



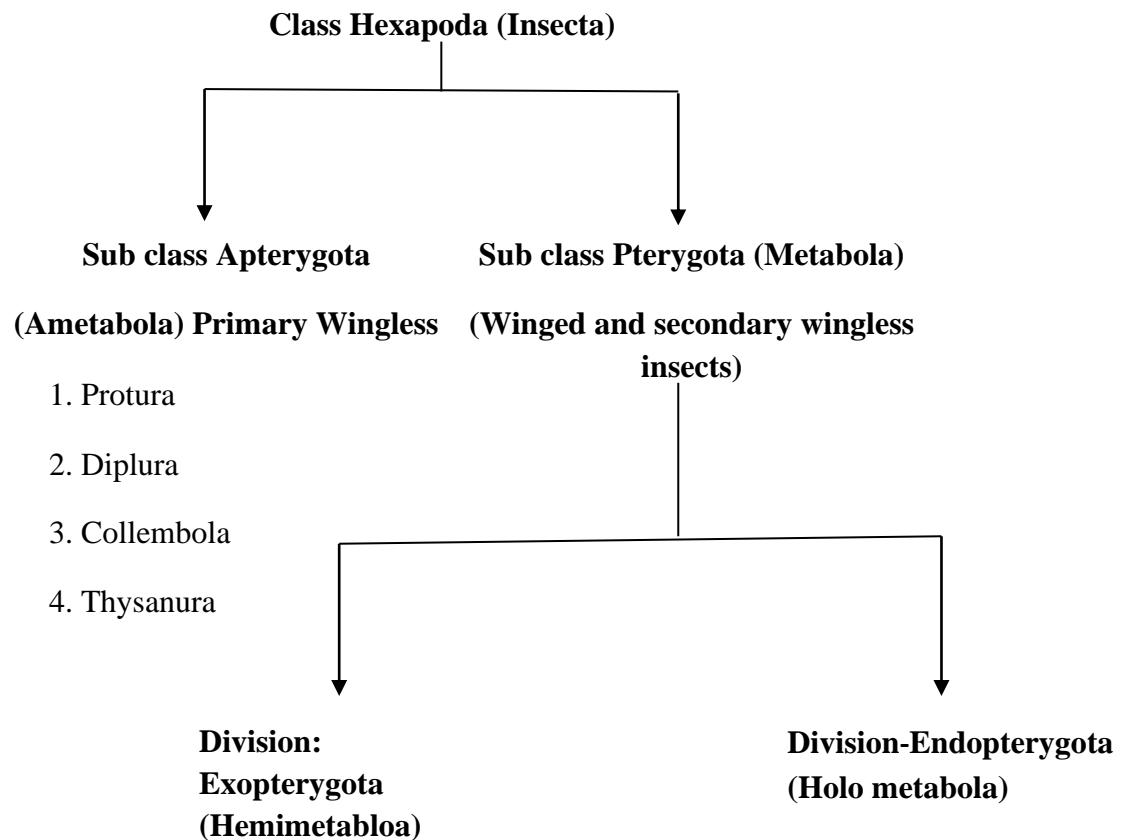
FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

ENT-121: Fundamentals of Entomology

Lecture 5: Characters of Insecta and its Relationship with Other Arthropods:

Characters of Hexapoda:

1. Body divided in to head, thorax and abdomen
2. Possess three pairs of legs, hence the name Hexapoda
3. Presence of one or two pairs of wings
4. A pair of antennae
5. Respiration by means of internal air tubes known as trachea
6. Genital opening situated at the posterior end of the body
7. Presence of metamorphosis (incomplete/complete) during development
8. Possess exoskeleton made up of hard cuticle which plays important role for survival.
9. Excretion is mainly by malpighian tubules which help in maintaining ionic balance



Division: Exopterygota (Hemimetabla)

1. Ephemeroptera - May flies

2. Odonata: Dragonfly and Damselfly

3. Plecoptera: Stonefly

4. Dictyoptera - Cockroaches and mantids

5. Grylloblattodea - Grylloblattids

6. Orthoptera - Grasshoppers, locusts, Crickets, mole crickets etc.

7. Phasmida - Stick insects

8. Dermaptera - Earwigs

9. Embioptera - Web spinners

10. Isoptera - Termites

11. Zoraptera - Zorapterans

12. Psocoptera - Book lice

13. Mallophaga - Bird lice

14. Siphunculata (Anoplura) - Sucking lice

15. Hemiptera - Plant bugs

16. Thysanoptera - Thrips

Division: Endopterygota (Hemimetabla)

1. Neuroptera - Ant lions and lace wings

2. Mecoptera - Scorpion flies

3. Trichoptera - Caddis flies

4. Lepidoptera - Moths and Butterflies

5. Diptera - Flies, Mosquitoes

6. Siphonoptera - Fleas

7. Hymenoptera - Ants, Bees, Wasps

8. Coleoptera - Beetles, weevils

9. Strepsiptera - Stylopids

Difference between Apterygota, Pterygota and Endopterygota, Exopterygota and Productive or beneficial and harmful