METHOD OF PREPARATION OF DADHI AS PER AYURVEDA CLASSIC BASED ON 9-POINT HEDONIC SCALE

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Abstract:

Dadhi is one of the oldest Indian fermented milk products and may be considered the western equivalent to yoghurt. Acharya Sushruta has mentioned 7 categories of Dadhi (Curd). It is prepared by either method called Yavana and Yavita. Yavana is prepared by using silver coins whereas Yavita is prepared by using acidic substances like Amalaki Juice, Kapithya Phala Majja, Chitraka Mula or Pakwa Amra Phala Rasa by transferring a spoonful of the previous batch of Dadhi to Shrutaksheer (heated milk) at room temperature. So in this article an attempt has been made to find out the best quality to prepare curd in Yavita category based on 9-Point Hedonic Scale and sensory evaluation sheet.

Keywords: Dadhi, 9-Point Hedonic Scale, Sensory Evaluation Sheet.

Introduction:

Ayurved is the science which manages the preventive, promotive and curative parts of antiquated wellbeing framework. It is growing fast in recent era with respect to the health-related new challenges in the form of various communicable, non-communicable diseases. Fundamental rule for being surviving safely is prevention better than cure. Ayurveda is becoming famous because of its one of a kind ideas in regards to ways of life, treatment of current period disorders. It is the lifestyle, which depicts the eating regimen, conduct and rules and guidelines. Likewise called as Rutucharya or Dincharya. Different sorts of Ahardravya with their properties have been clarified in Ayurveda. The establishment of nourishment in Ayurveda depends on ideas like Aharvidheevisheshayatan (Prakruti, Karana, Sanyog, Rashi, Desha, Kaala, Upayokta, Upayoga Santha).[1]

In ancient medicinal treatise, Ahardarvya, Dadhi is clarified referencing its sign in different diseases, contraindication and rules and directs as to. Dadhi is said as Dugdha Vikruti implies milk item. Acharya Sushruta has referenced 7 classes of Dadhi (Curd) viz. Madhura (sweet), Amla, Atyamla (inordinate acrid), Mandajat (inappropriately framed), Shrutksheera (Prepared from boiled milk), Sara (Supernatant cream layer), Asara (without fat). Other than these Sushruta have additionally cited the attributes of Dadhi (curd) ready from milk of cow, bison, goat, sheep, horse, elephant, human and camel.

According to Kaiyadev Nighantu Dadhi is of two types; Yavana and Yavita. Curd which is prepared out of silver coins is called as Yavana, and Dadhi which is prepared out of Amalaki, Kapithya, Chitraka Mula or Pakwa Amra Phala is called as Yavita. [2]
Aim and Objective:
1. To study the types viz. Dadhi prepared from various culture media like Amalaki, Kapitha and Chitraka on the basis of 9-Point Hedonic Scale
2. To review the literature available in ancient texts regarding method of preparation of Dadhi.

Materials and Methodology:
The most widely used scale for measuring food acceptability is the 9-point hedonic scale[3]. The scale was quickly adopted by the food industry, and now is used not just for measuring the acceptability of foods and beverages, but also of personal care products, household products, and cosmetics.

The hedonic scale was the result of extensive research conducted at the Quartermaster and the University of Chicago. Jones, Peryam & Thurstone (1955) [4] showed that longer scales, up to nine intervals, tended to be more discriminating than shorter scales, and there was some indication that a scale with eleven intervals would be even more effective[5]. The nine-point version became the standard at the Quartermaster, because it fit better on the typing paper used to print the ballots.

The verbal anchors of the scale were selected so that the psychological distance between successive scale points is approximately equal. This equal-interval property helps justify the practice of analyzing the responses by assigning successive integer values (1, 2, 3, … up to 9) to the scale points and testing differences in average acceptability using parametric statistics. The reliability, validity and discriminative ability of the scale was proven in food acceptance tests as well as in large-scale food preference surveys.

There have been several extensions of the 9-point hedonic scale. Kroll (1990) [6] showed that a scale with nine “child friendly” verbal anchors ranging from “super good” to “super bad” performed better with 5-10 year old children than either the original 9-point scale or a scale utilizing “smiley” faces. The original nine 9-point scale has also been translated into several foreign languages[5]. It should be noted that the properties of the original 9-point scale do not necessarily apply to the translations of the scale. Ideally, research similar to that conducted by Peryam and colleagues should be conducted to select the verbal anchors and to confirm the reliability, validity, and discriminative ability of the proposed scale. At minimum, it is recommended that research be conducted to confirm that the rank order of the verbal anchors is unambiguous among the intended test population.

