

BACTE211

LEC 1: INTRO TO MICROBIOLOGY

> study of microorganism (cannot be seen by the naked eye/microscopic)

1. Bacteria
2. Fungi
3. Virology
4. Parasite
5. protozoans

HISTORY

Anton van Leeuwenhoek

• first observations of bacteria at the **microscopic level**, (30-266x magnification)

> He used water from his environment as specimen

> **Father of protozoology and bacteriology**

> **first drawings of bacteria (1684)**

• **Huygens**: free-living protozoa

• **Robert Hooke (1667)**: filamentous microscopic fungi

> his microscope has **larger magnification**

> there are 2 types of fungi:

- Yeast - 37 degrees
- mold- *amag/carbo* are favorable in fungi- 25 degrees

degrees

• **Pietro Antonio Micheli**: described 900 species of molds

During the time of Anton to Pietro di daw nila na bacteria nag cacause ng disease

Cicero and Fracastorius- fevers (inflammatory response to the infection) might be caused by minute animals (contagium vivum).

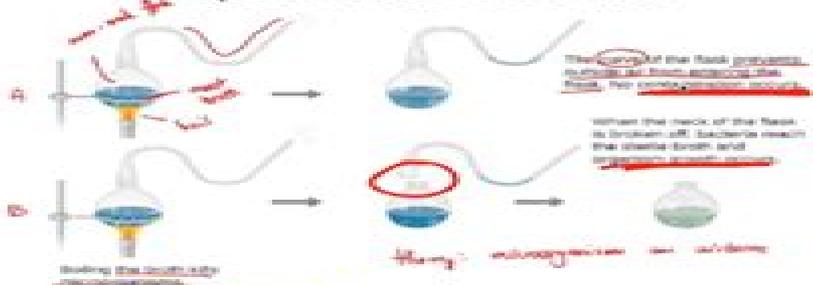
Spontaneous Generation "living things arise from nonliving things" Jan Baptist Van Helmont

rat/mice tas lagyan mo ng wheat kernel/rags sa container after 3 weeks meron ng rat/mice

Louis Pasteur

• when air is filtered through cotton wool, large numbers of microorganisms are held back.

Spontaneous Generation



John Tyndall

• existence of heat-stable forms of certain bacteria

• removal of which involved the process of **repeated heating and rest called "tyndalization"**

Reservoir:

1. **Human**- if it is normally living in the body- normal flora/normal microbiota > do not cause disease > they need nutrients, carbon(CHO, CHOO), nitrogen, energy(ATP)

2. **Environment** water and soil

3. **Animals**

> Signs and symptoms won't be enough to identify/diagnose the disease we need lab

INSTRUMENT PROGRESS:

• To progress

- Improvement in **microscopes**
- Development of methods for **culturing microorganisms**

Workflow means step by step procedure to identify the organisms

1. **Specimen collection** > infection sites

2. **Direct microscopic examination** > tignan directly from the specimen

3. **Culture** > we inoculate in culture media and then incubate

4. **Bacterial identification**

> **macroscopic exam** - we looked for growth pattern (**colony**) w/o using microscope; its shape, texture, color, etc.

> **microscopic matter** - characters viewed under microscope; its shape, arrangement

5. biochemical test

Robert Hooke (end of 16th century)

- Microscope with 3-500x
- Recognized cellular structure

Ferdinand Cohn (1849)

- staining of histological specimens

Carmine and hematoxylin > they are vegetable dyes s mabilis mag fade away; pang tissue din to

Robert Koch (1877)

> **methylene blue** to stain bacteria- it targets the cell wall of the bacteria and specific to it, up until now we used this

Robert Koch (1882)

• staining the **tubercle bacillus/mycobacterium tuberculosis/acid fast bacillus** (impenetrable to stain kasi made up daw ng ↑ fatty acid(mycolic acid) with methylene blue; we still use acid fast staining

- Employing **heat** for the stain to penetrate the waxy envelope



coccus is singular

Pharmaceutical Microbiology Lecture Notes

L Reisser



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Current Catalog National Library of Medicine (U.S.),1980 First multi year cumulation covers six years 1965 70 **The Pharmaceutical Journal and Pharmacist** ,1917 Pharmaceutical Journal ;,1918 *Journal of Pharmaceutical Sciences* ,1921 Vols for 1912 45 include proceedings of the association s annual meeting Australian Journal of Pharmaceutical Sciences ,1981 **Transactions of the Pharmaceutical Meetings** ,1914 *Indian Journal of Pharmacy* ,1968

Essentials of Medicinal Chemistry Andrejus Korolkovas,1988-08-16 This text reference presents fundamental aspects of medicinal chemistry and contains comprehensive information on approximately 5 000 drugs currently in use describing their therapeutic uses their mechanisms of action and their main side and harmful effects Employs the latest World Health Organization WHO pharmacological classification and provides extensive information for drugs on WHO s latest list of basic or essential pharmaceuticals including history chemical trade and generic names chemical structure obtention physical and chemical properties mechanisms of action therapeutic uses adverse reactions biotransformation chemical and pharmacological incompatibilities bioavailability dosage storage and assay **Nature** Sir Norman Lockyer,1927 *Journal of the American Pharmaceutical Association* American Pharmaceutical Association,1921 **The United States Catalog** ,1965 *Cumulative Book Index* ,1998 A world list of books in the English language General Bulletin University of Santo Tomás,1972 **British Journal of Hospital Medicine** ,1977 **Meyer Brothers Druggist** ,1889 *New Scientist* ,1969 General Information State University of New York at Buffalo,1930 **Medical Journal of Australia** ,1914 Chemist and Druggist ,1923 **School of Pharmacy** Temple University. School of Pharmacy,1958

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