Enzyme and Digestion

➢ Digestive Enzymes :

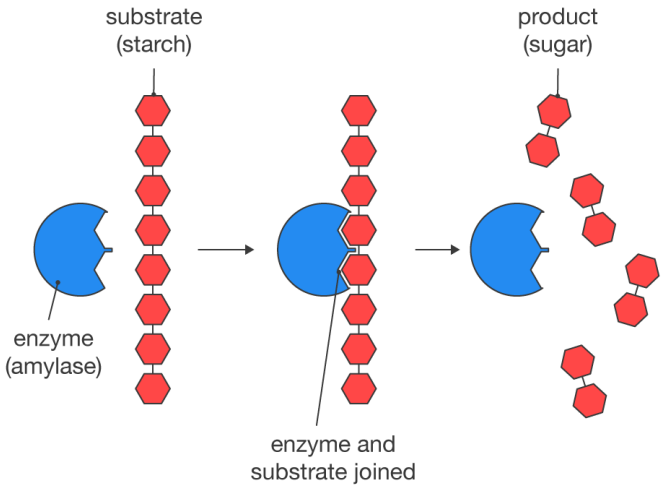
a) Digestive enzyme play a important role in breaking the food you eat.

b) These enzymes break larger molecule into smaller molecule which is easily pass through digestive walls like carbohydrate, protein and lipids breakdown into sugar, amino acids and glycerol or fatty acid Respectively

➢ Some important digestive Enzymes

Amylase:

- It is the enzyme which break carbohydrates (starch) into smaller molecule like maltose or sucrose etc.
- Amylase is made in 3 places
    1. Salivary glands
    2. Pancreas
    3. Small intestine



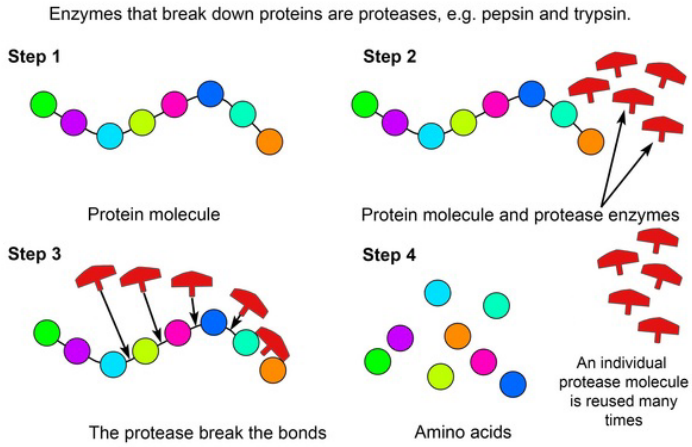
Protease

- It is the enzyme which convert proteins into smaller molecule like amino acids
- Protease are made in 3 places

  1- stomach

  2- pancreas

  3- small intestine

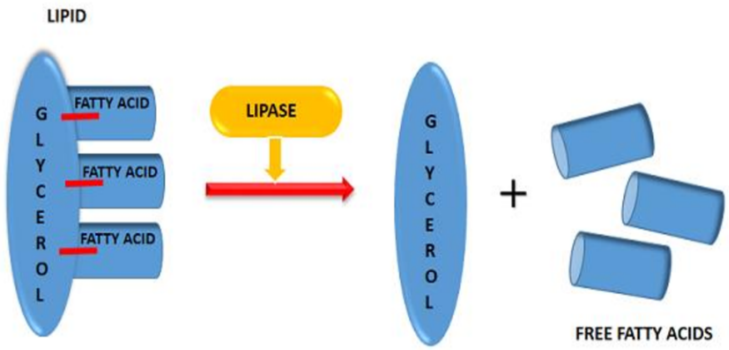


Lipases

- It is the enzyme which converts lipids molecule into small molecule glycerol and fatty acids
- Found in two places

