



SHIKSHA CLASSES

Subject : Biology

Topic : 11. Enhancement in food production

Total Marks : 20

Class : XII

Q.1 : Select and write the most appropriate answer from given alternatives in each sub-question [3]

i) Vitamin B12 is produced by

Ans: b) *Pseudomonas denitrificans*

ii) variety of wheat is with high protein content.

Ans : (d) Sonora-64

iii) Heterocyst is the site of

Ans:c) N_2 fixation

Q.2 : A) Write the answer in ONE sentence: [6]

1) What is Biocontrol?

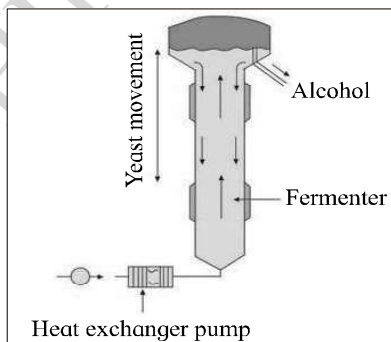
Ans : The natural method of eliminating and controlling insects, pests and other disease causing agents, is by using their natural, biological enemies. This is called biocontrol or biological control. Biocontrol is the use of microbes in controlling plant diseases and pests.

2) Define: Biofortification.

Ans : Biofortification is a method in which crops are bred (produced) for having higher levels of vitamins, minerals and fats (i.e. better nutritive value).

B) Draw well labelled diagram of Tubular Tower Fermenter.

Ans :



Tubular tower fermenter

C) How biofortification can be achieved?

Ans : Biofortification can be achieved through conventional selective- breeding practices and also through r-DNA technology. It focusses on making plant food more nutritive as plants grow or develop.

Q.3 A) Attempt any ONE of the following :[6]

1) Write a note on Biofortification.

Ans : **Biofortification** is the method of breeding of crops to produce varieties which have higher levels of nutrients like vitamins, minerals, proteins or healthier fats.

This can be done either through conventional selective breeding or through genetic engineering. It is the most practical means to improve public health.

The objectives of biofortification are improving;

- i) The protein content (quantity and quality).
- ii) Vitamin content.
- iii) Oil content (quantity) and quality (unsaturated fats)
- iv) Micronutrients and mineral contents.

2) Write a note on Biofertilizers.

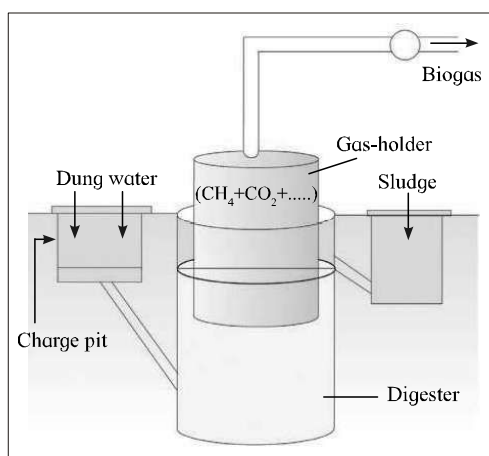
Ans: Biofertilizers are

- i) They are cheap and economical sources of fertilizers.
- ii) They increase the soil fertility, there by increasing crop yield.
- iii) They do not cause environmental pollution and also do not harm the soil micro-organisms.

- iv) They are renewable sources of fertilizers.
- v) They help to improve the physical status of the soil
- vi) They can be used as supplements to chemical fertilizers.
- vii) They do not require energy source on a large scale for manufacturing process.
- viii) They fix about 70% of the total nitrogen available to plants.

B) Sketch and label structure of Biogas plant.

Ans :



Biogas plant

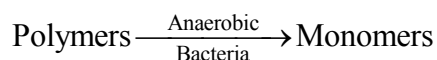
Q.4 : What is Biogas? Give the brief account of the production process. [5]

Ans : **Biogas** - It is non conventional and renewable source of energy and obtained by microbial fermentation.

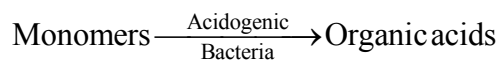
b) Biogas production - Biogas production involves three major processes.

i) Anaerobic digestion or hydrolysis -

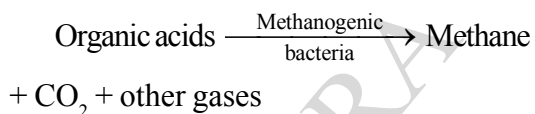
The anaerobic digestion occurs by certain anaerobic bacteria like species of clostridium, pseudomonas, etc. In this process complex insoluble polymers are converted to simple soluble monomers with the help of bacterial hydrolytic enzymes.



ii) Acidogenesis - The simple monomers are converted to organic acid (mainly acetic acid) with the help of acidogenic bacteria.



iii) Methanogenic step - Acetic acid is converted into methane. Methane producing bacteria, involved in the 3rd step, decompose compounds with a low molecular weight.



OR

What are antibiotics? Describe how they are produced?

Ans : **Antibiotic Production :**

- * Antibiotics are organic substances which are produced in small amounts by certain microbes.
- * They have therapeutic importance as they either kill or inhibit the growth of other microbes.
- * Antibiotics are antibacterial or antifungal.
- * Antibiotics control and cure deadly diseases like whooping cough, diphtheria, leprosy and plague.

Antibiotics - Microbial source

- i) Chloromycetin - *Streptomyces venezuelae*
- ii) Erythromycin - *Streptomyces erythreus*
- iii) Penicillin - *Penicillium chrysogenum*
- iv) Steptomycin - *Streptomyces griseus*

* * *

BECOME AN ACE IN JEE & NEET



SHIKSHA CLASSES

Believe & Achieve

JEE | NEET | Previsa (8-10)

📞 8625055707 | 8623085707 🌐 shikshaclasses.co.in

M-19, MHADA Colony, Khat Road, Bhandara



Learn with Jaiswal sir