

SHELF LIFE OF PACKAGING

Shelf-life

- Time during which the food product will: remain safe; retain desired sensory, chemical, physical and microbiological characteristics; comply with any label declaration of nutritional data, when stored under the recommended conditions
- It begins from the time the food is finished processing and packaged.

Factors Affecting Shelf life

Intrinsic Factors Extrinsic Factors

Intrinsic Factors	Extrinsic Factors	Intrinsic Factors	Extrinsic Factors
Water Activity	Time–temperature profile during	Water Activity	Time–temperature profile during
pH	Temperature control during storage	pH	Temperature control during storage
Redox potential (Eh)	Relative humidity (RH)	Redox potential (Eh)	Relative humidity (RH)
Available oxygen	Exposure to light (UV and IR)	Available oxygen	Exposure to light (UV and IR)
Nutrients	Environmental microbial counts	Nutrients	Environmental microbial counts
Natural microflora and surviving		Natural microflora and surviving	
Use of preservatives in product		Use of preservatives in product	

Shelf life indication on food

- **Use by date** - foods that have a use by date are generally regarded as unsafe to eat after the designated date because a build-up of bad bacteria may have occurred – even if the food in question still looks and smells good enough to consume.
- It is about safety

Best Before – It signifies that although the date on the package may have passed, the product is still safe to consume on the proviso the item has been stored according to instructions, while still generally maintaining its colour, texture and flavour.

- It is about quality of food.

Methods

1. **Accelerated shelf-life testing** - The food product is conditioned and stored at elevated temperature and/or humidity and the quality changes of the product are evaluated at a specific sampling rate.

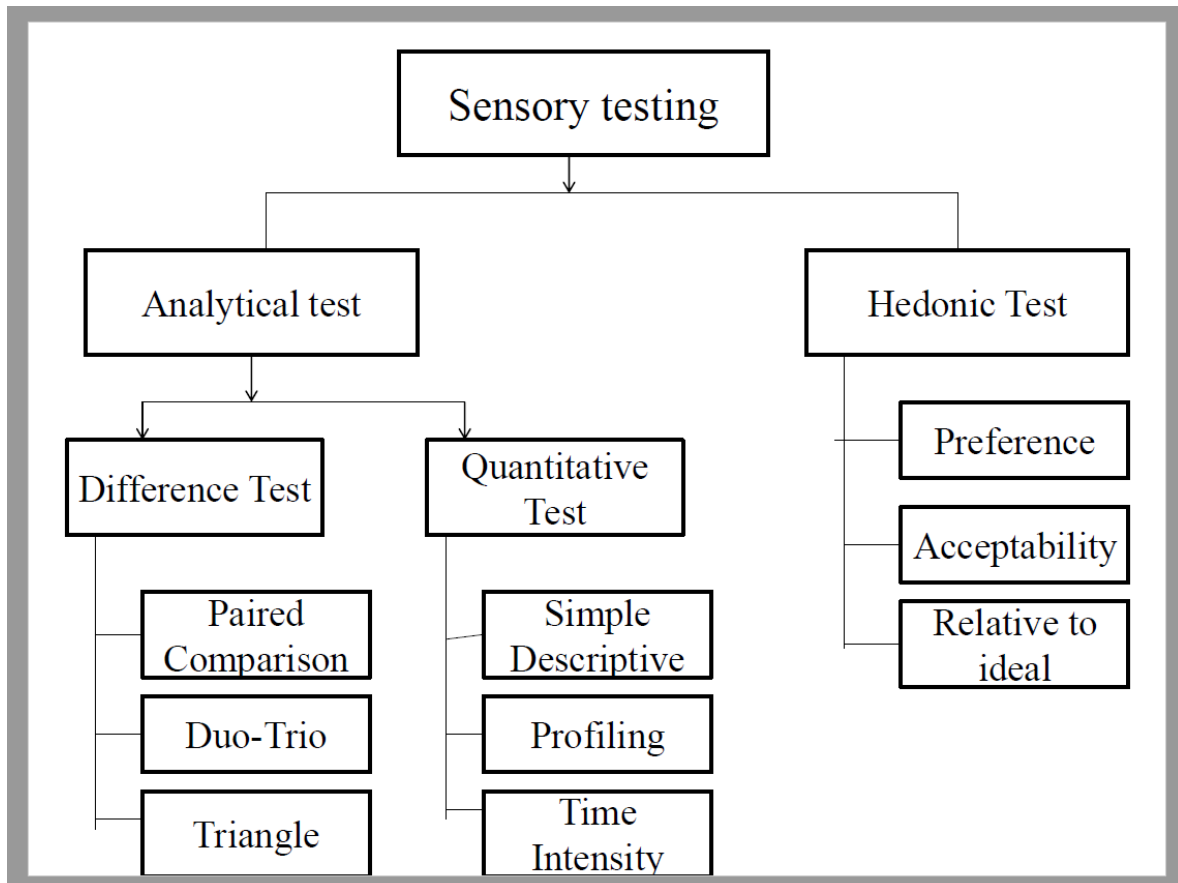
- It can be two to four times faster than the real shelf life study.

2. **Real Time shelf life testing** – Food products are Stored under stated or selected conditions for longer than the expected shelf life and check at regular intervals to see when spoilage begins.

Parameters for measuring shelf life

Sensory Changes –

- Product's appearance, consistency, colour, aroma, taste, texture were analyzed by panellists.
- These are usually quantitative quality measures from trained panels



Physico-Chemical analysis –

- It is used to measure the end points of chemical reactions occurring in food during storage, or to confirm the results obtained by the sensory panels.
- Generally pH, Moisture, Acidity, Salt content, TSS are calculated.

Microbiological analysis –

- It determine microbial growth, which leads to the spoilage of a food product and the growth of microbial pathogens that affect the safety of the product.
- E.coli, Coliform, TPC, Yeast & mold and other bacteria (depending on sample) are determined.