to products such as food, beverages, pharmaceutical drugs, paints, biological samples, cosmetics, wood, and many other products to prevent decomposition by microbial growth. Chemically synthesized preservatives have been used to decrease both microbial spoiling and oxidation of food. There are various chemical preservatives which may cause adverse effect and degrade the health[1]. However, in recent years; consumers are demanding partial or complete substitution of chemically synthesized preservatives due to their possible adverse health effects[1]. This fact has lead to an increasing interest in developing more "natural" alternatives in order to enhance food and medicines shelf life and safety. Natural preservatives are considered safer by many because they existed in nature. There are many natural preservatives like *Neem* oil, salt, sugar, lemon, honey, Grapefruit seed extract and citric acid[2]. Honey having high concentrated sugar, pH 3.9 to 6.1(acidic nature) and production of hydrogen peroxide from enzyme glucose oxidase when exposed to atmosphere and gluconic acid behaves chelating agent act as preservative[3]. In authentic book of *A*yurveda honey is said to have *Krimigna*[4] action. *Avaleha* is one of the dosage form explained in *Ayurveda*. It is in semisolid form. Number of *Avaleha* has been explained in *Ayurvedic* literature. There is reference of addition of honey at the end stage in many *Avaleha*Preparation.

MATERIALS AND METHODS [5,6]:

In the present study *Vasavaleha* was prepared to evaluate preservative action of honey. As *Vasa* is drug available abundantly, having *Tikta* and *Kashaya Rasa*, *Laghu* and *Ruksha Guna*, *Sheeta Veerya*, *KatuVipaka*[7].Ingredients of*Vasavaleha* is also available effortlessly.

Equipments: *Khalvayantra*, stove, fry pan, measuring jar, weighing balance.

Table 1 Ingredients of A*valeha* and their proportion

S.no	Ingredients	Kwatha(decotion)	
		Quantity taken	Quantity obtained
1	*Vasa patra*	100g	200ml (180g)
2	*Jala*	800gm(850mlw/w)	Prepared from 100ml
3	*Sita*(sugar)	48g	
4	*Pipaali*	12g	
5	*Madhu*	48g	
6	*Ghrita*	12g	

Procedure:

As *Vasa Patra* is fibrous (leathery) in nature, extraction of its *Swarasa* was difficult. So, *Kwatha* was prepared from it.

Method of preparation

In a vessel, small pieces of *Vasa Patra* 100g was taken and 800gm w/w (850ml) of water was added to it(1part:8 parts), subjected to heat and reduced to 1/4th quantity. *Kwatha*(decoction) was filtered through cloth, time taken was 1hour 15 minutes. The *Kwatha* was taken in iron pan and sugar was added to it. It was then heated on mild flame and continuous stirring was done till two thread consistencies was obtained. *Ghrita* was added and mixed well. Pan was taken out from the fire; *Pippali Churna* was added and mixed well till it becomes homogenous mixture. Obtained *Avaleha*was divided into two parts i.e., group A and group B, on self cooling honey was added to group A and not to group B.

These two samples were stored in air tight containers and kept aside for observation to evaluate its shelf life and importance of preservative in it.

OBSERVATIONS AND RESULTS

The time taken for the preparation of *Avaleha* was 13 minutes (3:20 to 3:33). Organoleptic characters were observed which is given in table 3. The analytical observation for *Kwatha* was TSS, pH, specific gravity and viscosity. Results are in table no. 4. Observation of *Avaleha* of both groups was done at the interval of 5 days. After 20th day and at 90th day it was observed.

Table 2 Time taken in different steps of procedure of *Avaleha*

s.no	Time	*Avaleha(Kwatha)*
1	Commencement	3:20pm
2	Finished	3:33pm
3	One thread consistency	3:28pm
4	Two thread consistency	3:30pm
5	Added *Ghrita*	3:32pm
6	Added *Pippali*	3:33pm
7	Added Honey	3:45pm (group A)

Table 3 Organoleptic characters

Sl.no		*Kwatha*	*Avaleha* (1st day of groupA and groupB)	*Avaleha* (90 day) Group A	*Avaleha* (90 day) Group B
1.	Colour	Brown	Brown	Brown	Whitish brown
2.	*Rasa* (taste)	*Tikta*(bitter)	*Tikta*(++), *Madhura*	*Tikta(+), madhura*	*Tikta(++), kashaya*
3.	*Gandha*(smell)	*Sugandha*	*Sugandha*	*Sugandha*	*Durgandha*
4.	*Sparsa*		*Snigdha* and *Khara*(rough)	*Snigdha*	*Ruksha*

Table 4 Analytical parameters of the *Kwatha*

Sl.no		*Kwatha*
1.	TSS	3
2.	Ph	8
3	Specific gravity	1.01
4	Viscosity	0.0115

Table 5 Observations of Group A and Group B *Avaleha*

Sl.no		Group A	Group B
1.	5thday	No change in Colour &consistency	No change in Colour &consistency
2.	10th day	No change in Colour &consistency	No change in Colour &consistency
3.	15th day	No change in Colour &consistency	No change in Colour &consistency
4.	20th day	No fungal growth, no change in colour and consistency	Fungal growth was observed partially, colour change was observed
5.	90th day	No fungal growth, no change in colour and consistency	Whole *Avaleha* was observed fungal growth

PICTURE DEPICTING *VASAVALEHA* WITH HONEY AND WITHOUT HONEY

Group A: *Vasavaleha* with honey.

Group B :*Vasavaleha*without honey.

DISCUSSION

Honey is commonly used as sweetener and flavor enhancer. It is very widely used from kitchen to cosmetology. As it is one of the common ingredients, in most of the *Avaleha* which is added at the end stage of preparation, it was planned to prepare *Avaleha* with and without honey. *Vasavaleha* was selected in the present study as there are only six ingredients in the formulation and all are easily available.

Avaleha, 180g, was prepared and the organoleptic characters were specific to *Vasa* and other ingredients were used as *Prakshepaka*. The taste was *Tikta, Madhura* in the *Avaleha* prepared with the honey indicating the added effect of honey as a sweetening substance. The *Avaleha* prepared without honey on other hand had *Tikta Kashaya Rasa* which was difficult to taste. The odour of *Avaleha* with honey was pleasant and without honey was not so good. In the final product consistency of group A was smooth and group B was rough in nature was also noticed. This is another validation on a scientific basis regarding addition of honey in most of the *Avaleha*. The TSS of *Vasa Kwatha* was 3 and suggestive of water suspended particles in the preparations. The observations till 15th day were similar in both groups of *Avaleha*suggesting that the *Vasa Avaleha* without honey can be stored for 15 days. The change in colour on the upper surface of final product was observed from 20th day in group B in which the honey was not added. The colour changed further increased in coming days which was supportive to the deteriorating nature of preparation. The observation on 19th day also didn't show any changes in group A of *Vasavaleha.* This observation was an evident justification of preservative action of honey.

CONCLUSION

- Honey is considered as a natural preservative.
- This study gives an unequivocal justification of natural preservative action of honey.
- Honey also acts as a sweetening and flavoring substance in Avaleha.

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