What is Parasitology?

Parasitology is a branch of biological sciences (Ecology) that deals with the study of parasites and parasitism

There are several fields of parasitology depending on issues under investigation

- Field Parasitology (Basic Biology and Life cycles of Parasites)
- Biochemical and molecular Parasitology (Cell biology of Parasites)
- Public Health Parasitology (investigating the outbreak and control of Parasitic disease)
- Spatial Parasitology (Using the Sciences of GIS and Geostatistics to understand parasite distribution and prediction)

It is therefore not uncommon to see many scientist with different background calling themselves Parasitologist. In fact if you are using parasite as models in your research, you are a Parasitologist

Basic Concepts

- A parasite is a living organism which must spend at least a part of its life cycle on another living organism (the host). This means that a parasite is an organism which is metabolically dependent on another organism for it survival.

Attribute of a parasite

- Always smaller than the host
- Must not necessarily kill the host
- Require host molecules or physiological process for survival
- May or may not cause disease (pathology)

Animal Associations

The majority of animals live independently in their environmental habitats

Between some animals, there are associations which can be broadly divided into 2 groups

1. **Homogenic associations (between individual of same genotypes)**
2. **Heterogenetic associations (between individuals of different genotypes**

Animal Associations

Individuals of the same species will form loose association, like communities, state, and countries, mainly for division of labour and specialization eg. Ants, bees, herd of cattles

Heterogenetic association are in general much more complex and a number of terms have been developed to describe them.

Terms such as commensalism, phoresis, symbosis, mutualism and parasitism have been widely used to for various types of heterogentic associations.

Animal Associations

These terms were used by earlier workers to describes heterogenetic associations among animals. The definition of these terms is still controversial as they were based on little data such behaviour and structural observations. There were no physiological or mathematical basis of such association

Within recent years the situation has changed due to increase knowledge of animal physiology, biochemistry, molecular biology and population dynamics.

Parasitism is know considered to be an ecological relationship between two population of different species (Anderson 1982). Parasites are not randomly distributed within the host population – they tend to be overdispered, i.e few hosts harbour large numbers of parasites and many hosts harbour only a few. This distribution is known as negative binomial and is typical of parasitic infection.

Animal Associations

Dependency among animals are of several degree, therefore for an animal to be qualify as a parasite. It has must exhibit the following xter

1. Metabolic dependence: A parasite is considered here to be an organism that is metabolically dependent directly or indirectly on the hosts to some degree.
2. Developmental stimuli: A parasites must be able to recognised the environment of host which can trigger developmental process
3. Nutritional dependence: The host is source of food for the parasites
4. Digestive enzymes: The Parasites has evolve enzymes that can digest host complex molecules.
5. Control of maturation: The parasite need the host to control its development.