THE EXIT OF PARASITES FROM THE HOSTS AND THE SPREAD OF THE NATURE

Exit from the host

Indirect
Direct

Indirect

Parasites living in the blood

Arthropods: (tick, vector fly)
Blood transfusion

Trypanasoma
Theileria
Plasmodium
Leishmania
Dirofilaria

Gametocyte
Trypomastigote
Microfilaria

Direct

Helminths - mature, eggs and larvae
Protozoan - cyst

Feces
Urine
Vaginal discharge
Saliva
Sputum
Vomiting
By penetreting the skin
(*Dracunculus medinensis*)

Exiting way

Exiting way

Digestive System (Most used)

- FECES
  - Eggs: Trichostrongylidae, Ascaridae, Fasciolidae
  - Cyst: Coccidia, Giardia, Entamoeba
  - Trophozoite: Giardia
  - Larva: Metastrongylidae
  - Strobila or excretion of mature: Taenidae, *Trichinella spiralis*
- VOMIT
  - *Ollulanus* sp.

Excretory system
(Urea)

Dioctophyme renale,
Schistosoma sp.
Trichosomoides crassicauda

Genital system
(Vaginal way)

Trypanasoma equiperdum,
Trichomonas vaginalis
Trichosomoides crassicauda

Expretory system
Sneezing, sputum

Metastrongylidae
Oestrus ovis larvae

*The parasite forms that exit out are spread to the environment by water, wind, mechanical tools, foodstuffs, human and animal movements.

Factors Affecting the Spread of Parasitic Diseases

1. Increase in the number of infective forms
2. Changes in host sensitivity to parasites
3. Carrying susceptible hosts to infected areas
4. Spread of parasitic diseases to non-infected areas

1. Increase in the number of infective forms

- **Increasing the number of eggs:** ***Haemonchus contortus, Ascaris suum, Ixodes ricinus*** **and** ***Lucilla sericata***

- **Increasing larval numbers:** ***Fasciola hepatica*** **- in snail – a miracidium produces hundreds of cercaria.**

Protozoans (*Eimeria*) - multiply rapidly by Gametogony and Schizogony

- **Climate effect (larvae develop rapidly in spring and summer in the northern hemisphere)**

1. Increase in the number of infective forms

Host density: Infective forms rapidly infect hosts

Immune status of hosts: Hypobiosis in helminth larvae, diapause in ectoparasites

Rain, heat, moisture, soil and vegetation: It is effective in the development of developmental forms.

Increased density of the intermediate host leads to parasite proliferation – Babesiosis, filariasis, Leishmaniasis and malariasis.

2. Changes in host sensitivity to parasites

- Nutrition: Anemia - *Fasciola* sp., *Haemonchus* sp.
- Sterroid application: *Toxoplasma gondii* - Oocyst excretion starts again
- Pregnancy: Sensitivity increases with its effect.
- Treatment: Immunity disappears and the host can become susceptible.

3. Carrying susceptible hosts to infected areas

- **Age resistance:** Carrying young individuals without acquired immunity in areas where the elderly are grazed.
- **Species resistance:** *Fasciola* sp.- cattle are more resistant than sheep
- **Breed resistance:** *Bos indicus* is more resistant to ticks and blood-sucking flies than *Bos taurus*
- **Sex resistance:** In some helminths males are more sensitive.

4. Spread of parasitic diseases to non-infected areas

- **Animal trade between countries**
- **Immigration and tourism - human movements**