

Class – 9

Subject – Biology

Chapter – 10

Economic importance of Fungi

Fungi are the saprophytic division of living organisms. These obtain their nourishment from other organisms, mainly dead and decaying material.

Fungi, singular, *fungus*, is a group of eukaryotic, non-phototrophic organisms with rigid cell walls, that includes mushrooms, molds and yeasts.

Fungi can be single celled or very complex multicellular organisms. They are found in just about any habitat but most live on the land, mainly in soil or on plant material rather than in sea or fresh water. Fungi, unlike bacteria, can grow in low moisture and low pH environments.

Fungi are useful for many other reasons.

- They are a major source of citric acid (vitamin C).
- They produce antibiotics such as *penicillin*, which has saved countless lives.
- They can be genetically engineered to produce insulin and other human hormones.

Fungi play an important role in the fields of:

- Medicine:

The first antibiotic Penicillin was discovered as a fungal product by Sir Alexander Fleming. Yeast is used as a vitamin supplement.

- Industry:

Breweries use yeast to produce alcohol.

- Food industry:

Bakeries use yeast to make bread and cakes. Some mushrooms are edible. Other fungi are used in fermenting a wide variety of foods, including soy sauce, tempeh, and cheeses. Blue cheese has its distinctive appearance and flavour because of the fungus growing through it.

Fungi in Breweries:

Yeast is a single-celled fungus containing a number of enzymes useful during fermentation.

Brewers yeast and wine yeast, for example, contain zymase, an enzyme that can convert glucose to ethanol.

Fructose is converted to glucose by the action of invertase. Then zymase converts glucose into ethanol and carbon dioxide.

Fungi in Bakeries:

Baker's yeast is used in bread and cakes. It acts on the sugar present in the dough and releases carbon dioxide in the process.

The dough itself rises to about three times its original volume. The gas rises through the dough when it is baked making it soft and spongy with air pockets.

Fungi in Cheese Processing:

Special varieties of cheese like blue cheese are manufactured using bacteria and fungi.

Steps to making blue cheese are listed below,

- Step 1: A good quality culture containing Lactobacillus and rennet a coagulating enzyme is added to milk to curdle it.
- Step 2: Whey is separated and moisture is removed from the curds to obtain cottage cheese.

- Step 3: Salting technique determines how curd is transformed into cheese.
- Step 4: Strains of yeast like *Penicillium* is used to ripen the cheese and impart a distinct colour and flavour to it.

Mushroom cultivation :-

White button mushroom (*Agaricus bisporous*) is the most popular variety grown in India. It's cultivation involves five major steps :-

1. **Composting**
2. **Spawning**
3. **Casing**
4. **Cropping and harvesting**
5. **Preservation.**