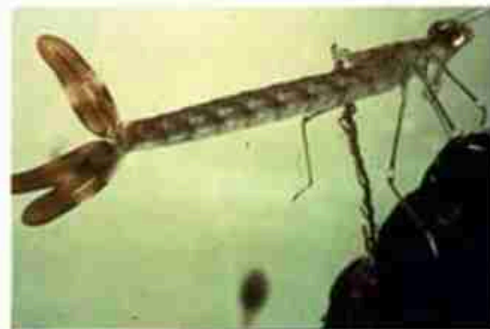


Order: Odonata



Prepared by
Dr. S. Sumaiya



Order: Odonata

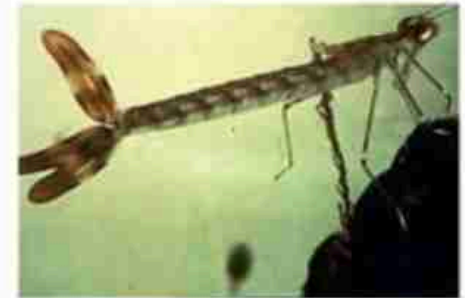
Greek "*odonto-*", meaning tooth

- Characters
- Medium to large sized insects
- They are attractively coloured
- Head is globular and constricted behind into a petiolate neck.
- Compound eyes are large.
- Three ocelli are present
- Mouthparts are adapted for biting. Mandibles are strongly toothed Lacinia and galea are fused to form mala which is also toothed.
- Wings are either equal or sub equal, membranous; venation is net work like with many cross veins.
- Wings have a dark pterostigma towards the costal apex. Sub costa ends in nodus. Wing flexing mechanism is absent.



Characters

- Legs are anteroventrally placed. They are suited for grasping, holding and conveying the prey to the mouth.
- Legs are held in such a way that a basket is formed into which the food is scooped.
- Abdomen is long and slender. In male gonopore is present on ninth abdominal segment.
- But the functional copulatory organ is present on the second abdominal sternite.
- Before mating sperms are transferred to the functional penis. Cercus is one segmented.
- Metamorphosis is incomplete with three life stages.
- The naiad is aquatic. Labium is greatly elongated, jointed and bears two hooks at apex. It is called mask. It is useful to capture the prey.





Classification

- There are two sub-orders. Dragonflies are classified under *Anisoptera* and damselflies are grouped under *Zygoptera*.

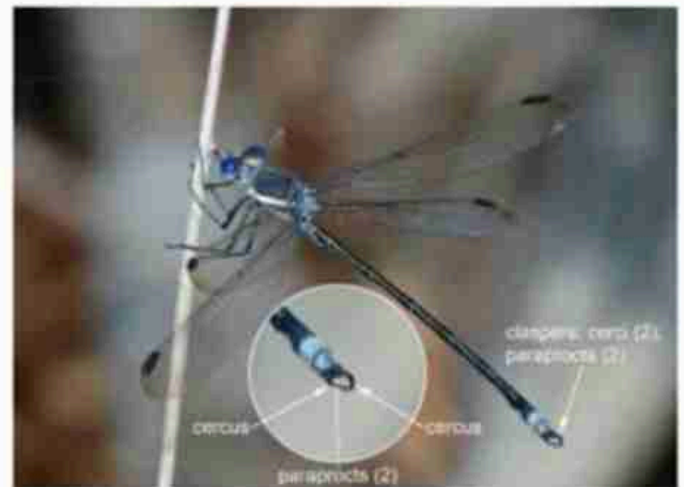
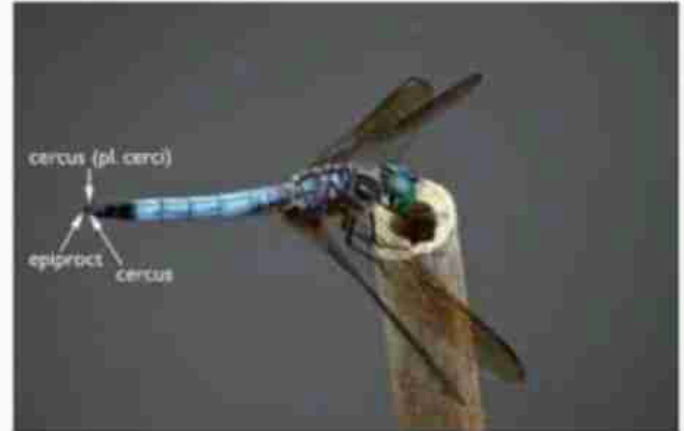
	ANISOPTERA (Dragonflies)	ZYGOPTERA (Damselflies)
	ADULTS	
1.	Strong fliers	Weak Fliers
2.	Wings are unequal, Hindwings are basally broader than forewings	Equal
3.	Wings are broadly attached to the abdomen	Wings are petiolated and narrowly attached
4.	Venation is not similar in both forewings and hindwings.	Venation is identical in both the wings.
5.	Wings are spread laterally at rest	Wings are held at an angle above the abdomen
6.	Compound eyes are large and meet mid dorsally (holoptic)	Compound eyes are button like, wide apart (dichoptic)

Classification

	NAIAD	
1.	Stout and robust	Slender and fragile
2.	Gills are internal and found associated with rectum	Three caudal gills are present which are visible externally.
3.	Able to propel themselves by forcibly ejecting water through anus from rectum	Lack jet propulsion mechanism
		

Abdominal appendages

- Anisoptera : Dragonfly
- Male has three abdominal appendages.
- Two superior and appendages (cerci) and one inferior anal appendage (epiproct) are present.
- Zygoptera : Damselfly
- Four terminal abdominal appendages are present.
- A pair of superior anal appendages (cerci) and a pair of inferior anal appendages (paraprocts) are present.



Oviposition

- Endophytic or Exophytic
- Exophytic – in anisoptera, drop the eggs freely into water or attach superficially to aquatic plants
- Endophytic – in zygoptera & two families in anisoptera, make slits in stems & leaves and insert the

