

REVISION: BIODIVERSITY OF MICRO-ORGANISMS & PLANTS

19 MARCH 2014



Lesson Description

In this lesson we revise:

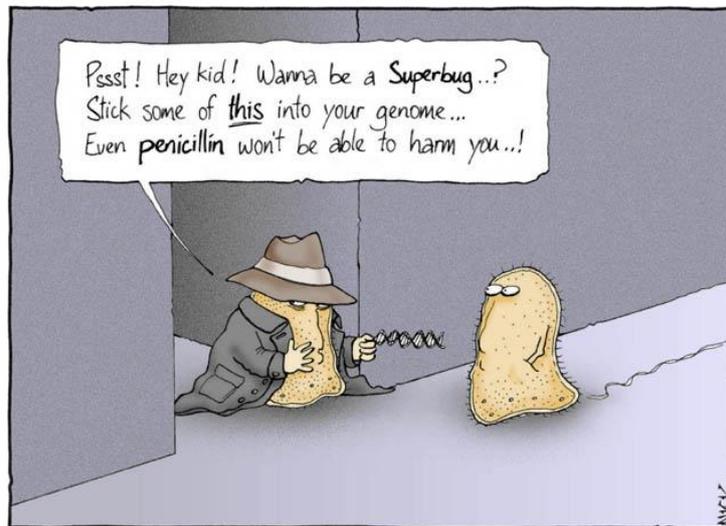
- Biodiversity of micro-organisms and plants
- Reproduction in plants



Improve your Skills

Biodiversity & Classification of micro-organisms

Question 1



It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.

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|-----|--|-----|
| 1.1 | What does the term 'superbug' mean? | (2) |
| 1.2 | What does the term "antibiotic resistance mean"? | (2) |
| 1.3 | Explain why the bacteria appear to be slimy? | (2) |
| 1.4 | What is the one bacterium handing over to the other? Why? | (3) |
| 1.5 | What are the three usual modes of movement for bacteria? | (3) |
| 1.6 | The cartoon indicates that bacteria can be found in hospitals. How can we prevent this from happening? | (3) |
| 1.7 | What is penicillin? | (1) |
| 1.8 | What does penicillin do? | (1) |
| 1.9 | Not all bacteria are pathogenic. What other forms of bacteria do we find? | (3) |

[20]

Question 2

Modern Beer Making

When Beer is made from barley, the following steps occur:

Malting: Barley grains are soaked for two to three days, drained, and incubated for ten days at 13° C to 17° C. Roots and shoots start to grow, and starch reserves are mobilised as sugar. The temperature is then raised to between 40° C and 70° C to stop germination.

Cracking: Grains are lightly roasted to 80° C and then passed between rollers that crack them open.

Mashing: Hot water (62° C to 68° C) is used to wash the sugars and amino acids from the grains. Brewers' grains are left behind and are used in the feeding of herds of dairy cows.

Boiling: The liquor from the mashing process, known as wort, is boiled for several hours to concentrate it. Dried hops are added for flavour and for their antimicrobial properties. This is followed by a cooling step.

Fermentation: Yeast is now added, and converts the sugar to ethanol and carbon dioxide over a period of two to five days. As the yeast grows, it forms a thick head, which is skimmed off the surface. This is sold as a cake or as a slurry. The carbon dioxide produced is solidified at a low temperature and under high pressure and is sold as dry ice.

Conditioning: The beer should have an alcohol content of 4% to 8% ethanol. It is stored in barrels to allow final fermentation and for clearing the yeast. Under modern quality control and marketing procedures, it may be filtered, pasteurised, standardised and canned.

Adapted from 'The role of yeast in brewing' Oxford Successful Life Science p 20

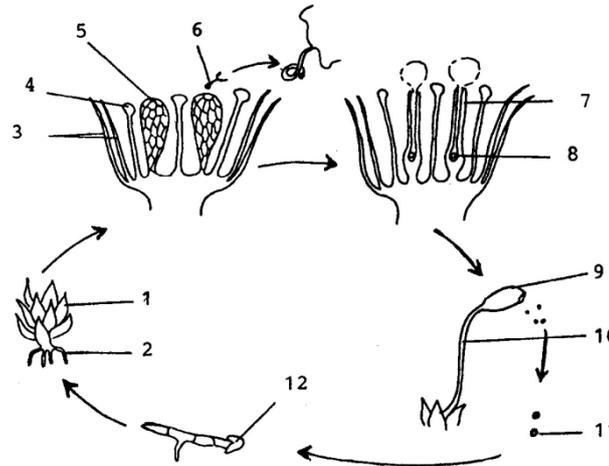
Read the extract above and answer the following questions. Answers may be found in the text or may come from what you have learned.

