

## LEISHMANIA DONOVANI

Leishmania is an important haemoflagellate, parasitic in man and other vertebrates. These are oval in shape 2.5  $\mu$  in diameter with a nucleus and a blepharoplast intracellular parasitic found in the reticuloendothelial system, multiply by binary fission. A blood sucking insect (sand fly) serves as an intermediate host.

There are 3 species of Leishmania infecting man which are morphologically alike. These are:

① *L. donovani* which causes Kala-azar ② *L. tropica* which causes oriental sore ③ *L. brasiliensis*, causative organism of Espundia, Pombos or "Nasoral Leishmaniasis."

### Systematic position

Phylum: Protozoa

Class: Mastigophora

Order: Protomonadine

Genus: *Leishmania*

Species: *L. donovani*

*Leishmania donovani* is an important pathogenic protozoa of human body, causative organism of a dreadful disease, Kala-azar. It was discovered by Leishman and Donovan in 1903.

It is widely distributed in India, Eastern Asia, different parts of Africa, Europe and South America.

Structure: Leishmania is dimorphic, occurs in two forms: (i) Amastigote or Leishmanial form and (ii) Promastigote or Leptomonad form:-



AMASTIGOTE FORM



PROMASTIGOTE FORM

In man it occurs as amastigote form and is found in the reticuloendothelial tissue of the spleen, liver, bone marrow and lymph nodes.

Amastigote form is microscopic round or oval in shape, about  $2.5 \mu$  in diameter. The body is surrounded by a thin pellicle. The cytoplasm is homogenous with a centrally located nucleus. On one side of the nucleus is a rod shaped kinetoplast and a small deeply stained blepharoplast. Besides, the cytoplasm contains a single mitochondrion.



golgi body, endoplasmic reticulum and ribosomes.

Promastigote form is elongated, cylindrical 15 to 20  $\mu$  long and 2 to 3  $\mu$  width. It is found in the intermediate host, the sand fly (*Phlebotomus argentipes*). Nucleus is located in the middle of the body. At the anterior end of the body, an oval kinetoplast and a small blepharoplast present, from which arises a long flagellum. A distinct mitochondrion, golgi body, endoplasmic reticulum and ribosomes are present in the cytoplasm.