**Lab (1)**

**Introduction**

**Parasitology**: is the study of relationships between parasites and their host, all parasitic organisms are eukaryotes.

**Parasites**: are living organisms, which depend on a living host for their nourishment and survival .parasites can be classified as: (**Ectoparasite** inhabit only the body surface of the host without penetrating the tissue e.g. lice, ticks) or (**Endoparasite** which lives within the body of the host e.g. malaria, giardia). Parasites may be simple unicellular protozoa or complex multicellular metazoa.

**Host** : an organism, which harbors the parasite and provides nourishment and is relatively larger than the parasite .

**Definitive host**: the organism in which the adult or sexually mature stage of the parasite lives.

**Intermediate host**: the organism in which the parasite lives during a period of its development only.

**Vector**: a living carrier that transports a pathogenic organism from an infected to non-infected host (e.g. the female *Anopheles* mosquito that transmits malaria)

**Host – parasite relationships:**

**-Symbiosis:** both host and parasite are dependent upon each other none of them suffers any harm from the association.

**-Commensalism:** only the parasite derives benefit from association without causing any injury to the host.

**-parasitism:** the parasite derives benefits and the host is always harmed due to the association.

**Transmission of parasites:**

1- Food or water contamination (Round worm, *Amoeba*, *Giardia*).

2- Vectors (Sand fly Leishmaniasis, *Tse tse* fly Trypanosomiasis).

3- Sexual contact (*Trichomonas*).

4- Inhalation of contaminated dust or air (Pinworm, *Toxoplasma gondii*).

5- Skin penetration (Hook worms, *Schistosomes*, Strongyloides).

**Parasitic damage to host:**

1. Trauma (damage to tissues, intestine, liver, eye).
2. Lytic action (activity of enzymes elaborated by organism).
3. Tissue response (localized inflammation, eosinophilia).
4. Blood loss (heavy infection with hookworm may cause anemia).
5. Secondary infections (weakened host susceptible to bacterial infection).

**Types of specimens which can be examined for diagnosis of parasites:**

**1-Natural secretions:**

* Stool (*Entamoeba histolytica* )
* Sputum (*paragoniumuswestermani* )
* Urin (*Schistosoma heamatobium*)

**2-Blood:** (*Plasmodium spp.*)

**3-Vaginal secretions:** (*Trichomonas vaginalis*)

**4-Biobsy of liver or spleen:** (*Leishmania donovani*)

**Detection of parasites :**

1- Clinical diagnosis: depends on symptoms

2- Laboratory diagnosis:

a. Microscopic examination

* Wet preparation
* Perception
* Flotation

b. Serological exam

c. Animal inoculation

d. Intra-dermal sensitivity exam

e. Culture method

f. Tap technique

g. X-ray technique