

Introduction, definition and importance of sensory evaluation in relation to consumer acceptability and economic aspects. Terminology related to sensory evaluation

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Factors Affecting Consumers Acceptability of Food Products

1. Safety: free from

- ▶ Pathogens, e.g., *Mycobacterium tuberculosis*, Salmonella, Shigella, Staphylococcus, Clostridium etc.
- ▶ Free from heavy metals e.g, Lead, Cadmium, Mercury, Inorganic Tin etc.
- ▶ Pesticide residues
- ▶ Other anti nutritional factors

2. Nutrition: comprises major nutrients (carbohydrates, fat, protein) & minor nutrients (minerals, vitamins & fibers)

Factors Affecting Consumers Acceptability of Food Products

- ▶ Appearance: comprising colour, shape, size, gloss
- ▶ Flavour: comprising taste and odour - is the response of receptors in the oral and nasal cavities to chemical stimuli
- ▶ Texture : response to the tactile senses to the physical stimuli that results from contact between some part of the body & the food
- ▶ Other factors: cost, convenience, packaging, brand, religious, social, cultural etc.
- ▶ Three (are 3 –5) 'sensory acceptability factors' determined via sensory evaluation.
- ▶ 'Sensory acceptability factors' – deciding factor for consumers' acceptability & rebuying

Definition of Sensory Evaluation

- ▶ Sensory evaluation: scientific method used to **evoke, measure, analyze, and interpret** those responses to food products as perceived through five senses *i.e.*, sight, smell, taste, touch & hearing
- ▶ Evoke:
 - ▶ Give guidelines and serving of the samples under controlled conditions to reduce biasing factor
 - ▶ People are placed in booths
 - ▶ Samples are prepared using standard procedure served in same temp, quantity and time space
 - ▶ Samples are labeled random numbers

Definition of Sensory Evaluation

2. Measure:

- Various sensory attributes e.g., Colour, Appearance, Body, Texture, Consistency, Hardness are measured
- Numerical data is collected to establish specific relationship between product characteristics and human perception
- People generate numerical responses on their 'subjective perception' how strong a product in smell, taste, softness etc.

3. Analysis:

- Proper analysis of the data is a critical part of sensory evaluation
- Data generated from human observations are sometimes highly variable
- To assesses the responses are real, not because of uncontrolled variation in the responses, statistical methods are used analyze evaluation data

Definition of Sensory Evaluation

4. Interpretation:

- Sensory evaluation in an experiment
- Conclusions must be drawn with proper reason based on the data, analyses and results
- People involved in the sensory evaluation contribute to the interpretation but the “anchor” of the sensory evaluation is in the best situation to draw the appropriate interpretation from the test results.

Application of Sensory Evaluation in Dairy & Food Industry

1. Inspection of raw materials:

- ▶ Any defect in sensory attributes in milk is quickly detected at the reception dock
- ▶ Other raw materials e.g., sugar, stabilizer, emulsifiers, flavouring & colouring substances are examined for organoleptic attributes.

2. New Product Development:

- ▶ Recipe finalization: on the basis of sensory evaluation only
- ▶ 90% of the new products launched in the market fail due to poor sensory attributes.
- ▶ Adoption of appropriate sensory method during product development is very important

Application of Sensory Evaluation in Dairy & Food Industry

3. Cost reduction:

- ▶ Cost is also one of the factors for selection of dairy products by the consumers.
- ▶ Companies try to reduce the cost by using low cost/alternative ingredients.

4. Quality Assurance:

- ▶ Total Quality Management (TQM): sensory evaluation of all stages of product flow
- ▶ Changes in product quality in terms of colour, flavour & texture during processing & storage needs to be regularly monitored using sensory evaluation

Application of Sensory Evaluation in Dairy & Food Industry

5. Selection of Packaging Material:

- ▶ Suitability of any packaging material in respect of containment of the product, non-reactiveness with food ingredients & compatibility with storage conditions is examined using sensory evaluation.

6. Shelf-life studies:

- ▶ Sensory evaluation monitor the changes during storage, determine the nature & extent of defects during storage so that preventive measures can be taken.
- ▶ 'Expiry Date' / 'Best Before Date' is determined using sensorial, chemical & microbiological techniques

Application of Sensory Evaluation in Dairy & Food Industry

7. Establishing Analytical/ Instrumental/ Sensory Relationships:

- ▶ Highly useful for quick evaluation sensory properties.
- ▶ Titratable acidity of fresh milk 0.12-0.15% LA, $\geq 0.17\%$ imparts sour flavour
- ▶ Free Fatty Acid (FFA) $\geq 2.8\%$ - Rancid flavour in ghee

Thank You