

2

Bacteria

0.2 - 1.5 by
3-5 μm

prokaryotic
unicellular

grow on artificial
laboratory media

reserved

— — —

Viruses

0.015 - 0.2 μm

— —

don't grow on artificial
laboratory media

— — —

* cause diseases in human.
* cause diseases in animals & plants
* insect microorganism

Fungi

5.0 - 10.0 μm

Eukaryotic

unicellular

grow on artificial
laboratory media

— — —

* cause diseases
* used as food supplement
* manufacture of alcohol

(Yeast)

2.0 - 7 μm
by several mm

Eukaryotic

multicellular

grow on artificial
laboratory media

— — —

* sexual or
asexual

* cause diseases
* industry production like
antibiotics.
* decomposition

Fungi (Molds)

2.0 - 200 μm

Eukaryotic

unicellular

some grow on
artificial media

— — —

* sexual or
asexual

* cause diseases
* food for aquatic
animals.

protozoa

2.0 - 200 μm

Eukaryotic

unicellular

some grow on
artificial media

— — —

* sexual or
asexual

* produce toxic
substances

* production food

* photo synthetic

Algae

10 μm - several
centimeters

Eukaryotic

unicellular or
multicellular

— —

* sexual or
asexual

* produce toxic
substances

* production food

* photo synthetic

Micro lecture 1

- * Microbiology → study of microorganisms which are of microscopic dimensions
- * Microorganisms → Are living organism that are usually too small to be seen clearly with the naked eye.

* Mycology → study of Fungi

* Algology or phycology → study of Algae

* parasitology → study of parasitism & parasites (include pathogenic protozoa, helminthes worms & certain insects)

! protozoology part of parasitology.

Bacteria /> prokaryotes unicellular prokaryotes

The History of Microbiology :-

1 Discovery period

A. Antony Van Leeuwenhoek (tailor)

↳ used lenses to examine cloth.

↳ assembled hundred of microscopes (50-300) times

↳ discovered "micro" organisms ⇒ tiny living organism animalcules

↳ 1st described Bacteria & protozoans.

B - Robert Hooke

↳ developed compound microscope

↳ 1st to use term "cell" ⇒ cell theory

↳ All living thing are composed of cell

C - Ignaz Semmelweis

↳ puerperal sepsis was transmitted by contaminated hand

↳ prevention by washing hand in antiseptic solution.

2 Transition period

↳ disapproved the theory of spontaneous generation

spontaneous generation → a body of thought on the ordinary formation of living organisms without descent from similar organism

A. Redi

↳ ? → where do maggots come from

↳ Hypothesis → Maggots come from flies

↳ Redi put meat into 3 separation jars

* Aristotle ⇒ flies & mice recipe

3 Golden period

A. Louis Pasteur (Father of Microbiology)

↳ anaerobic Fermentation by Bacteria (Acid) & yeast (alcohol)

↳ prevent spoilage of wine by bacteria

↳ sterilization techniques

↳ steam sterilizer

↳ autoclave

↳ hot-air oven.

↳ Studies on Anthrax & cholera.

B. Robert Koch

↳ use solid media for isolation.

↳ Koch's postulates (one microbe, one disease)

↳ Discovered Anthrax bacillus, T.B., Cholera vibrios.

4 Molecular Biology period

A. Dimitri Ivanowskii (virology)

↳ 1st evidence of the filterability of pathogenic agent

↳ tobacco mosaic disease

B. Alexander Fleming

↳ 1st paper describing penicillin

↳ produced by mold penicillium

↳ its effect on gram +ve micro

↳ mold contaminating ~~eat~~ the culture

↳ Antibiotic Era a major revolution in public health