

27/01/2022 LEISHMANIA DONOVANI DJ (Zoology H)

Gr A, P-I

Dr. VISINATHAN SAH

Leishmania is an important pathogenic Zoo-

flagellate genus closely related to Trypanosoma.

Various species of Leishmania infect man, cattle, dog

sheep horse, etc. and cause serious diseases collectively known as Leishmaniasis. All types are

carried by the blood sucking sandflies & the genus phlebotomus and all are intracellular

parasites in leucocytes & blood or in cells of liver

and spleen. *Leishmania donovani* causes a malaria-like oriental disease in man called kala-azar.

SYSTEMATIC POSITION

1. Phylum: Protozoa

Class: Mastigophora

Order: Kinetoplastida

Genus: *Leishmania*

Species: *L. donovani*

Ecology Discovery: - Genus *Leishmania* was

created by Ross in 1903. The species *L. donovani*

was reported simultaneously by Leishman from

London (1903) and Donovan from Madras (1903)

hence the name *Leishmania donovani*

DISTRIBUTION: - *L. donovani* infects man in India,

China, Russia, Africa and South America. In

India Assam, Bengal, Bihar, Orissa, Tamil Nadu, U.P.

MORPHOLOGY

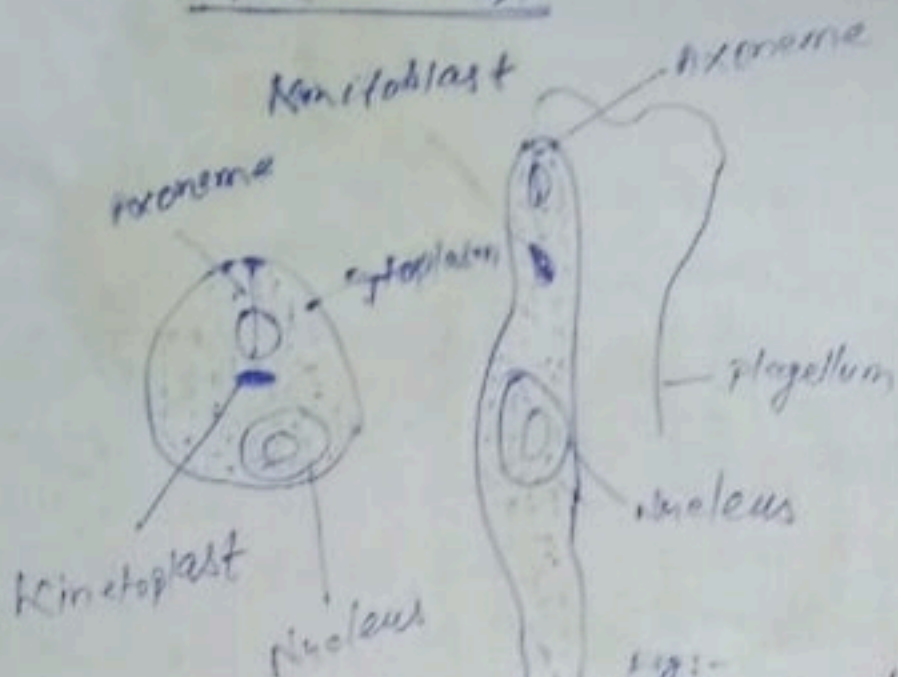


Fig:-
Leishmania (sand fly)

Fig: Leishmania (In Man)

SHAPE & SIZE :- The genus *Leishmania* occurs only in two forms or stage Leishmanial and Leptomonad, which alternate between a vertebrate (man) and an invertebrate (sand fly) host.

1. Leishmanial form:- It is microscopic, rounded or oval, with a central or eccentric nucleus, blastoplast and kinetoplast, but no free flagellum. It measures $2\ \mu$ to $4\ \mu$ in diameter.
2. Leptomonad form: It is found in the midgut of the invertebrate host or sand fly. It is elongated, slender and spindle-shaped with a large centrally placed nucleus. A fully formed promastigote stage measures $15-20\ \mu$ in length, $5-7\ \mu$ in diameter.

length and 1-2 μ in width.

CELL MEMBRANE:- The whole body is covered by a very thin delicate, elastic and firm covering or pellicle. It gives definite shape to the body and does not form an undulating membrane.

FLAGELLUM:- Leishmania is uniflagellate, bearing a single flagellum. In the leptomonad form it parasite in sandfly, the flagellum is long and free. It arises from a minute basal body or blepharoplast situated near the anterior end. Closely associated with the blepharoplast lies a disc-shaped parabasal body or kinetoplast.

CYTOPLASM:- The body cytoplasm is colourless, homogenous and not differentiated into ectoplasm and endoplasm.