Questions occasionally arise regarding the effect of different presentations of the 9-point hedonic scale, such as vertical vs. horizontal, and for the latter, with “like extremely” or “dislike extremely” on the left. In their 1957 paper, Peryam & Pilgrim state that such variations had “no major effect” on the results. Unpublished research conducted at the Quartermaster and later at Peryam & Kroll suggests that different scale presentations can shift the average response. If comparisons are made across studies or to an absolute benchmark (e.g. a rating of 7.0 on the 9-point scale) it is probably best if the scale presentation is consistent across the studies being compared. [7]
Table No. 1: SENSORY EVALUATION SHEET

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sample (Amalaki)</th>
<th>Sample (Kapithya)</th>
<th>Sample (Chitraka Mula)</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour &amp; appearance</td>
<td>1 ml 2 ml</td>
<td>1 gm 2 gm</td>
<td>1 gm 2 gm</td>
<td>1 gm</td>
</tr>
<tr>
<td>Body &amp; texture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavour/Smell</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweetness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall acceptability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Please provide sensory score as per hedonic scale

Table No. 2: 9-POINT HEDONIC SCALE

<table>
<thead>
<tr>
<th>Hedonic Scale</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like extremely</td>
<td>9</td>
</tr>
<tr>
<td>Like very much</td>
<td>8</td>
</tr>
<tr>
<td>Like moderately</td>
<td>7</td>
</tr>
<tr>
<td>Like slightly</td>
<td>6</td>
</tr>
<tr>
<td>Neither like nor dislike</td>
<td>5</td>
</tr>
<tr>
<td>Dislike slightly</td>
<td>4</td>
</tr>
<tr>
<td>Dislike moderately</td>
<td>3</td>
</tr>
<tr>
<td>Dislike very much</td>
<td>2</td>
</tr>
<tr>
<td>Dislike extremely</td>
<td>1</td>
</tr>
</tbody>
</table>

Fig.1 Fruits of Amalaki

Fig.2 Preparation of Amalaki Juice
Fig. 3 Preparation of Curd by adding Amalaki Juice

Fig. 4 Final Product of Curd

Statistical Analysis:

1. Colour and Appearance...

Note- (1- Amalaki 1ml), (2- Amalaki 2ml), (3- Kapithya 1 gram), (4- Kapithya 2 gram), (5- Chitrak mula 100mg), (6- Chitrak mula 200mg), (7- Control sample 1 gram).

Initially pilot study was done on the basis of 9-point hedonic scale. In sample (1- Amalaki juice 1ml was added in 100 ml of cow’s milk), similarly in sample (2- Amalaki juice 2ml was added in 100 ml of cow’s milk). In sample (3- Kapithya 1 gram was added in 100ml of cow’s milk). In sample (4- Kapithya 2 gram was added in 100 ml of cow’s milk). In sample (5- Chitrak mula 100mg was added in 100 ml of cow’s milk). In sample (6- Chitrak mula 200mg was added in 100 ml of cow’s milk). In sample (7- was control, previously prepared cow’s curd in quantity of 1 gram added in 100 ml of cow’s milk). 6.9% of the candidates given preference to the control group as compared to sample (2- Amalaki 2ml) i.e. 5.8%.
2. **Body and Texture**

![Figure 2 Body and texture](image)

**Note**- (1- Amalaki 1ml), (2- Amalaki 2ml), (3- Kapithya 1 gram), (4- Kapithya 2 gram), (5- Chitrak mula 100mg), (6- Chitrak mula 200mg), (7- Control).

Same method was followed for Body and Texture, 7.1 % of the candidates given preference to the control group as compared to sample (2- Amalaki 2ml) i.e. 6%.

3. **Flavour and Smell**

![Figure 3 Flavours and Smell](image)

**Note**- (1- Amalaki 1ml), (2- Amalaki 2ml), (3- Kapithya 1 gram), (4- Kapithya 2 gram), (5- Chitrak mula 100mg), (6- Chitrak mula 200mg), (7- Control).

