

Deterioration or Spoilage of Food

Fresh foods cannot be stored for long before change occurs which affect the texture, flavour or colour of the food.

Some changes are noticeable e.g. a green tomato will change to red as it ripens.

Other changes are noticeable but some of the changes that occur will make the food unfit to eat



<http://home.pacific.net.hk/~ppleung/Chem/spoilage.htm#top> (Spoilage of Food)

There are several definitions of food spoilage:-

- Food spoilage means the original nutritional value, texture, flavour of the food are damaged, the food become harmful to people and unsuitable to eat.
- Food spoilage refers to food that appears unpalatable such as sour milk or a brown apple. It is a natural process, speeded up by enzymes present in food.

What causes food spoilage or deterioration?

Micro-organisms and enzymes cause food to deteriorate.

Micro-organisms are usually visible only under a microscope.

Micro-organisms are found in water, soil, air, on animals, humans and equipment

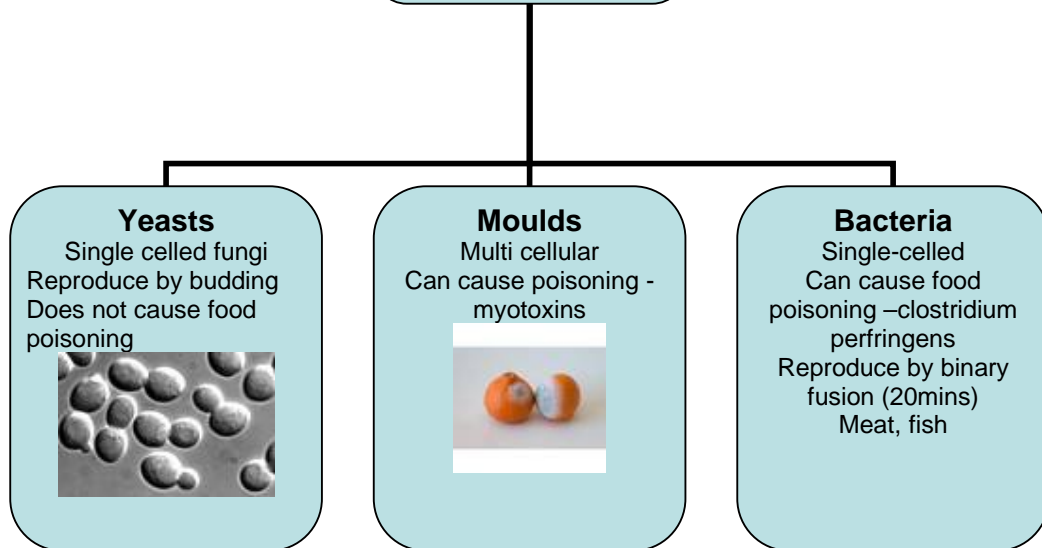
Some foods like chicken contain micro-organisms –salmonella

Micro-organisms can be transferred by poor hygienic practices.

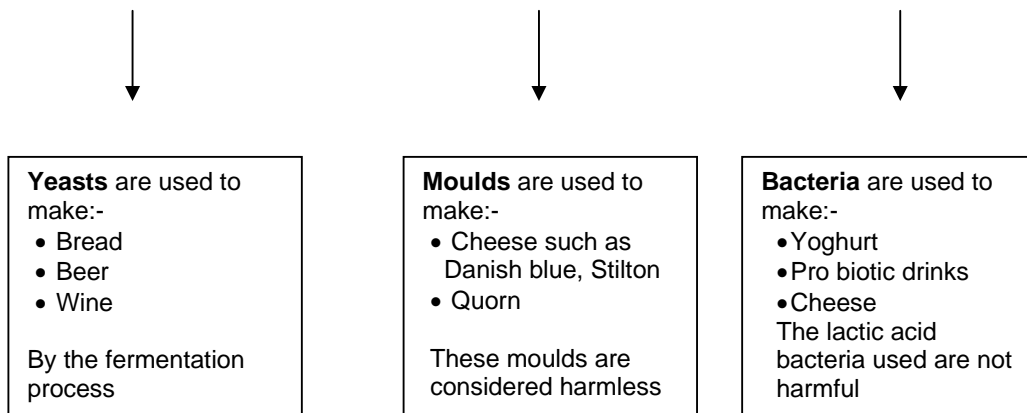
Some micro-organisms known as pathogenic bacteria can cause food poisoning which can result in severe illness or even death.

Micro-organisms multiply rapidly in correct conditions mainly where there is warmth, moisture, food, and time.

Spoilage by Micro-organisms



Micro-organisms can perform useful functions in the production of cheese, yoghurt, bread, beer, Quorn.



Task: State whether the following statements are true or false

Statement	True or False
All bacteria are harmful	
Cross contamination is when bacteria is transferred from raw foods to cooked foods	
Food poisoning can be avoided by hygienic handling of food at every stage of its production	
Chicken does not contain harmful bacteria	

Enzymes can cause *spoilage* in food by:

- Oxidation or
- Enzymatic browning of fruit



Oxidation happens when fruit and vegetables are cut and exposed to the air, this causes the flesh to turn brown. It is unsightly but not harmful.

Oxidation can be prevented by

- Adding acid e.g. lemon juice to fruit when making a fruit salad or by
- Blanching e.g. placing peas in boiling water before freezing or
- Preventing contact with air by covering peeled potatoes with cold water.

Enzymes can cause *good* changes in food

Enzymes are chemical catalysts found in all cells

Enzymes causes:-

- Food to ripen
- Meat to tenderise
- Enzymes help the fermentation process when making bread and beer
- Enzymes speed the ripening process in cheese making

