

Practical No. 9

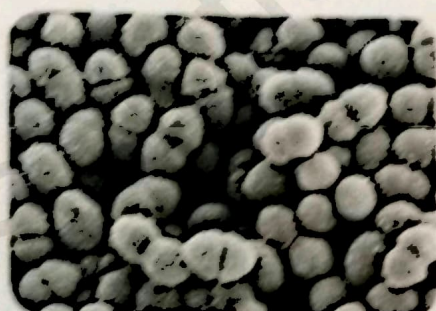
Aim : To study the characteristics of microbes that are industrially useful.

Apparatus : Compound microscope and permanent slides of any of the following microbes - streptococcus thermophilus, lactobacillus acidophilus, saccharomyces cerevisiae, acetobacter, aspergillus oryzae.

Procedure :

1. Select any four permanent slides among the above available in your laboratory. Observe them under compound microscope and note their characteristics.
2. Find out industrial application / use of each.

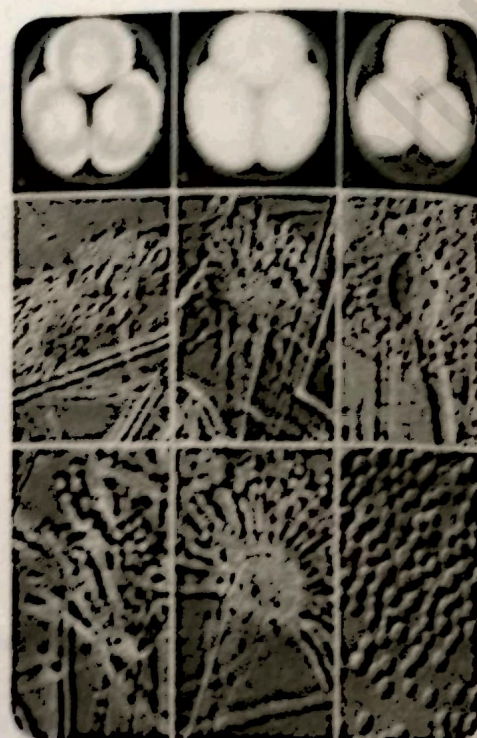
Figure :



streptococcus thermophilus



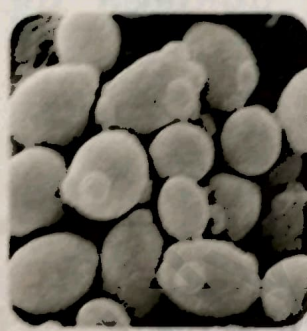
lactobacillus acidophilus



aspergillus oryzae



acetobacter



saccharomyces cerevisiae

Observation :

Sr.No	Name of the microbe	Type	Charateristics
1	Acidophilus	Bacteria	active bacteria
2	Streptococcus thermophilus	Bacteria	form lactic acid
3	acetobacter	Bacteria	used to control acid rain
4	saccharomyces cerevisiae	Bacteria	vinegar production
5			

Inference / Conclusion :

Industrial uses of microbes

Microbes are used in many large scale industrial process. They produce chemical such as ethanol, which is used as fuel as well as in vinegar.

Multiple Choice Questions

1. Citric acid used in production of beverages, toffees, chocolates is obtained by fermentation of by *Aspergillus niger*.
a. grapes ☒ b. sugar molasses c. apple d. coffee nuts
2. The amino acid is obtained by microbial process by *Lactobacillus delbrueckii*.
a. itaconic acid ☒ b. lactic acid c. gluconic acid d. citric acid
3. Microbial enzymes aren't used in
a. glass industry. b. tanning of leather. c. cheese production. d. paper industry.
4. is the antibiotic effective against tuberculosis.
a. Penicillin ☒ b. Rifamycin c. Gentamycin d. Tetracyclin
5. is obtained by fermentation of apple juice.
☒ a. Cedar b. Wine c. Coffee d. Cocoa

: Exercise :

1. "Long back cheese was not considered as vegetarian food." Why?

The enzyme rennet obtained from alimentary canal of cattle was being traditionally used earlier so long back cheese was not used considered as vegetarian cheese.

2. State the uses of xanthan gum that is obtained by microbial process.

Production of pigments, fertilizers, weedicides, textile pigments, tooth paste, high quality paper, etc.

3. Why micro organisms are important in our daily life?

Micro-organisms are pollution free. They used on large scale in many industries due to their property.



Remark and Signat