
EXPERIMENT 10 SENSORY EVALUATION OF FOOD PRODUCTS – HEDONIC RATING TEST

Structure

- 10.1 Introduction
 - Objectives
- 10.2 Experiment: Hedonic Rating Test for Ketchup Samples
 - 10.2.1 Principle
 - 10.2.2 Requirements
 - 10.2.3 Procedure
 - 10.2.4 Observations and Calculations
 - 10.2.5 Result
- 10.3 Precautions

10.1 INTRODUCTION

Sensory quality of food products is of great importance to both the producer or processor and the consumer. Good quality products attract the consumer by satisfying his aesthetic and gustatory senses. Therefore, it is always the endeavour of the processor to produce the best quality product or produce a product having certain qualities accepted by the consumer in a product already available in the market.

You have already learnt the importance and various aspects of sensory analysis in the theory unit 7.2.4 “Sensory analysis of foods/ beverages”. Please brush up before performing this test. There are different sensory test methods to suit specific purposes. One of the frequent requirements of the processor while developing a product is to find out the relative acceptability of his product compared to three or four market sample or to develop a product close to the best in the market. One of the simplest sensory test methods to generate such information is the Hedonic rating test. In this exercise you will learn the method and carry out the test.

Objectives

After studying and performing this experiment, you should be able to:

- carry out Hedonic rating test on a set of food products; and
- analyse the data to find out the order of their quality of consumer preference for the samples.

10.2 EXPERIMENT: HEDONIC RATING TEST FOR KETCHUP SAMPLES

10.2.1 Principle

The Hedonic rating test is used to measure the consumer acceptability and preference of food products. The panellist is asked to rate the acceptability of the product on a scale of 9 points, ranging from “like extremely” to “dislike extremely”. The data are analysed to find out the average of the panellists ratings from which the order of preference is found out.

10.2.2 Requirements

The primary requirement for any sensory test is the panel of members (panellists). For many sensory tests including the Hedonic rating test, a semi-trained panel is sufficient. The minimum number of panellists required for this test is ten. They should be selected from a larger number of people and should be familiarised (trained) with the quality attributes of the product being tested (or they should be familiarised by proper briefing) and the procedure. They should also have at least average sensitivity to the sensory quality attributes like colour and appearance, flavour and taste etc. Besides, they should be willing to spend the time to do the test.

The other requirements are a well-lighted (white light) room with tables (preferably white tops) and chairs. Assuming that 4 samples (tomato ketchup as in this test) are evaluated and 10 panellists are going to evaluate the products, the following glassware and other items are also required.

- White porcelain saucers : 12 (These are sufficient for serving a set of the four samples to three panellists. The saucers can be cleaned and reused)
- Teaspoons : 12
- Glass tumblers for water : 10
- Bread : 1 loaf
- Evaluation cards : 10

(Sample shown below)

Specimen evaluation card

HEDONIC RATING TEST

Name.....

Date.....

Product: Tomato ketchup

Taste the four samples of tomato ketchup and check how much you like or dislike each one. Use the appropriate scale to show your attitude by checking at the point that describes your feeling about the sample.

Scale	Ketchup Samples			
	Code No.	Code No.	Code No.	Code No.
Like extremely				
Like very much				
Like moderately				
Like slightly				
Neither like nor dislike				
Dislike slightly				
Dislike moderately				
Dislike very much				
Dislike extremely				
Reason for like/ dislike				

(Signature of panellist)

Three columns are provided to accommodate more than one sample if all of them fall at the same point.

10.2.3 Procedure

In this test, four tomato ketchup samples are tested for the preference. One sample could be the one prepared in a factory and the others are the three market samples. Otherwise, all the four samples could be market samples. The ketchup bottles are first marked with code numbers. It is preferable to have three digit random number codes to avoid bias. Single digit numbers like 1,2,3, 4 are likely to cause bias. For example, some panellists may have a tendency to assume No. 1 is the best and No.4 is the worst and vice versa. Random numbers can be taken from random number tables or generated from a calculator. An example of assigning random numbers to four samples is shown below.

Ketchup Sample	Code No.
A	897
B	281
C	951
D	418

In the same way, the sets of four saucers are also numbered and small quantities of the ketchup samples are taken in them. Before starting the evaluation, the panellists are briefed about the test procedure, what to look for in the quality of tomato ketchup, two or more samples may be given the same rating if found so etc. Each product has its own quality attributes. For example, in the case of tomato ketchup, good quality attributes are bright characteristic tomato red colour, thick consistency, does not flow easily when the saucer is tilted, does not show separation of serum around the ketchup sample in the saucer etc.

The set of four saucers containing the samples is given to each panellist along with the evaluation card. Drinking water to rinse mouth in between tasting of two samples to clear the taste of the previous sample is provided. Similarly, cubes of bread are provided for eating for the same purpose. If a panellist requires more samples, the same should be provided. On completion of the evaluation, the evaluation cards are collected and the data are analysed as shown below.

10.2.4 Observations and Calculations

To analyse the results, numerical values are assigned to each point on the scale, 1 is usually given to 'like extremely' and 9 to 'dislike extremely'. The scores received for each sample from all the panellists are averaged and compared. The data are tabulated as shown in the following table. The numerical values given in the table are only examples. You have to enter the actual values.

Panellist	Sample-A	Sample-B	Sample-C	Sample-D
1	3	3	6	5
2	4	3	4	5
3	3	1	4	4
4	2	2	3	4
5	3	1	2	3
6	3	2	7	6
7	2	2	3	5
8	3	2	3	8
9	5	3	7	7
10	3	2	4	6
Total	31	21	43	53
Mean score	3.1	2.1	4.3	5.3

10.2.5 Result

Since the numerical scores are assigned in the reverse order i.e., 1 for the highest quality and 9 for the lowest quality point, lower the score total or score average higher the preference. Therefore, the rating of the quality (preference) of the four tomato ketchup samples is in the following order:

Sample-B > Sample-A > Sample-C > Sample-D

10.3 PRECAUTIONS

The general precautions mentioned in the course 'Introduction' and those indicated in the experiments should be followed meticulously.