

Q: What is fermentation?

Fermentation

“Fermentation is an anaerobic respiration that breaks down sugar (like glucose etc.) to produce energy.”



Term anaerobic

Fermentation is an anaerobic process which means it occurs in the absence of oxygen/air.

Short question

What are the products of fermentation?

Which organism are used to carry out fermentation?



Products of fermentation:

Fermentation has been used for thousands of years to produce:



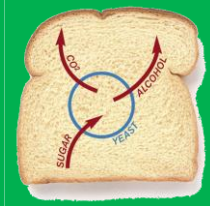
Organisms:

Fermentation is carried out by microorganism such as:

- ❖ Yeast
- ❖ Certain fungi and bacteria
- ❖ Enzymes produced by other organisms.

Organisms involved in fermentation

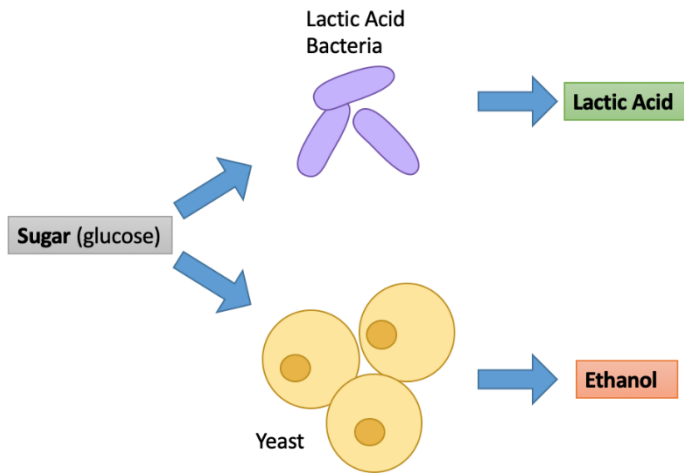
- Saccharomyces*
- Streptococcus*
- Escherichia coli*
- Clostridium*



Types of fermentation

There are two types of fermentation:

- ❖ Alcoholic fermentation
- ❖ Lactic acid fermentation



Short question

How bread is formed through fermentation?

In bread making, the flour used contains starch, protein and an enzyme amylase. Yeast is added in the flour. The flour is mixed with water to form dough. The carbon dioxide produced causes the dough to rise and because of this cavities appear.

Short question

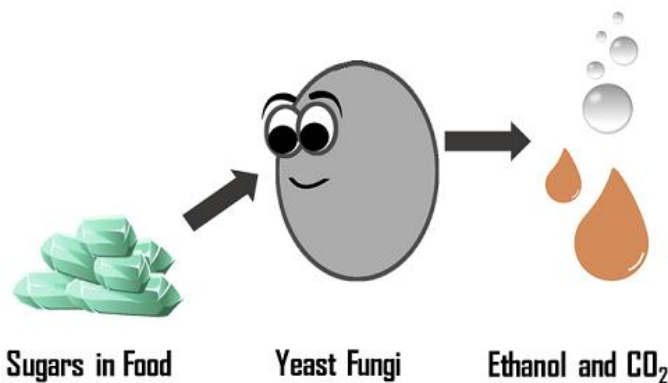
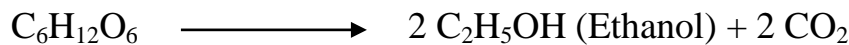
What are the products of alcoholic fermentation?

Alcoholic fermentation:

It is anaerobic transformation of sugars into ethanol and carbon dioxide.

- It is carried out by yeast.
- It is used to manufacture bread and in baking processes.

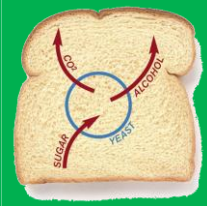
Chemical reaction:



Short question

Why are cavities formed in dough?

Ans: During dough formation, carbon dioxide is produced which causes the dough to rise and because of this cavities appear.



Lactic acid fermentation:

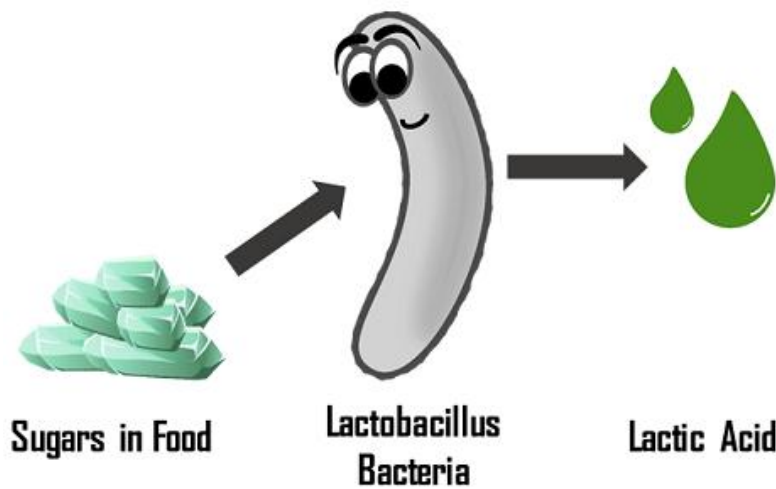
It is anaerobic transformation of sugars into lactic acid.

- ❖ It is carried out by fungi and bacteria.
- ❖ It is used in dairy industry to make cheese and yoghurt.

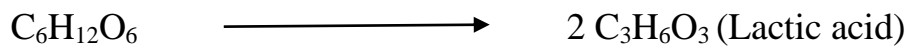
Short question

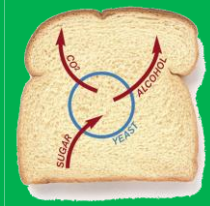
Define lactic acid fermentation.

What are products of fermentation?



Chemical reaction:





Explanation: Fermentation is carried out by microorganisms such as yeast and bacteria, which convert sugars into alcohol or acids.

6. Fermentation is a _____ process.

- a. Endothermic b. Exothermic c. Anabolic d. Catabolic

Explanation: Fermentation is an exothermic process, releasing energy in the form of heat as microorganisms break down sugars.

7. What is the end product of lactic acid fermentation?

- a. Ethanol b. Carbon dioxide c. Lactic acid d. Acetic acid

Explanation: Lactic acid is the main product of lactic acid fermentation, which occurs in muscles during intense exercise and in some bacteria used in food production.

8. Which component in the fermentation process is directly responsible for the tangy flavor in yogurt?

- a. Carbon dioxide b. Ethanol c. Lactic acid d. Glucose

Explanation: Lactic acid is the compound that gives yogurt its tangy flavor. It is produced by lactic acid bacteria during the fermentation process of milk.

9. Which process is used in dairy industry for making cheese and yogurt?

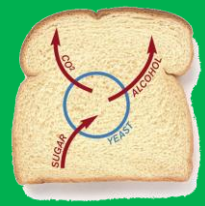
- a. Fermentation b. Pasteurization c. Filtration d. Distillation

Explanation: Fermentation is the process used to make cheese and yogurt.

10. Microorganisms are used in making:

- a. Yogurt b. Bread c. Cheese d. All of these

Explanation: Microorganisms are crucial in the production of yogurt, bread, and cheese.



11. Lactic acid fermentation is carried out by:

- a. Algae
- b. Bacteria
- c. Fungi
- d. Fungi and bacteria

Explanation: Lactic acid fermentation is carried out by fungi and bacteria