

20.2 Biotechnology

01. 0610_m22_qp_22 Q: 39

The sugar in milk is digested by an enzyme.

Which row matches the name of the enzyme with the sugar it digests?

	enzyme	sugar in milk
A	lactase	glucose
B	lactose	lactase
C	lactase	lactose
D	lactose	sucrose

02. 0610_w21_qp_22 Q: 38

What is the useful product of anaerobic respiration in the manufacture of bread?

- A** carbon dioxide
- B** ethanol
- C** lactic acid
- D** oxygen

03. 0610_m20_qp_22 Q: 24

How many molecules of ethanol are released from the anaerobic respiration of one molecule of glucose?

- A** 1
- B** 2
- C** 4
- D** 6

04. 0610_m20_qp_22 Q: 39

Which method is used to produce lactose-free milk?

- A** filtering milk to remove lactose
 - B** heating milk to break down lactose
 - C** using lactase to break down lactose
 - D** using lipase to denature lactose
-

05. 0610_s20_qp_21 Q: 14

Biological washing powder can be used to remove stains on clothing.

Which enzymes will remove stains caused by starch, fat and protein?

	amylase	lipase	trypsin	
A	✓	✗	✗	key ✓ = removes stain ✗ = does not remove stain
B	✓	✓	✓	
C	✗	✗	✓	
D	✗	✓	✓	

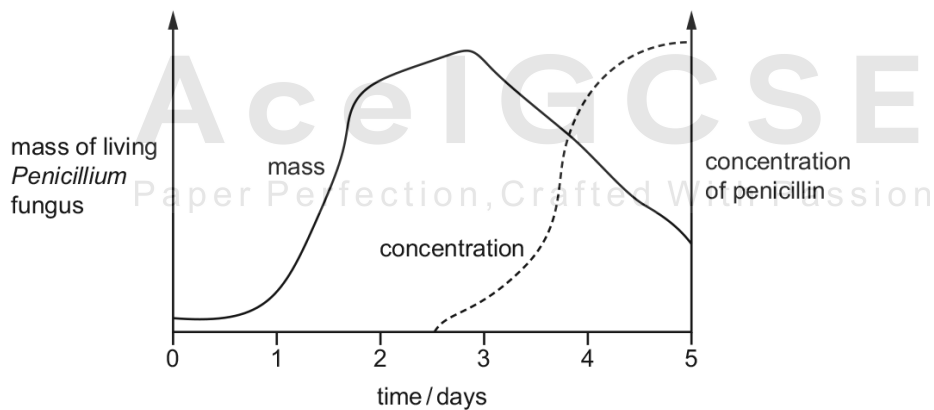
06. 0610_s20_qp_21 Q: 37

What is the role of anaerobic respiration in bread-making?

- A** to produce alcohol to flavour the bread
- B** to produce gas to make the bread rise
- C** to release enough energy to bake the bread
- D** to release enough lactic acid to kill the yeast

07. 0610_w20_qp_21 Q: 39

Penicillin is produced in a fermenter by growing the fungus *Penicillium*. The graph shows how the mass of living *Penicillium* fungus and the concentration of penicillin changed over time.



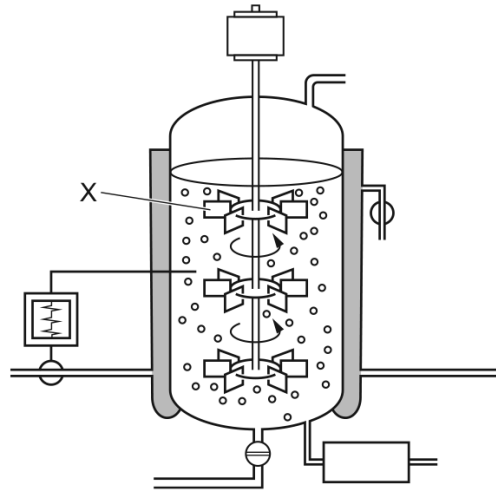
When is the best time to collect the penicillin?

- A** at 1.5 days
- B** at 3 days
- C** at 3.5 days
- D** at 5 days

20.2. BIOTECHNOLOGY

08. 0610_w20_qp_23 Q: 37

The diagram shows a fermenter used to produce penicillin.



What is the function of part X?

- A allow microorganisms to enter the fermenter
 - B maintain an even temperature inside the fermenter
 - C monitor the temperature inside the fermenter
 - D sterilise the contents of the fermenter
-

09. 0610_w19_qp_21 Q: 38

Which enzyme would be used in a biological washing powder?