For flavour and smell 6.6% of the candidate given inclination towards control sample as compared to sample (2- Amalaki 2ml) i.e. 5.6%.
4. Sweetness

![Figure 4 Sweetness](image)

**Note**- (1- Amalaki 1ml), (2- Amalaki 2ml), (3- Kapithya 1 gram), (4- Kapithya 2 gram), (5- Chitrak mula 100mg), (6- Chitrak mula 200mg), (7- Control)

For sweetness category 5.8% of the applicants given preference to control group as compared to the sample (2- Amalaki 2ml) i.e. 5.3%.

5. Overall acceptability

![Figure 5 Overall acceptability](image)

**Note**- (1- Amalaki 1ml), (2- Amalaki 2ml), (3- Kapithya 1 gram), (4- Kapithya 2 gram), (5- Chitrak mula 100mg), (6- Chitrak mula 200mg), (7- Control)

Control group of the candidates given preference to the control group 6.8% for overall acceptability as compared to the sample (2- Amalaki 2ml) i.e. 6.2%.
1. Colour and Appearance

Later on two best samples were collected i.e control group and Group 1 i.e. Amalaki Juice and dose for preparation of curd is increased in the later stage for all the parameters like colour and appearance, body and texture, flavour/smell, sweetness and overall acceptability. In group 1- 5ml of Amalaki juice was added to 100 ml of cow’s milk, in group 2- 10ml of cow’s milk was added to 100 ml of cow’s milk whereas 1 gram of curd was added to control group to rule out the differences.

In this study group (2- Amalaki 10ml) i.e. 8.1% of the candidates given more preference as compared to control group i.e. 7.9%.

2. Body and Texture

In the context of Body and texture 7.9% of the candidates given more preference as compared to control group i.e. 7.4%.
3. Flavour/Smell

In the category of Flavour/Smell 7.3% of population given preference to control group as compared to Group (2- Amalaki 10ml).

![Figure 3 Flavours and Smell](image)

4. Sweetness

In the sweetness category of sensory evaluation sheet 6.8% of the candidates given preference to control group as compared to Group II i.e. 6.4%

![Figure 4 Sweetness](image)
5. Overall acceptability

![Figure 5 Overall acceptability](image)

Candidates has given overall acceptability to Group II i.e. 8.3 as compared to Control group i.e. 8.2%

**Discussion**

It can be sensibly argued that if a hedonic scale is only being used to get an idea of the relative liking for various products, so that the most liked can be selected for further development, it probably does not matter which hedonic scale is used. Ratings derived from all hedonic scales should give the same rank order, other things being equal. This is because sensory science is at a point where data from hedonic scales are being entered into complex multivariate programs used for statistical analysis and modelling.

To avoid the potential problems with scaling, hedonic ranking with R-Index analyses is simple for consumers and produces data that are based on human behaviour rather than consumers’ sometimes questionable skills at using rating scales. Furthermore, such data (probabilities) are susceptible to parametric statistical analysis and do not suffer from the range compression encountered in East Asian countries. Also, for measures like product optimization where many products are assessed, a version of two-stage ranking based on initial categorization using the ‘words only’ version of the 9-point hedonic scale, can solve the problem of obtaining numerical measures of hedonic strength, when memory problems associated with too many products can distort the data. Despite its obvious advantages, it is anticipated that such analyses will be used as secondary to the traditional analysis for a while.

**Conclusion**

Good quality of Dadhi has better nutritive value and it also have more demand in market. Preparation of Dadhi is a skill as it involved appropriate boiling of milk, method of fermentation. According to Ayurveda various types of Dadhi and its properties as per source of animals has been described with their therapeutic properties. Curd which is prepared out of Amalaki contains Vit. C 18.618mg/ 100ml as such basis. However, in India, buffalo and cow milk are used in diet on tremendous level, compared to other animals’ milk. Recently with use of advanced technology dairy products made from milk has become a huge market and farmers get the financial gain from it. Further study can be undertaken to detect microbial contamination as well as to enhance its nutritive value in terms like multivitamins, protein, minerals for the traditional type of Dadhi. Research also can be done to standardise its method of preparation and to enrich therapeutic and nutritive value for treating various diseases according to Ayurveda management.
References