

Types of Parasites



PARASITE

The word parasite is derived from the Greek. It made up of two words, 'para' mean 'besides' and 'sitos' mean 'food'. parasites are those living organisms which lives on some other living organisms, which is know as the host. e.g. Ascaris [parasite] in Man [host].



Ascaris lumbricoides



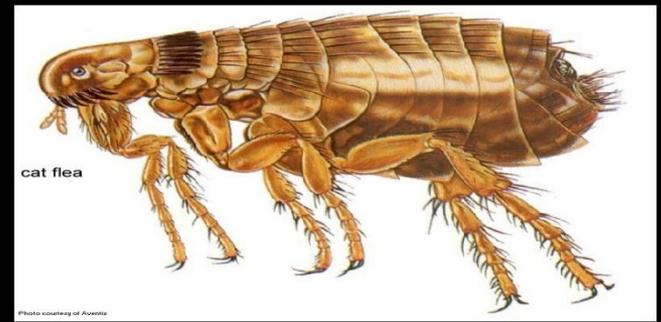
Parasites are different types according to their relation to the host

A) According to Duration of the Parasite on/in Host

1) Temporary parasite –

are those which lead free life during a part of life cycle or In other words,

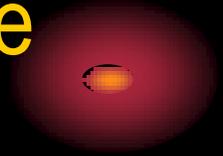
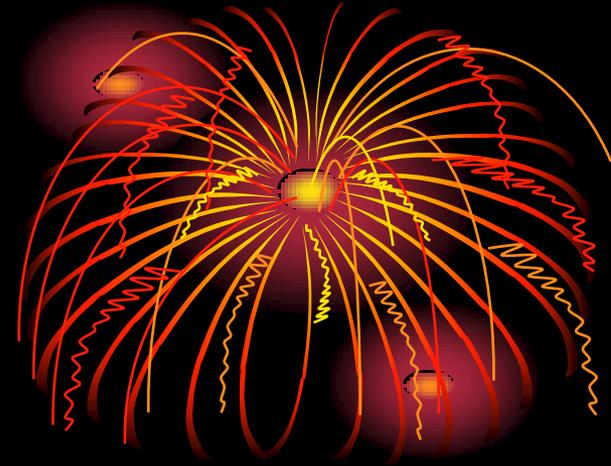
are those which visit the host time to time but do not remain all the time with their host, e.g. *Gastrophilus*, Fleas, Flies, etc.



2) Permanent parasites

are those which live as parasites for whole life
or In other words,

are those parasite which remain with the host all the
time and do not leave it at any time , e.g. Lice,
Helminths.

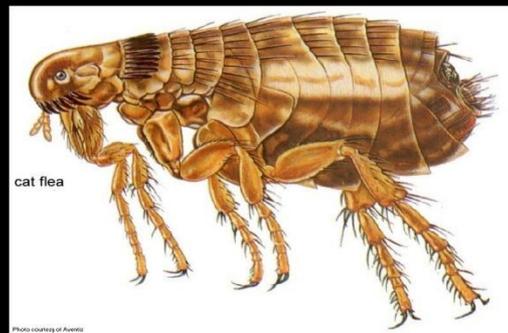


3) Periodic parasites or sporadic parasites-
are those parasite which make short visit to their
hosts to obtain nourishment or food or other
beifits, e.g. Mosquitoes.



B) According to the Habitat of the parasite
on \ in the host

1) Ectoparasites or External parasites-
are those parasites which are found on
surface of the body of host, usually
attached to the skin, feathers, hairs,
gills, etc . e.g. Lice, flea, ticks.



2) Endoparasites or Internal parasites or endozoa-

are those parasites which are found inside the body cavity, lungs or other tissue. Such form nearly or always live a completely parasitic existence, e.g. helminthes, protozoans,

These are of 4 types



a) Intracellular parasites

are the endoparasites found in inside the cells of the host , e. g. *Plasmodium*, *Babasia*, found inside the RBC.

b) Intercellular parasites

are the endoparasites found in between the cells or in the cavities or lumen of the different organ of the host ,e. g. *Trypanosoma*, *Fasciola*, *Toxocara*, etc



c) Erratic or aberrant parasite

Endoparasite found in other organs than the normal habit in the host are aberrant parasites, e. g. *Fasciola*, when found in lung, kidney, etc



