ASCHELMINTHES/ NEMATODES (pseudo-coelomates)

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- Phylum Aschelminthes has similar features with Nematoda
- Commonly referred to as Round worms,
- Examples: cavity worms, sac worms, hookworms and thread worms
- Ascaris (Round worms), nematodes, & rotifers

Common phyla of aschelminths

- Acanthocephala ,Chaetognatha
- Cycliophora ,Gastrotricha
- Kinorhyncha ,Loricifera
- Nematoda, Nematomorpha
- Priapulida , Rotifera
- At times, Entoprocta and Tardigrada are included

- Acanthocephala -- spiny-headed parasitic worms; about 1150 species known
- **Chaetognatha** -- arrowworms; about 70 species known.
- **Cycliophora** -- cycliophorans; 1 species known, microscopic

- **Gastrotricha** -- gastrotrichs; about 430 species known, all microscopic
- **Kinorhyncha** -- kinorhynchs; about 150 species known, all microscopic
- **Loricifera** -- loriciferans; about 10 species described, all microscopic

- **Nematoda** -- nematodes or roundworms; about 12,000 species known, but an estimated 200,000+ species extant, mostly microscopic
- **Nematomorpha** -- horsehair worms; about 320 species known

- Priapulida -- priapulid worms; 16 species known, abut half microscopic
- Rotifera -- rotifers or "wheel animalcules"; about 1500 species known, all microscopic

Adaptive radiation

- Nematoda /aschelminths have a very wide distribution and they seem to have mastered almost every habitat.
- Free living nematodes are found in the sea, fresh water or in the soil in all kinds of environment.
- A rotten apple may contain about 90,000 nematodes

- There are also many Parasitic nematodes found in all groups of Plants and animals.
- The Saprophagous species live in decomposing plant and animal bodies and in rotting fruits.

General Characteristics

- Bilateral symmetry.
- 3 cell layers (ectoderm, mesoderm,
- endoderm).
- Organ level of organization.
- Exhibit cephalization
- glistening smooth surface

- Have a complete one-way digestive system with a mouth and an anus.
- Have a ‘tube within a tube’ arrangement called a pseudocoelom

Muscles are only longitudinal.

Excretory system has no flame cells.

reproduction

- Sexes are generally separate.
- Gonades are tubular and continues with their ducts.
- Female organs are usually paired and open by vulva.

- Male organs are single and open into a cloaca.
- The life cycle of Parasitic species involves one, two or more hosts

Nematode classification

- Animals have the possession of phasmids.
- It’s a sensory organ at their tail or caudal region.
- This is used for their classification.
- It has 2 classes and 20 Orders.

2 classes

- Phasmidia or secernentia
- They are mostly parasite.
- This has 8 Orders

- 2. Aphasmidia or Adenophora.
- These are free-living.
- This has 12 Orders

ORDERS

- **APHASMIDIA** has 12 Orders;
- Isolaimida , Enoplida , Mononchida , Dorylaimida , Mermithida, Muspiceida , Trichocephalida , Araeolaimida ,
- Chromodorida , Desmodorida ,
- Monhysterida, Desmocolecida
- -eg. Monhystera, Dorylaimus. Trichinella

- **Phasmidia** has 8 Orders;

- -Stronpylida, Ascaridida,
- Spirurida, Rhabditida
- Camallanida, Diplogasterida
- Tylenchida, Aphelenchida
- -eg. Rhabditis, Strongylus, Dracunculus, Ascaris, Wucheraria spp.

Common nematodes in humans

- *Enterobius vermicularis* (pinworm); the eggs are deposited in dust. The eggs and larvae are ingested by inhalation.
- *Ankylostoma duodenata* (hookworm); larvae enter skin through skin from soils.
- *Necator americana* also enter skin.

- *Ascaris lumbricoides* (intestinal roundworm); ingested from contaminated food.
- *Trichuris trichuara* (whipworm) ; obtained from contaminated food
- *Trichinella spiralis* (trichinella worm) ; got from contaminated food

- Wucheraria bankrofti (filarial worm); obtained from contaminated food and soil.

- Note that a human being with about 100 ankylostoma worms may loose as much as 50ml of blood daily.

Life cycle

- man

- larvae eggs in soil/

faeces

pork meat