

# Starter:

1. Identify **two** methods of controlling enzymatic action in foods [2 marks]
2. Define 'high-risk' food [1 mark]
3. Provide **three** examples of high-risk foods [3 marks]
4. Explain how bacteria work in the production of yoghurt [2 marks]
5. Identify **one** product, other than bread, which is made with the use of yeast. [1 mark]

# Revision- Food Safety- Micro-organisms

Learning Objectives:

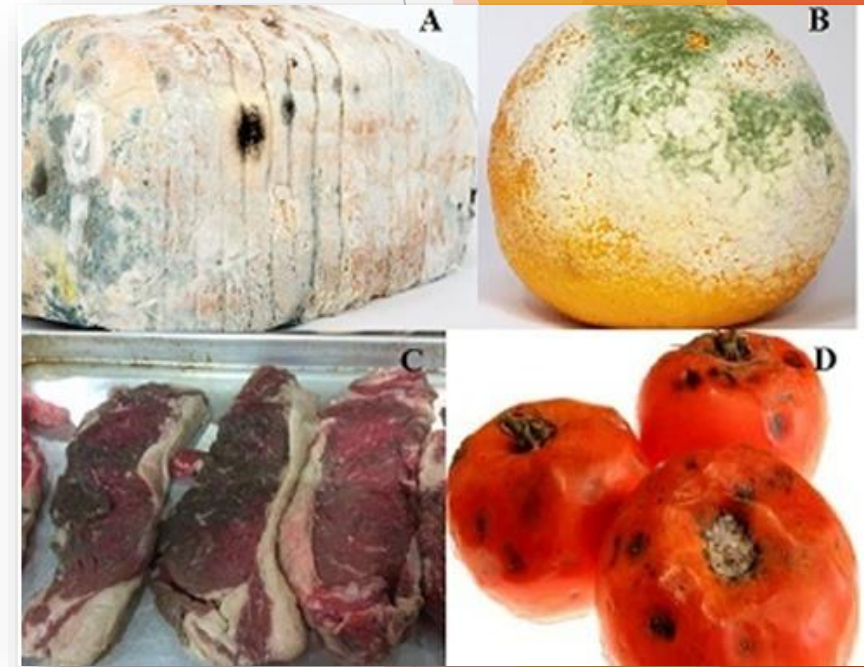
Recall information about Food Safety

Address any misconceptions

Apply knowledge to exam questions

# In depth look- Food Spoilage

- ▶ Definition- Enzymic browning- is when enzymes in food react with oxygen in the air to cause the food to turn brown.
- ▶ Yeast action- Yeast can grow both aerobic and anaerobically. They prefer acidic, sweet foods. Yeast FERMENTS sugars and produces alcohol and carbon dioxide.
- ▶ Mould growth- Mould like **moist** and **warm** conditions, but can grow at low temperatures if given time. When mould grows on food, it extracts the nutrients- this is why you should throw it away.



# In depth look- Micro-organisms in food

- ▶ Yeast- Biological raising agent (in bread), ferments grapes and hops into wine and beer.
- ▶ Moulds- Improve flavour and colour (cheese). Ripen surface of sausages (salami)- extends shelf life. Soy sauce - ferments to make MSG.
- ▶ Bacteria- cheese and yoghurt (lacto bacillus- turns lactose into lactic acid). Lactic acid DENATURES and COAGULATES protein in milk= thickened.

# Plenary- Exam question

Identify one sign of spoilage caused by:

- a) Enzymatic action
- b) Mould growth
- c) Yeast action

[3 marks]

Explain why yeast is useful in the production of bread. [4 marks]

# Plenary- Exam question

Fill in the gaps using the keywords below. Note that each keyword may be used once, more than once or not at all.

(4 marks)

|                 |                      |                 |                  |                   |
|-----------------|----------------------|-----------------|------------------|-------------------|
| <i>catapult</i> | <i>catalysts</i>     | <i>cataract</i> | <i>slow down</i> | <i>speed up</i>   |
| <i>protein</i>  | <i>carbohydrates</i> | <i>fresh</i>    | <i>ripen</i>     | <i>stay green</i> |
| <i>room</i>     | <i>low</i>           | <i>high</i>     | <i>fats</i>      | <i>stay</i>       |

- i) Enzymes are biological \_\_\_\_\_ usually built from \_\_\_\_\_.
- ii) This means that they can \_\_\_\_\_ chemical reactions.
- iii) Enzymes naturally occurring in plants help them to \_\_\_\_\_ and develop flavour.
- iv) If fruits are left for too long at \_\_\_\_\_ temperature, they can become brown.

# Mark Scheme

The answer indicates at least one for each point from:

*(1 mark for each correct, max. 3 marks)*

- i) Ripening of bananas, browning of fruits such as apples, pears or avocados.
  - ii) A green, black or white furry mould coat is growing on bread, cheese or fruits.
  - iii) Yeast ferments sugar in fruit and juices and turns them sour, fizzy and foamy, e.g. grapes, strawberries, tomatoes.
- Accept other suitable answers.

i) The answer may include a reference to:

*(1 mark for each correct statement, max. 4 marks)*

- Yeast ferments sugar in dough/flour.
- Yeast produces carbon dioxide as an effect of fermentation.
- The more sugar, the more gas can be produced.
- Carbon dioxide causes the dough to rise and become soft and sponge-like.

i) Enzymes are biological catalysts usually built from protein.

ii) This means that they can speed up chemical reactions.

iii) Enzymes naturally occurring in plants help them to ripen and develop flavour.

iv) If fruits are left for too long at room temperature, they can become brown.