- A DNA ligase
 - B lactase
 - C pectinase
 - D protease
-

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10. 0610_w19_qp_23 Q: 38

Penicillin is made in a fermenter by growing organisms.

Which type of organism is used in the production of penicillin?

- A bacterium
 - B fungus
 - C protist
 - D virus
-

11. 0610_m18_qp_22 Q: 36

What is a requirement for the production of penicillin in a fermenter?

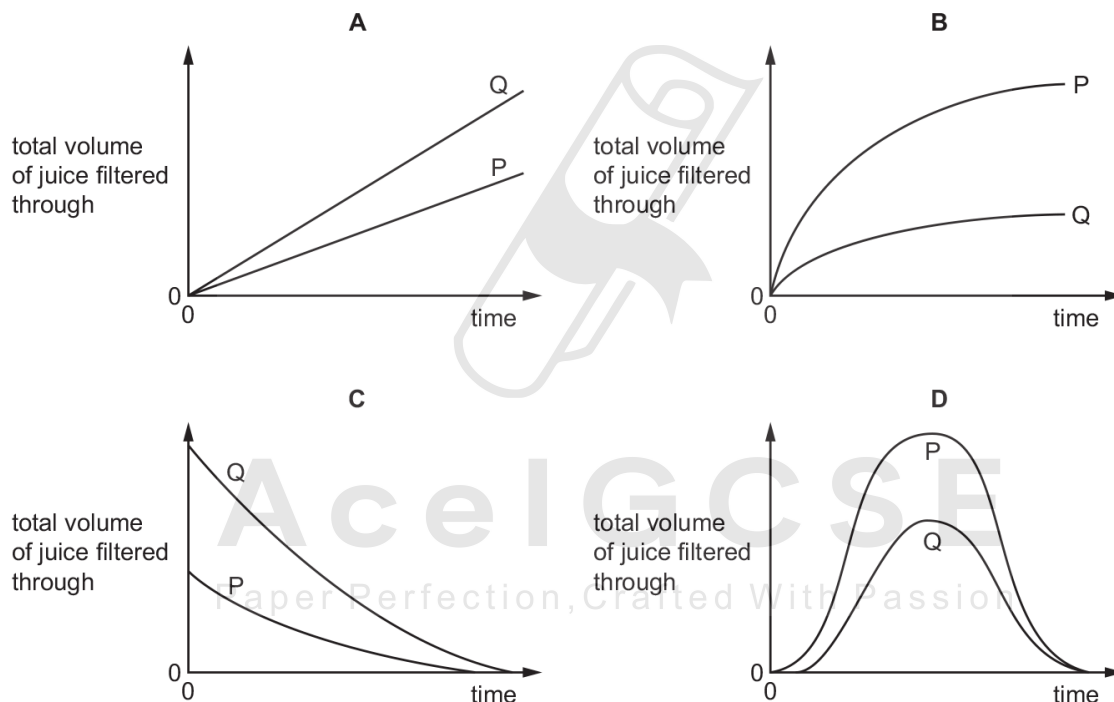
- A adding bubbles of nitrogen gas to mix the nutrients and *Penicillium*
- B adding the required amount of sugar as a nutrient
- C ensuring no oxygen enters the fermenter so only anaerobic respiration occurs
- D maintaining a constant temperature of 95 °C to prevent other microorganisms growing

12. 0610_s18_qp_21 Q: 17

A student places two samples of crushed apple into two beakers, P and Q. The samples are of equal size. She adds 5 cm³ of pectinase solution to beaker P and 5 cm³ of water to beaker Q.

After five minutes, she places the samples of crushed apple into two different filter funnels, and measures the volume of juice filtering through from each sample over a period of 10 minutes.

Which graph shows her results?



13. 0610_s18_qp_21 Q: 38

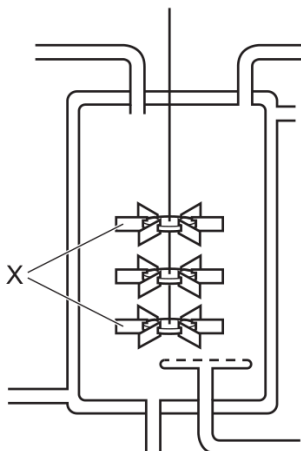
What does *Penicillium* need to grow in a fermenter?

	amino acids	carbohydrates	oxygen
A	✓	✓	✓
B	✓	✓	x
C	✓	x	✓
D	x	✓	✓

20.2. BIOTECHNOLOGY

14. 0610_w18_qp_22 Q: 37

The diagram shows an industrial fermenter used to produce penicillin.



