Minor components: (1) ***organic acids***

1. Organic acids- functions in foods

- impart flavour and tartness
- Some used as *antimicrobial agents*
- **adjust pH** or **acidity** of food (acidulants)

1. Organic acids-

- **Examples**:
  - malic acid (apples)
  - citric acid (citrus fruits, tomatoes, strawberries)
  - tartaric acid (grapes)
  - lactic acid (yogurt, cheese, olives, sauerkraut)

1. Organic acids- determining acidity

One simple method is to:

TASTE it!

A sour or acidic taste is a positive indicator.

- highly subjective (sensitivity varies between individuals)

1. Organic acids- determining acidity

using a pH meter

measure the H^+ concentration

then converted to a pH value.

1. Organic acids- pH

- **What is pH?**
  - measure of the acidity of food

pH ranges from 0 (*very acidic*) to 7 (*neutral*) to 14 (very alkaline)

- What is the importance of pH in foods?
  - determines rate of chemical & enzymatic reactions
  - microbial growth/survival in foods

- pH value of **4.6** -critical to **Food industry**
- borderline between: "Acid & Low-acid foods"

1. Organic acids- pH

Acidic or **acid foods** (***pH < 4.6***)

- eg. citrus juices, apple juice, strawberries, apples
- Will not support growth of **most disease-causing** microorganisms.

Low-acid foods (***pH > 4.6***)

- eg. meat, fish, vegetables

Total Acidity vs. pH

- The two concepts are different
- Total acidity **(titratable acidity)** measures the total acid concentration
- pH quantifies H^+ concentration **(active acidity)**

Minor components: (2) ***Colours and Pigments***

2. Colours & Pigments

- Naturally occur. in the foods
- extracted from natural or synthetic sources- added to foods.

- Review different class of pigments- Lesson 2…

E.g.

Carotenoids

- carotenes confer:
  - red, in tomatoes (lycopene)
  - Orange in carrots (beta carotene)

Minor components: (3) ***Aroma & Taste compounds***

3. Aroma & Taste compounds…

- **Aroma** and **taste** profiles of foods = **FLAVOUR**
  - complex – 100s or 1000s of compounds,
    - e.g. aldehydes, ketones, acids, alcohols, fatty acids
  - Aroma: volatile compounds
  - Taste: non-volatile

Table in *Less. 2* for diversity of compounds → aroma of COFFEE

- present as part of the food matrix (eg strawberries), or
- modified (eg cooked strawberries)

Minor components: (4) **Vitamins & Minerals**

4. Vitamins & Minerals

No effect on flavour, colour, texture of food

low amounts in the diet- maintain health

- Water soluble vitamins

  Vitamin C, B complex, folic acid

- Fat soluble vitamins

  Vitamins A, D, E, K

- Some used as food additives: Preservatives (antioxidants)

➢ Minerals e.g. Ca, Mg, Na, K, Fe, Zn …