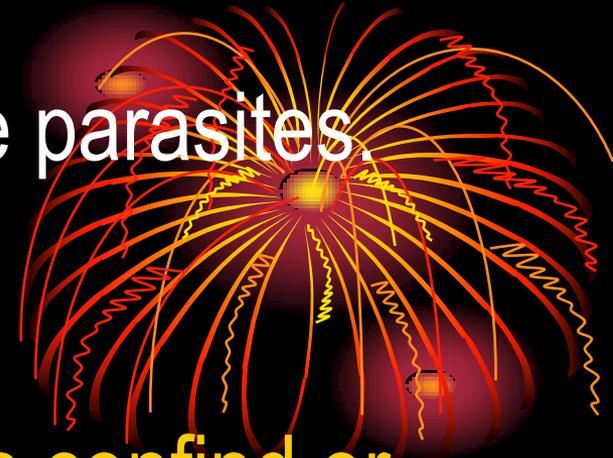
d) Incidental parasites

Those endoparasite in a host in which these usually do not live or found normally, e.g. *Ascaris lumbricoides* in sheep.



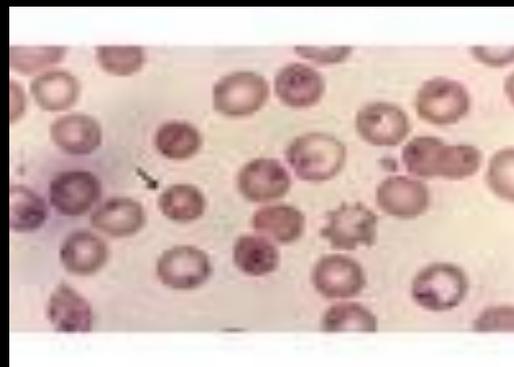
Ascaris lumbricoides

C) According to the specificity of the parasites.



1) Host specific parasites:-

are the parasites whose host range is confined or limited to either one species of the host or closely related species of the host e.g. *Plasmodium vivax* is specific to human being, *Babesia bigemina* specific to cattle



2) Non host specific parasite:-

are the parasite whose host range is not confined or limited to one species of host and do not show any marked preference for one species or group of related species of host. Hence, their host range is very large and can develop in large number of unrelated animals e.g. *Fasciola gigantica*, *Toxoplasma gondii*.

Trypanosoma evansi



D) According to the Degree of parasitism

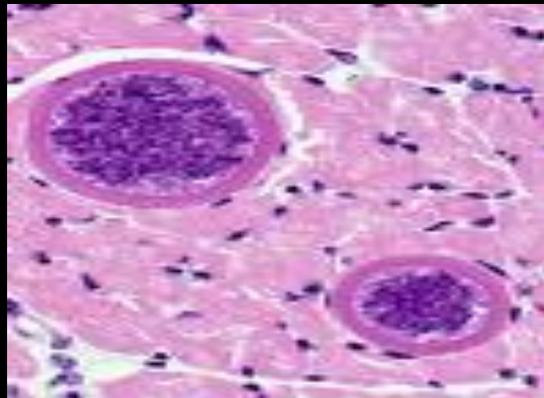
1) Facultative parasites:-

are those which do not absolutely depend on the parasitic life, but they retain their power of leading a free living existence. This means that these parasites can lead, depending up on the circumstances, either a parasitic mode of life or free living mode of life, e.g. maggots of flies, *Toxoplasma gondii*



2) Obligatory parasites :-

are those which completely adopted to a parasitic mode of life. They cannot lead a free living life and cannot exist without a parasitic life *e.g. Filarid worms, Sarcocystis, cestode* (Tape worm).



E) According to the pathogenicity:-

1. Pathogenic parasite:-

They have the potential to cause much harm, damage of tissue and produce clinical diseases in a host e.g.

Trichostrongylus , *Haemonchus*, *Sarcocystis cruzi* , *Fasciola hepatica* etc.

2) Non pathogenic parasite:-

They do not cause much harm , damage and do not produce clinical diseases in a host

e.g. *Entamoeba coli*



Image from DPDx, the CDC Parasitology Website



F) According to type of host required in life cycle of parasites:-

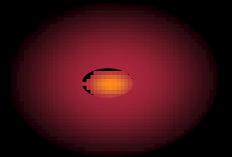
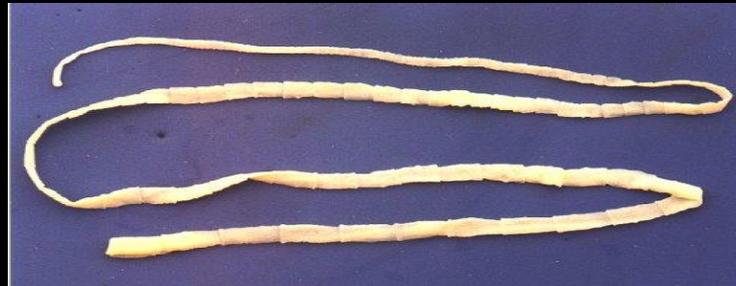
a) Homogenous parasite:-

they live in only one type of host during the course of their normal life cycle e.g. Coccidia, Hookworms, Amoeba.