What is a function of the part labelled X?

- A add oxygen to the solution
- B maintain an even temperature throughout the solution
- C record the pH of the solution
- D sterilise the solution

15. 0610_s17_qp_21 Q: 39

Why is yeast used in breadmaking?

- A to produce alcohol
- B to produce carbon dioxide
- C to use up oxygen
- D to use up sugar

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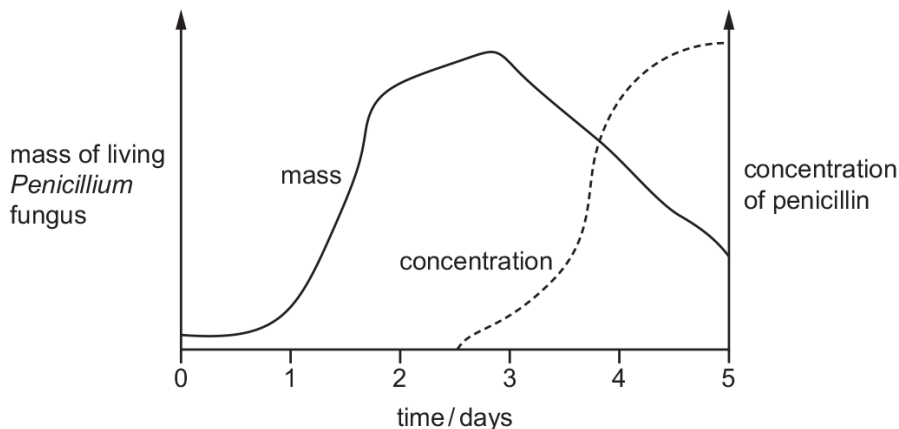
16. 0610_w17_qp_21 Q: 10

Which enzyme is used to produce clear apple juice?

- A amylase
 - B lipase
 - C pectinase
 - D protease
-

17. 0610_s16_qp_21 Q: 37

Penicillin is produced in a fermenter by growing the fungus *Penicillium*. The graph shows how the mass of living *Penicillium* fungus and the concentration of penicillin changed over time.



When is the best time to collect the penicillin?

- A at 1.5 days
- B at 3 days
- C at 3.5 days
- D at 5 days

18. 0610_s16_qp_22 Q: 9

A food stain on a table cloth is where meat cooked in oil has been spilt.

It is washed in a biological washing powder.

Which combination of enzymes should be in the washing powder to remove the stain?

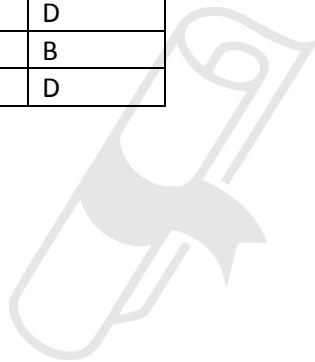
- A amylase and lipase
- B lipase and protease
- C pectinase and amylase
- D protease and pectinase

19. 0610_w16_qp_21 Q: 38

Why is yeast used in bread-making?

- A Aerobic respiration produces alcohol.
- B Aerobic respiration produces lactic acid.
- C Anaerobic respiration produces alcohol.
- D Anaerobic respiration produces carbon dioxide.

SN	Paper	Q. No.	Answer
01	0610_m22_qp_22	39	C
02	0610_w21_qp_22	38	A
03	0610_m20_qp_22	24	B
04	0610_m20_qp_22	39	C
05	0610_s20_qp_21	14	B
06	0610_s20_qp_21	37	B
07	0610_w20_qp_21	39	D
08	0610_w20_qp_23	37	B
09	0610_w19_qp_21	38	D
10	0610_w19_qp_23	38	B
11	0610_m18_qp_22	36	B
12	0610_s18_qp_21	17	B
13	0610_s18_qp_21	38	A
14	0610_w18_qp_22	37	B
15	0610_s17_qp_21	39	B
16	0610_w17_qp_21	10	C
17	0610_s16_qp_21	37	D
18	0610_s16_qp_22	9	B
19	0610_w16_qp_21	38	D



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