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**Medical parasitology**

**First lecture**

## **Introduction**

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### **Parasitology**

**1-protozoogy**

**2-Helminthology**

**3-Entomology**

### **Parasite**

A parasite is an organism that lives on or in a host organism and gets its food from or at the expense of its host (An organism that obtains nourishment and shelter on another organism).

There are three main classes of parasites that can cause disease in humans: **protozoa**, **helminths**, and **ectoparasites (Arthropoda)**.

parasites classified on based on their size

macroparasites and microparasites.

1-Macroparasites are those that are bigger in size and visible to an unaided eye.

2-Microparasites are those that are small and can be detected through microscopy.

Parasites also classified depending on their interaction with their hosts.

1-Obligat parasites are those that require a host to complete their life cycle.

2- Facultative parasites are those that do not depend on a host to complete its life cycle

3- Accidental parasites - Also known as incidental parasites, accidental parasites are those that attack or establish themselves in unusual hosts (hosts that they do not normally parasitize). Here, the host is referred to as an unnatural host. In this case, the parasite infects the host and is able to survive and continue growing as it would in the natural host.

4-Erratic parasites - Erratic parasites are parasites that invade body organs that they do not normally invade. *E. histolytica* is a good example of erratic parasites.

**1-direct parasites:** if the parasites require only one host .

**2- indirect parasites.** Those that require both an intermediate host and a definitive parasites classified depending on location of host body:

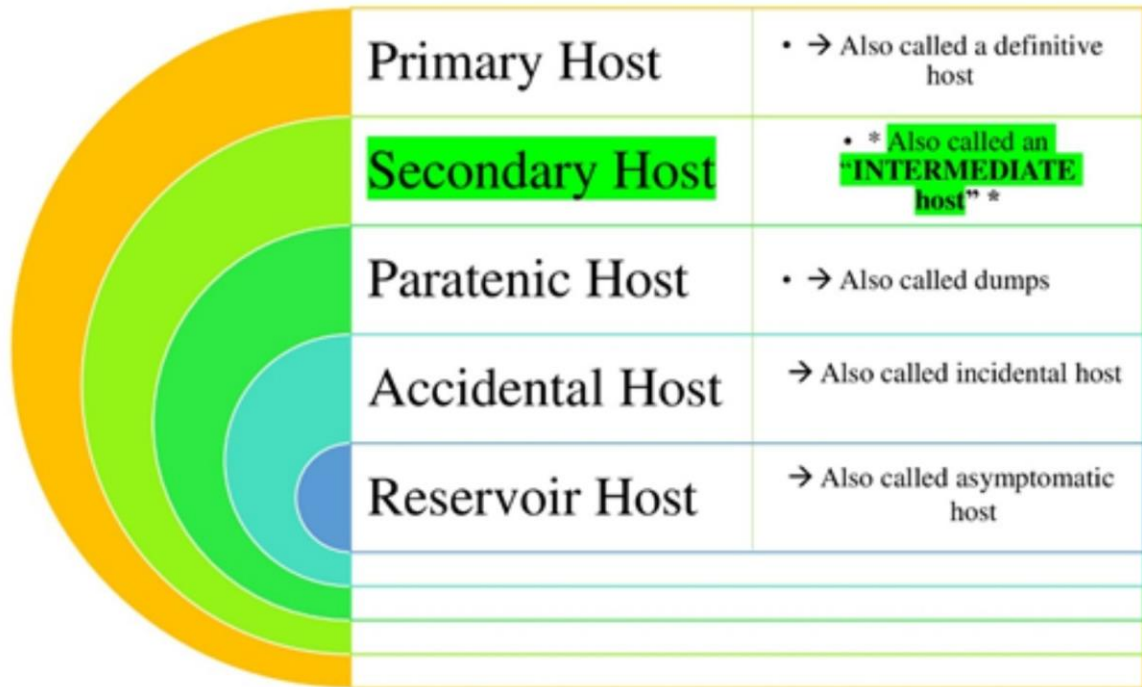
**1-Ectoparasites :** Parasites that live outside the host body .

**2-Endoparasites** whereas those that live inside the host .

## **Host**

**Host: The organism from which a parasite obtains its nutrition and/or shelter ( the living organism which harbors the parasite).**

There are majorly 5 types of hosts namely **primary host, secondary host, paratenic host, accidental host, and reservoir host.**



1-The definitive host is the one which harbors the adult parasite and where the parasite reproduces sexually.

2-The intermediate host is the host which harbors' the larval stage or the asexual forms of the parasite.

3-accidental host

a host that shelters an organism which does not usually parasitize that host

4-reservoir host a host that shelters an organism without harm to itself.

5-**Paratenic host:** An [intermediate host](#) which is not needed for the development of the [parasite](#), but nonetheless serves to maintain the [life cycle](#) of the [parasite](#).

## Symbiosis

Symbiosis is a relationship that exists between two organisms (living together).

There are three types of behaviours observed in symbiotic relationships, namely:

- **Mutualism**
- **Commensalism**
- **Parasitism**
- **mutualism**, both the involved organisms benefit from each other. Example – Coral reefs are nothing but a mutualistic association between coral organisms and various types of algae residing inside them.
- **commensalism**, only one organism benefits, while the other is neither benefited nor harmed. Example – Hermit crabs use gastropod shells to protect their bodies.
- **parasitism**, one organism is benefited while the other organism is harmed. Example , Liver fluke attaches itself to the liver and makes its way to the tissue and bile.

<b>Interaction</b>	<b>Species A</b>	<b>Species B</b>
Mutualism	+	+
Commensalism	+	0
Parasitism	+	-