b) Hetroxenous parasite:-

parasite live in two or more type of hosts during the course of their normal life cycle *e.g.* tapeworms , trematode of large animals , malarial parasites *etc.*

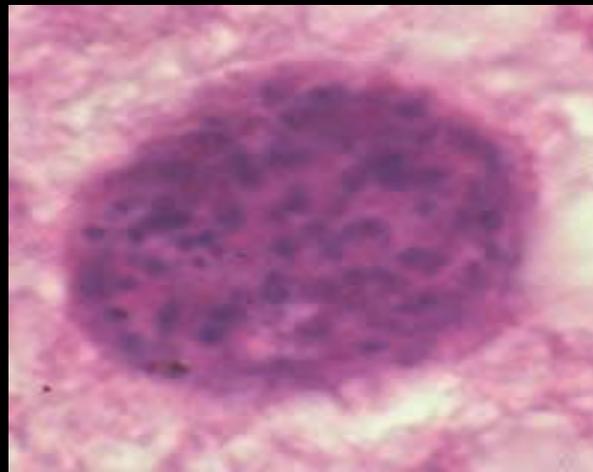


c) Stenoxenous parasite:-

They have a narrow host range *e.g.* coccidia, human malaria, hookworms, nodular worms *etc.*

d) Euryxenous parasite:-

They have a broad or wide host range *e.g.* Trypanosome, *Toxoplasma*, *etc.*



G) According to development in the host:-

1) Proliferous parasite:-

The parasite enters the body of the host as one individual and grows, multiplies and eventually produces a number of daughter individuals.

The daughter individuals follow their mother's example they grow and multiply, so do their daughter's grand daughter's and further progeny.

Thus the host, who begins with one parasite and finishes with harbouring many *e.g. Theileria, Babesia, etc.*



2) Non proliferous parasite:-

The parasite enters the body of the host as one individual and grows likewise but the daughter individuals do not multiply in the host in whom they are born . they must get into another host before they can multiply . Thus the host injected with one parasite will never have more than one in his body *e.g.*

Helminthes.



H) According to the size of the parasite:-

1) Macro parasite:-

can be seen by naked eye. The majority of macroparasite cannot replicate within the host and a level of infection is determine by the number of infection events and the number of infective stages acquired *e.g. trematodes , cestodes nematodes and arthropods.*



2) Micro parasites:-

cannot be seen by naked eye , but are identified by microscope. These parasite replicate within the host and level of infection can rise rapidly even after a single infection or a single organism *e.g. protozoans.*



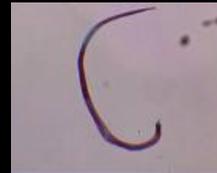
I) According to the transmission to man or animals

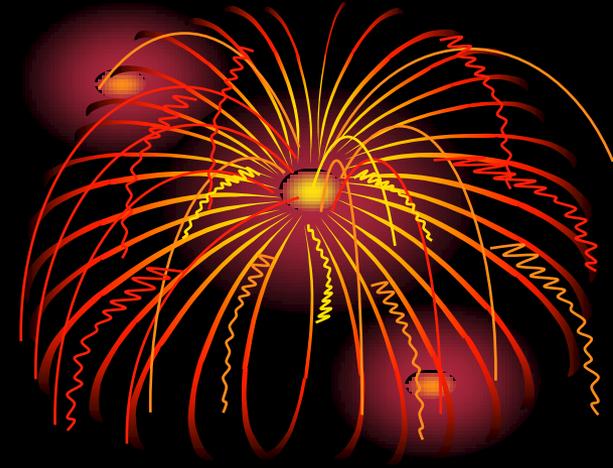
1) Zoonotic parasite:-

are transmissible from animals to man or vice versa

.Of these , some require both animals and man essentially to complete their life cycles . some other parasite are common to animals and man , where as a few are exclusively of animals but their infective stage enter into man accidentally . the diseases caused by such parasite are parasitic zoonosis *e.g.* *Fasciolopsis buski* , *Hydatid (echinococcus)* , *Trichinella*