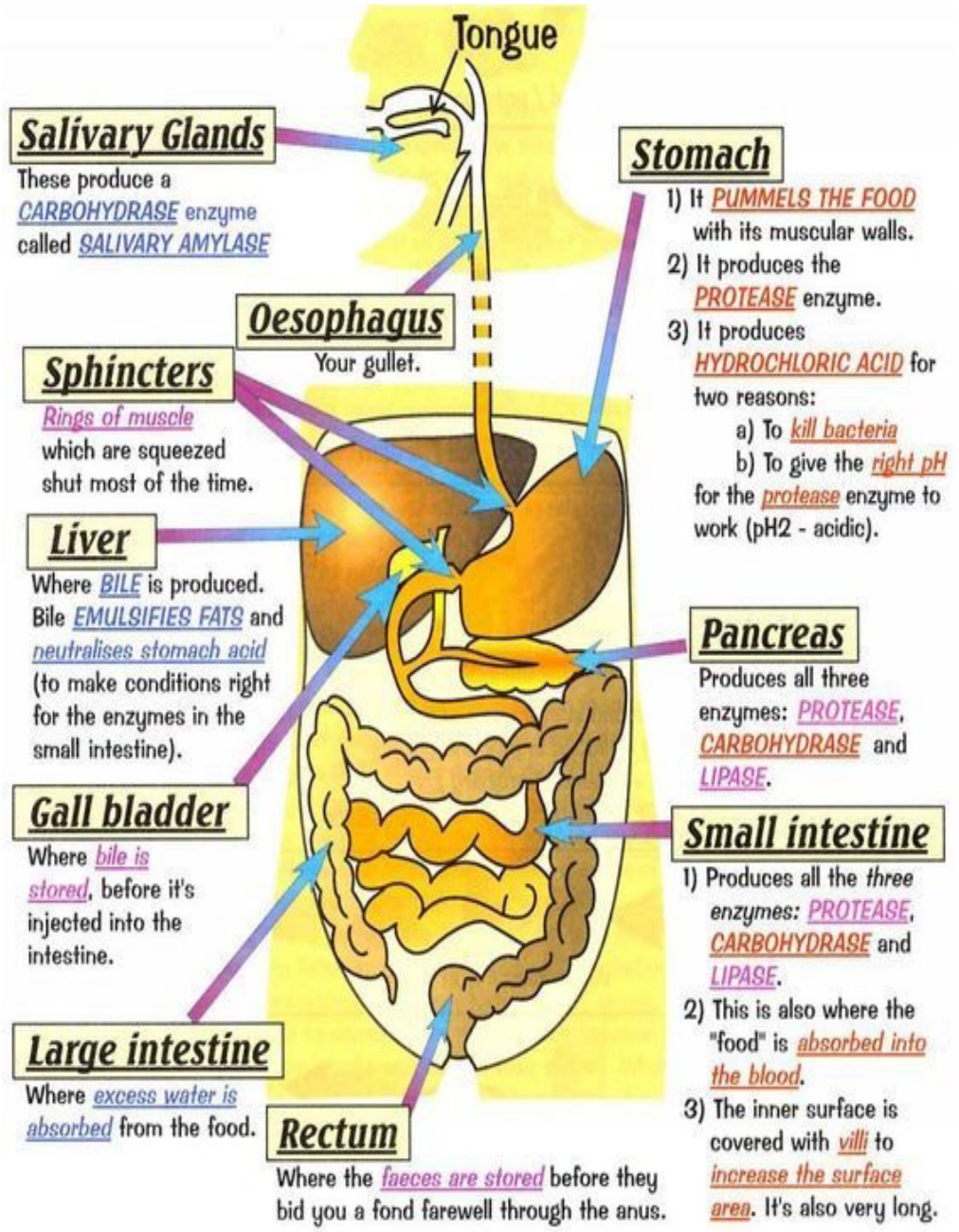
  1- pancreas

  2- small intestine



Bile neutralise the stomach acid and emulsifies fats

- Bile produces in liver and stored in gall bladder
- **Hydrochloric acid** in the stomach make too acidic pH for enzyme to work properly in small intestine
- **Bile** is alkaline (basic having pH > 7) neutralise the acid and make conditions alkaline
- Enzyme in alkaline line conditions work best in small intestine
- Bile also break big molecules of fats into tine droplets and make digestion faster.



Food Tests

➤ There are few tests to check the presence of food molecule in a sample

1- Benedict's Test

2- Iodine solution Test

3- Biuret Test

4- Sudan lll Test

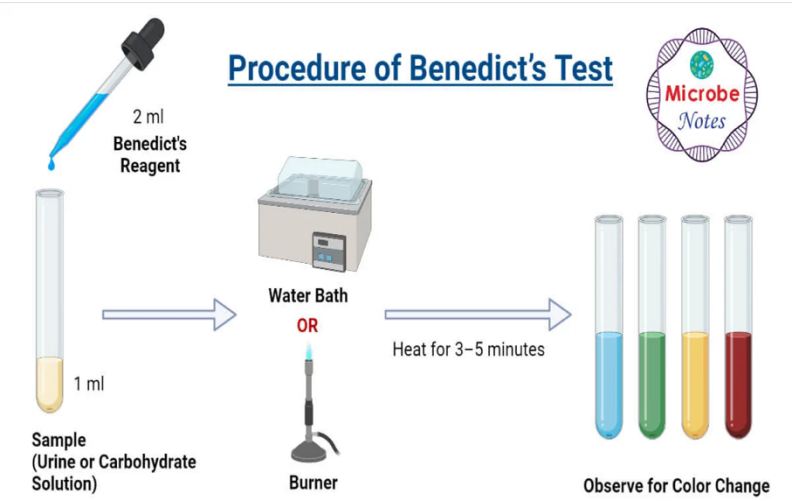
1. Benedict's Test:

a) This test is used for checking the presence of sugar in food molecule for example in biscuits, cereals and bread.

