Frequently asked questions

3. 1. What is taste quality ? explain.

The taste quality has no clear cut dimension and is more a human perception. It is influenced by geographical, environmental, physical, physiological, psychological, technological and nutritional factors. Early studies of 19th Century expresses the opinion that four basic tastes qualities fall into a single taste modality just as colours are with qualities within vision. The concentration of each component have an influence on the taste perceptions. Very low concentration component may not be recognizable for its quality impact but still adds to the overall quality of food. But, they are independent entities which are not able to change to another.

3.2. How the stereochemistry influences the taste quality?

The taste quality is influenced by the molecular structure. Amongst the taste qualities, bitterness resembles sweetness because of stereochemistry of stimulus molecules. For eg. when sugar molecules are chemically modified, the resulting derivatives are almost bitter or may be sweet-bitter. Thus it is truly a molecular effect depending on stereo chemical, hydrophobic and polar structure features showing varied responses. The molecular patterns ultimately are responsible for both basic tastes. In the case of saltiness and sourness, the taste quality is on molecular pattern of cation and anions, but, the intermolecular changes do not arise.

3.3. What factors affect the taste perception?

There are many factors that affect taste perceptions. The factors are age, meals, hunger, taste medium, temperature, smoking, obesity, pregnancy, cold, cough, allergies and diseases. Taste discrimination decrease with increase in age. Around 45 years of age, taste buds begin to degenerate. Taste loss become apparent in late 50’s. In advanced age, taste thresholds for sweet, salt and bitter are 2.5 times higher than in the young. Sensitivity is reduced after the meals. It also depend on the type of the meal whether spicy or bland meal. Hungry persons are more sensitive to sweetness and saltiness. This makes to overcome the hunger which is not good. Taste medium of liquid helps the taste buds to detect flavours. Water is the best medium for sensitivity tests. Taste thresholds are lower in water than in fruit juice. Increasing temperature increases the

response to sweetness but decreases with saltiness and bitterness. Decreasing temperature increase the response to bitterness, but decreases for sourness. Smoking reduces the taste bud's sensitivity to all the basic tastes. Children and adolescents who are obese have less sensitive taste buds. Therefore intensity of sweetness of sweets will be less, bitterness will be mild and salt may not be readily perceived. Pregnancy shows the reduced sensitivity for salty taste. During cold, cough obstruction of nasal &oral passages reduces the sense of smell first and taste bud's sensitivity later. Any disease reduces the sensitivity, but improves after treatment.

3.4.. What is taste modification?

Taste modification is a very interesting phenomenon to the consumers. The taste modification physically modifies the perception of a compound, food, drink etc.

3.5. How the taste modification can be achieved?

The taste modification can be achieved by

a) Combination of the basic tastes and taste sensations.
b) By topical application
c) By the use of condiments
d) By the use of flavouring agents
e) By the use of texture modifiers
f) Synergism

However, the modification can also be met by a negative path of approach through

a) Suppression
b) Masking
c) Disorder

3.6. What is the reaction time?

The reaction time is an important factor to express the changed perception. The reaction time is the interval between initial stimulation of the receptors and the report of the reaction.

3.7. How reaction time is vary with different taste?

The reaction time to taste has been reported as 0.02-0.06secs as per the electrophysiological studies. However, the oral-response reaction time for salt, 0.307 sec; for sweet 0.446 sec; for sour 0.536 sec and for bitter 1.082 seconds. The oral response reaction time depend on the concentration too and the technique adopted. Relatively, taste has slow reaction time as compared to other sensory stimuli.

3.8. What is taste threshold?

Taste Threshhold is a statistically determined point on the stimulus scale at which occurs a transition in a series of sensations or judgements.

3.9. Mention the types of taste threshold.

There are four types of thresholds and are absolute threshold, difference threshold, recognition threshold and terminal threshold. These are generally used for taste measurement.

3.10. Define recognition threshold.

Recognition threshold is the minimum concentration at which a substance is correctly identified. It is also referred as identification threshold.

3.11. What are the methods generally followed for taste measurement?

The objective and subjective measurements have to be followed for evaluation of the taste of the product. The objective instrumental methods vary depending on the basic taste to be determined or the product from which the taste component to be identified and quantified. Generally, gas liquid chrmotography is the method of choice. In the recent years, GC-MS is also being used. Still the limitations exist in terms of specific factor determination by instruments. The subjective methods followed for taste evaluation are ranking, scoring, hedonic scaling and evaluation.

3.12. What factors are to be considered for taste measurement?

Some of the points of concern prior to measurement of taste by any of the methods are

1. The samples for both tests should be identical.
2. There must be sufficient replication.
3. The same individuals should participate in all panels for comparison.
4. Sufficient range of test variable to be chosen.
5. Degree of variation from Sensory Panel to instruments results to be determined.

3.13. What are the examples for sour and bitter compounds? mention any five.

Sourness refers to acid taste and hydrochloric, nitric as inorganic acids, while acetic, butyric, tartaric, citric as organic acids are common examples. The bitterness is due to quinine sulphate, quinine hydrochloride, nicotine, caffeine and urea.

3.14.. What is absolute threshold? How does it differ from difference threshold?

Absolute threshold is that magnitude of stimulus at which transition occurs from no sensation to sensation. While difference threshold shows the least amount of change of a given stimulus necessary to produce the change in sensation.

3.15. What is the difference between identification and terminal threshold?

Identification threshold is the minimum concentration at which a substance is correctly identified. While, Terminal threshold is that magnitude of a stimulus above which there is no increase in perceived intensity of the appropriate quality for the stimulus.