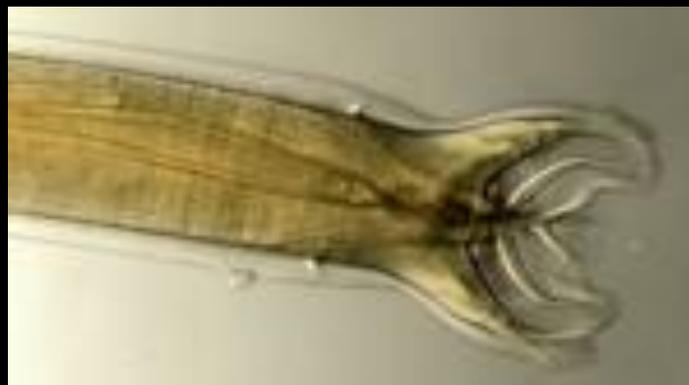
etc.





2) Non zoonotic parasites:-

are not transmissible from one animal to other .
they complete their life life cycles without involving
man . *e.g. Ascaridia , Oesophagostomum and others .*



J) According to the invasion of the tissue of the host:-

1) Histozoic parasite:-

live within the tissue of the host *e.g. Coccidian parasites in the intestinal mucosa of the animals and birds and others .*

2) Coelozoic parasite:-

are found in the lumen of the intestine or other hollow organs of the hosts. *E.g. Ascaris suum in the small intestine of pig and others .*



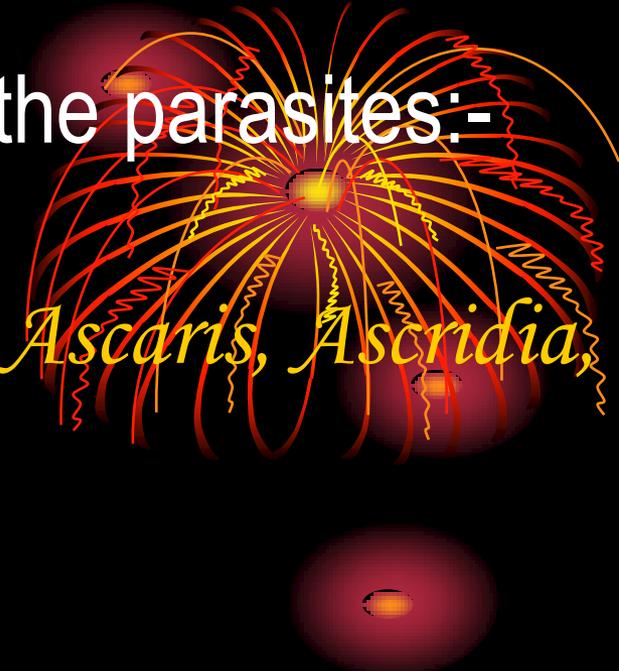
K) According to the laying stages by the parasites:-

1) Oviparous parasites:-

are those whose female lay egg *e.g. Ascaris, Ascidia, Ancylostoma and others.*

2) Ovo-viviparous parasites:-

are those whose females lay egg which are containing fully developed larvae to hatch *e.g. Habronema etc.*



3) Viviparous or Larvaeparous parasites:-

are those parasite in which, the eggs are hatched in the uterus of the female and larvae passed out e.g.

Filarid worms.

4) Pupiparous parasites:-

are those parasite in which the egg hatch and larvae developed in the uterus and when passed outside they are ready to pupate e.g. *Hippobosca*, *Melophagus*,

Pseudolynchia, etc.



L) Other parasites:-

1) Hyperparasites:-

are those parasites which may themselves be parasitized on the other parasites *e.g. Histomonas meleagridis* in the eggs and larvae of *Heterakis gallinarum* and *Nosema heminthorum* in the *Moniezia* in England and Pakistan . *Huntrella hookeri* in nymph of ticks



2) Pseudo parasites:-

are those objects which are mistaken for parasites , *e.g. small white thread for trichostrongylus.*



3) Autoheteroxenous parasites:-

are those parasites which require two or more types of host during the normal course of their life cycle but can complete the life cycle in the same host. *E.g. hymenolepis nana*

3) Accidental Parasite:-

are those which are not associated with a host at all but may become so if there is opportunity.. *E.g. Musca* larvae

