Viruses & fungi

**Fungi:**

* Mycology: study of fungi.
* Fungi: group of heterotrophic eukaryotic cells.
* Fungi called saprophytes because they obtain their nutrients from dead organic material.

**Classification of fungi:**

1) Yeast:

* Oval or spherical in shape.
* Single cell (unicellular), one nucleus.
* Multiply by asexual reproduction (Budding).

2) Mold:

* Multicellular (multinucleated cell).
* Consists of branching hyphae forming Mycelium.
* Multiply both sexually and asexually.

**What are the best conditions to grow fungi?**

* Media: Sabouraud Dextrose Agar (SDA).
* PH: wide range of PH especially acidic.
* Moisture.
* Temperature:

Room temp: causing superficial infection.

37 C: cause systemic infection, called pathogenic fungi

Cold temp: cause spoilage of food

* Lacto Phenol Cotton blue: Reagent used to stain fungi for microscopic examination.
* Use iron needle for culturing.

Why?

**Benefits of fungi:**

1. Baking by using yeast.
2. Brewing.
3. Breaking down of dead organic material.
4. Antibiotics. Ex: penicillin extracted from penicillium.

**Viruses:**

* Virology: study of viruses.
* Viruses are obligate intracellular agents (they can multiply only in living cell).
* They have single type of nucleic acid (DNA /RNA) enclosed in a capsid.
* Some viruses have envelop other are naked (none enveloped).
* Viruses size vary from 20-300 nm.

We can see it by electron microscope.

* Viruses infect human, plants, animals and bacteria.
* Viruses that infected bacteria are called: bacteriophage.

**Cultivation of viruses:**

1. Inoculation of lab animals (ex: mice, hamster).
2. Inoculation of embryonated egg.
3. Tissue cultured cells. Use it to see

**Cytopathic effect:** it is morphological changes in the cell caused by viruses when they multiply inside the cell.

**Why we do cultivation:**

a. Diagnosis. b. research.

c. production of vaccines

**Virus life cycle:**

1. Adsorption to the cell.
2. Penetration.
3. Multiplication.
4. Budding outside the cell.