## **Diet and Food Production**

Microorganisms can cause diseases, and at the same time, a lot of them are useful to us. For example some can spoil food items. They can feed on the same food as us. If we don't preserve and protect the food, it can get colonised by bacteria and fungi. Eg like bread, the spots that form, the fungi that feed on it.

But they are so helpful as well, as they help in decomposition process, so the dead bodies are decayed. They are also important for food production and medicine, and the ones present in mouth and stomach, help with digestion.

Bacteria and fungi's digestion takes place outside the body. They secrete enzymes to the food and the enzymes can digest the food materials. In our body, the enzymes can breakdown complex to simpler ones, so the same way, it occurs in them. The enzymes can hydrolase the substances in the food, so the microorganisms a can easily absorb it. The food is important for their growth. This changes the appearance of the food, smell and the taste, so if you eat that, then you will have problems.

Some microorganisms are highly poisonous. They produce toxins as waste products. It can easily make a person ill, and sometimes even cause death.

## **Preventing spoilage:**

## How to stop growth of bacterium:

sale.co.uk In things like squash and syrup, the concentration of sig ery high, so there won't be any microorganisms there. When microorganism anter syrup and all, the water from their body enter out, so they can't live there

- metabolic relations won't take place in their body. ture (minus) – f. 🛛 g 🖯 ow tan as the reactions take place with the herp of enzymes, at low temps, the enzymes are inactive, therefore preventing the growth of microorganisms.
- Freezer: where temp is -10 degrees or less. In this, food can be kept for even longer. The organism can't attack food and survive there. If they enter, they become frozen. Sometimes they are not killed in the freezer. When the food is taken out, they begin to grow again. On return of favourable conditions, they can be active again. Hence why food that has been frozen and heated, should not be re-frozen, as the number of micros will be increased.
- Fruits can be freeze dried: involves freezing the food in a vacuum, to remove all the moisture, and sealing food in an airtight container, preventing the water from becoming ice. Because of the very low pressure around it, it turns into water vapour. This does less damage to the cells in the food as no ice crystals are formed and could pierce and break the plasma membrane. Food's texture is kept then when conventional freezing is used. It can be stored for a long period of time.
- Solutions with low water potential: when the cell is immersing in a solution with low water potential, than the cytoplasm, causes water to move out of the cell by osmosis. It can destroy micros, or at least prevent growth. It will cause the death of the cell – plasmolysis. We do this by salting. When you apply salt to water, the amount of water decreases. The salting method. The food can be rubbed with salt, or put in dry or concentrated salt solution. This greatly changes the flavour of the food, but many people enjoy it, eg like ham, bacon etc. concentrated sugar solutions also has similar effects, eg: jam, marmalade