- 2.1 Name the phylum to which yeast belongs. (1)
- 2.2 What is the nutrition of fungus. (1)
- 2.3 In the above process, name the substrate that yeast uses for food. (1)
- 2.4 Why do you think the barley is allowed to germinate? What significance does this have for the yeast later in the process? (3)
- 2.5 What are the by-products of yeast nutrition? (2)
- 2.6 In your own words, what does 'antimicrobial' mean? Why do you think this property is important in the brewing process? (2)

Biodiversity of Plants

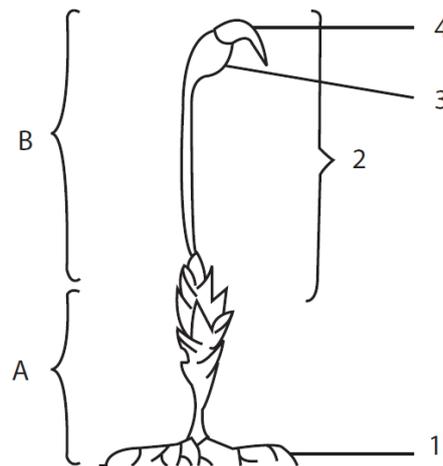
Question 1

The diagram below represents the life cycle in Bryophytes.



- 1.1 Write down the numbers and names of two different structures that photosynthesise.
- 1.2 Name the structure numbered 2 and state its function.
- 1.3 Describe the role played by the parts numbered 3, 5, 7 and 8 in sexual reproduction.
- 1.4 Write down the numbers of the parts which represent the sporophyte generation.
- 1.5 Name the structure numbered 11. What is the chromosome composition of this structure?
- 1.6 What is the main difference in structure between structure 2 and root hairs?

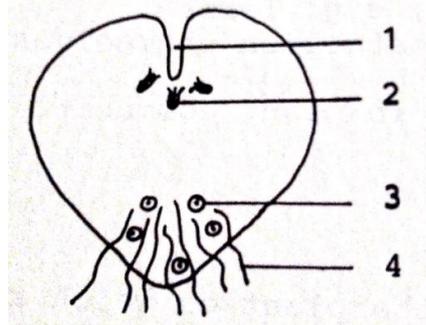
Question 2



- 2.1 Identify the structure labelled 4.
- 2.2 What type of reproductive body is formed in the part numbered 3? By which process is it formed?
- 2.3 Identify structure 1. Name its function.
- 2.4 Write down the numbers of the part in the drawing which represent the sporophyte.

Reproduction in Plants

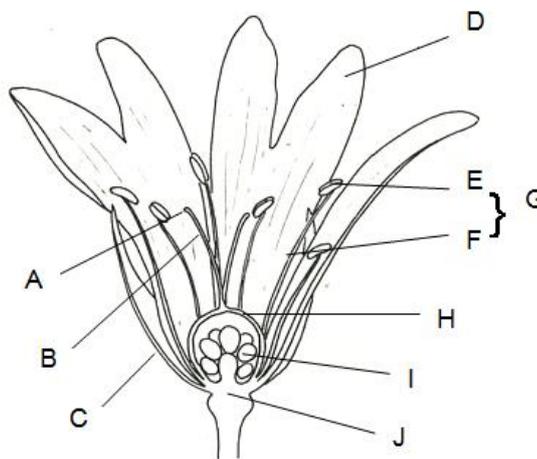
Question 1



- 1.1 What is this structure called? (1)
- 1.2 Name the plant in whose life cycle this structure forms a part. (1)
- 1.3 Is this structure haploid or diploid? (1)
- 1.4 Identify the parts numbered 1 to 3. (3)
- 1.5 Identify the part numbered 4 and state its function. (2)
- 1.6 Describe how fertilisation takes place in this structure. (3)
- 1.7 Is this method of reproduction suitable for a successful survival on land? Explain (3)

Flowers as Reproductive Structures

Question 1



- 1.1 Name the parts A to C on the diagram above. (3)
- 1.2 Where is
 - (a) the male gamete, and
 - (b) the female gamete found in a flowering plant? (2)
- 1.3 Are these structures haploid or diploid? Explain. (2)