b) There are 2 types of sugar

- Non- reducing sugar
- Reducing sugar

c) Benedict's test is for Reducing sugar

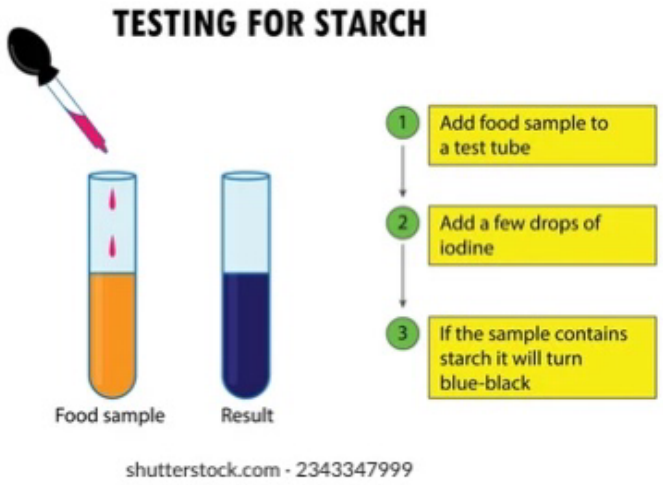


Result:

If food sample has sugar in it. The testing sample will change the colour from **normal blue to green—>yellow—> brick red colour**

2- Iodine solution Test:

a) This test is used for checking the presence of starch in food molecule like in pasta, rice and potatoes

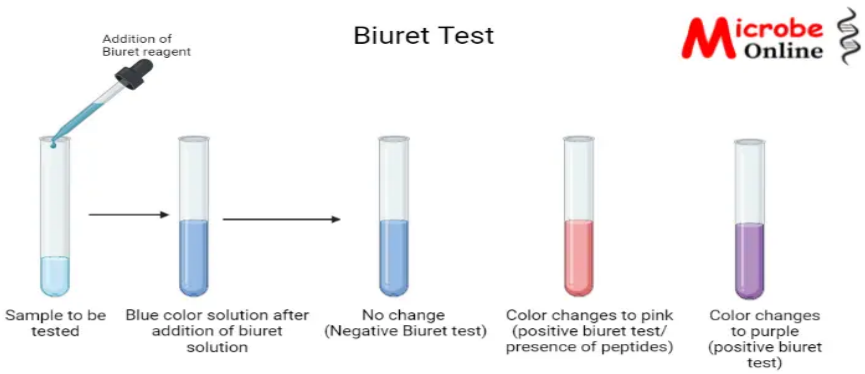


Result:

If food sample has starch in it then sample colour changes from **orange to blue-black colour**

3- Biuret Test

a) this test is used for checking Proteins in food sample like Meat and cheese.

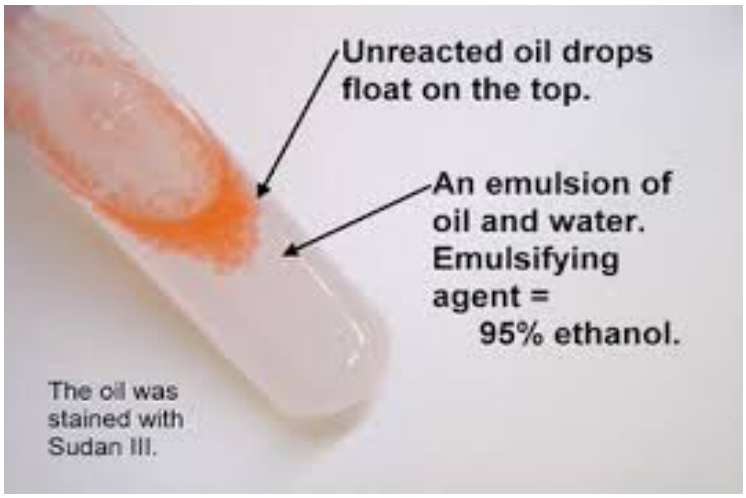


Result:

Colour of sample changes from **blue to purple colour** if sample have proteins in it.

Sudan lll Test:

a) This test is used to detect lipids in food sample. Such as lipids detection in oils milk and margarine.



Result:

Top layer is red mean sample has lipids in it.