

Subject	Insect Taxonomy- Diploma
Lect. No.	3
Date	4/ 18/ 2024

Isolate of the species (Segregation of the species):

Isolate the species based on

1. Reproductive isolated
2. Genetics isolated (Isolate the species based on genetics)
3. Morphological isolated (Isolate the species based on Morphological characters)
4. Physiological isolation (Isolate the species based on Physiological characteristics)
5. Ecological isolation (Isolate the species based on Ecology)

Taxonomic Keys:

A tabulation of diagnostic characters of Species Or genera, Families, etc.)

Kinds of Keys :

1. Bracket Key-
2. Indented Key-
3. Serial key-
4. Branched key-
5. Circular key
6. Pictorial key-
7. Box key

Requirements of taxonomic key :

1. Definition: The characters may be clear and easy to distinguish.
2. Would be helpful if the key contains several characters
3. The morphological differences: The key should contain the different characters of both sex

International Rules of Zoological Nomenclature (IRZN)

1- The principles of priority: The name of the insect's survival is always constant. It may require changing the original name for reasons dictated by the rules of Nomenclature such as:

- A. Change the form name when you move from one genus to another.
- B. Change the name completely in the case of homonyms.

2-The official languages of publication:

(English, German, French, Italian, Latin)

3- Rejection of names

- A. If the name proposed is not in line with international rules of zoological nomenclature, *Nomen Nodum*.
- B. If the name is already proposed to launch on other taxonomic units (the same species) In the same place, and knows this case as a Homonyme.
- C. If it turns out that the unit proposed taxonomic name has already been called by another name, a known name in this case called the synonym

4-The author name: Write the author's name next to the scientific name for the type e.g. *Apis mellifera* Linnaeus

5- Formation of Species Name. the species name should indicate the adjective name.

6-Formation of Subspecies Name: When writing Subspecies, written immediately after Species e.g. *Pediculus humanus capitis*, Human lice

7-Write the scientific name;

-First Genus starts writing with a capital letter, the names of the genus, Should not be long, and easy to pronounce.

- Second Species starts writing a small letter.

-And require written Italic *Musca domestica*,

-Or a normal with a line under two names. e.g. Musca domestica

8.

Family: Ends with the section (**idae**) e.g. Acrididae

Superfamily: Ends with the section (**oidea**) e.g. Elaterioidea

Subfamily: Ends with the section (**inae**) e.g. Staphylinae

Tribe: Ends with the section (**ini**) e.g. Meloini

Subtribe: Ends with the section (**ina**)

9-

- **sp.** means the scientific name for one species of unknown (undiagnosed)

e.g. *Aphis sp.*

- **spp.** mean scientific name for several species of unknown (undiagnosed)

e.g. *Apis spp.*

What is kingdom classification?

Kingdom classification is the highest classification into which the organisms are grouped in the taxonomy. It is ranked above the phylum.

kingdoms:

1-Kingdom Monera (Bacteria)

Features of Moneran:

- 1-Monera are about 1 micrometer in size.
- 2- Unicellular and some organisms that form groups or filaments. Prokaryotic cell.
- 3-Some Monera has hair-like pilli for adhesion or tail-like flagella for locomotion.
- 5-The heterotrophic bacteria can be parasitic or saprophytic. Autotrophic bacteria can be chemosynthetic or photosynthetic.
- 6-Reproduction is asexually through binary fission or sexually by conjugation.

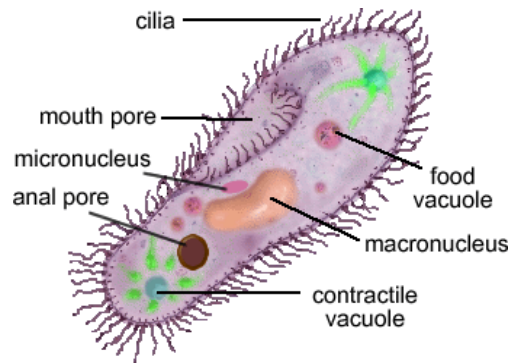
Monera Examples *E.coli* , *Bacillus*,

2-Kingdom Protista

Features of Protista

- 1-They are unicellular and eukaryotic organisms.
- 2-Some of them have cilia or flagella for mobility.
- 3-Sexual reproduction is a process of cell fusion and zygote formation.

Example: *Amoeba*, *Euglena*



3-Kingdom Fungi

Features of Kingdom Fungi:

- 1- Single cellular, but most fungi species are multicellular filaments, eukaryotic, non-motile organisms that form hyphae and mycelium.
- 2-Members belonging to this kingdom lack chlorophyll.
- 3- Fungi including molds, yeasts, mildews, smuts, and mushrooms.
- 4-Their size may range from small microscopic yeasts to large mushrooms.

Pencilium , *Rhizopus* ,*Agaricus* (Mushroom) ,*Puccina* (Rust)

4-Kingdom Plantae

Features of Kingdom Plantae:

1. Multicellular, eukaryotes which have chloroplast. non-motile living things.
2. Autotrophic, these organisms contain the photosynthetic pigment, called chlorophyll.
3. The Cell wall mainly comprises cellulose.
4. Plants have two distinct phases in their lifecycle. These phases alternate with each other. The diploid saprophytic and the haploid gametophyte phase.

5-Kingdom Animalia

Features of Kingdom Animalia:

1. All multicellular eukaryotes which are heterotrophs.
2. The animals are directly or indirectly dependent on plants for food. Their mode of nutrition is the holozoic. Holozoic nutrition encompasses the ingestion of food and then the use of an internal cavity for the digestion of food.
3. Many animals are adept at locomotion.
4. They reproduce by sexual mode of reproduction.

Phylum

Classes are grouped into phyla (the plural of phylum), and phyla into Kingdoms. There are only about 30 phyla in the animal kingdom, and only about a dozen of these (including Mollusca and Brachiopoda) leave any fossil remains.

1-Phylum: Porifera- example -Spongia

2-Phylum: Coelenterata (Cnidaria) example--Hydra

3-Phylum: Platyhelminthes example- Flatworms

4-Phylum: Annelida example – Segmented worms

5-Phylum: [Nematoda](#): example- Roundworms

6-Phylum: **Onychophora**: Velvet worms

7-Phylum: [Nematomorpha](#)- Horsehair worms

Major Characteristics of Phylum Arthropoda:

1. Exoskeleton containing chitin secreted by epidermis, three germ layer
2. Body bilaterally symmetrical, with specialized regions (= tagmata, plural)
3. Jointed appendages (one pair per somite or less), variously specialized for feeding, locomotion, sensing
4. The circulatory system is open, heart dorsal position
5. Digestive system complete (Mouth parts are different adaption, Sucking, chewing , ...etc. ; anus terminal.
6. Respiration by tracheae, gills, book lungs, and body surface
7. Excretion by coxal or green glands or Malpighian tubules.
8. Nerve system with paired dorsal ganglia connective to a pair of ventral nerve cords.
9. Sexes usually separate, and fertilization is mostly internal.

5. 8-Phylum: Mollusca example - Octopus

6. 9-Phylum: Echinodermata example -Starfish

7. 10-Phylum: Chordata example

8. 11-Phylum: Arthropoda example Butterfly