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Sub. Biology

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II. Viral Disease

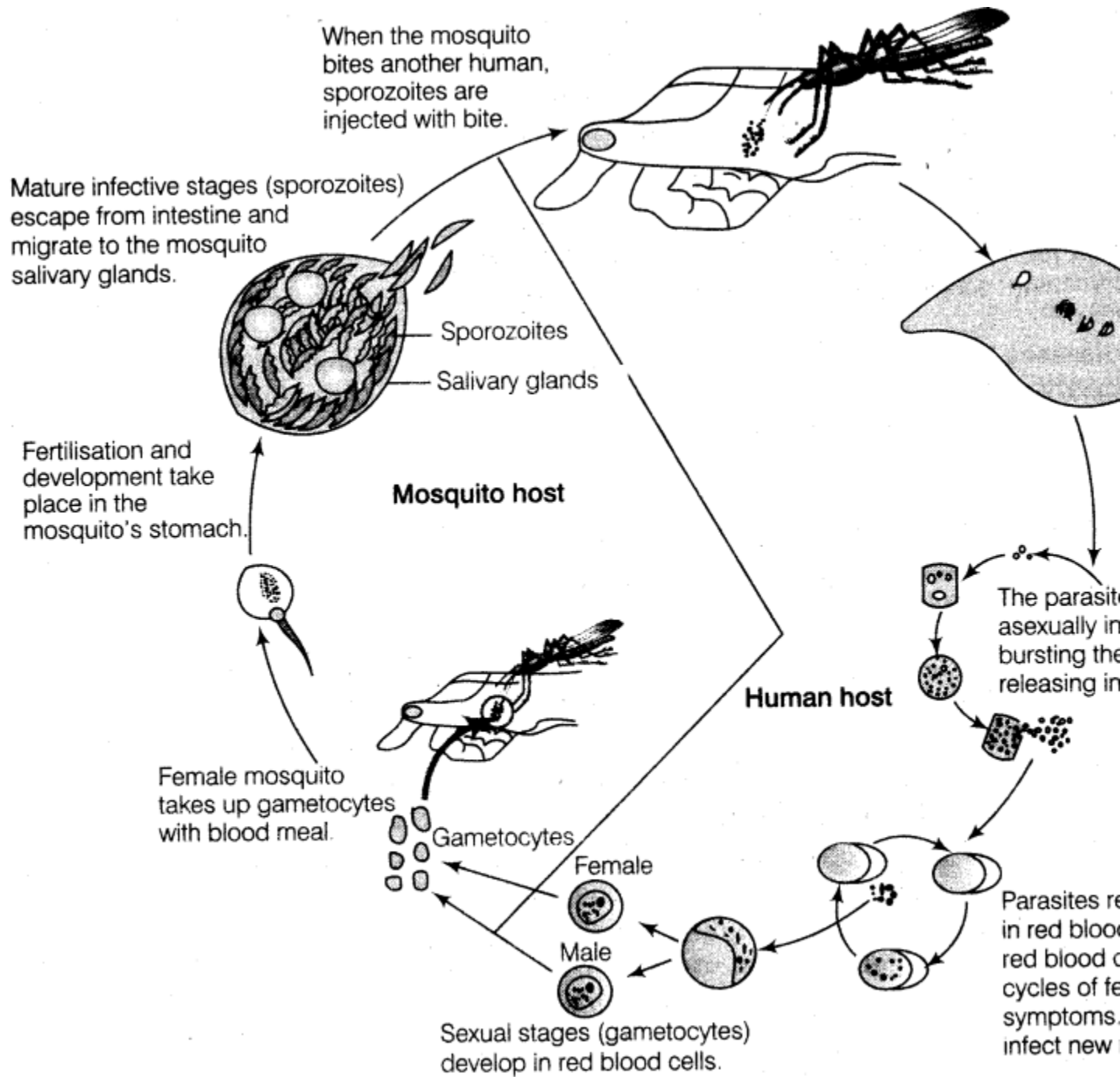
Common cold occurs due to a group of viruses called rhino viruses.

- (a) These viruses infect the nose and respiratory passage but not the lungs.
- (b) Common cold is characterised by nasal congestion and discharge, sore throat, hoarseness, cough, headache, tiredness, etc., which generally last for 3-7 days.
- (c) The infection occurs due to cough or sneezes of an infected person, either inhaled directly or transmitted through contaminated objects such as pens, books, cups, computer's keyboard or mouse, etc.

Some diseases are transmitted by vector, i.e. mosquitoes like dengue (*Aedes aegypti*); chikungunya (*Aedes aegypti*, *Aedes albopictus*) and malaria (*Anopheles*).

III. Protozoan Diseases

- (i) Malaria is caused by a protozoan, *Plasmodium* sp. (*P. vivax*, *P. malariae* and *P. falciparum*).
- (a) *P. falciparum* causes most **serious** kind of malaria, i.e. malignant malaria which can be fatal.
- (b) Female *Anopheles* mosquito is the vector of *Plasmodium*, which transfer the sporozoites (infectious form) in human body.
- (c) Life cycle of *Plasmodium* is given in the figure.



Stages in the life cycle of *Plasmodium*

- The malarial parasite requires two hosts to complete its life cycle, i.e. human and mosquito.
- Plasmodium enters the human body as sporozoite, through the bite of infected female Anopheles mosquito.
- Parasites initially multiply within the liver cells and then attack the Red Blood Cells (RBCs) causing their rupture.
- Rupture of RBCs release a toxic substance called haemozoin. Haemozoin causes chill and high fever recurring every 3-4 days.

- When a female Anopheles mosquito bites an infected person, these parasites enter the mosquito's body and undergo further development.
 - The parasites multiply within them to form sporozoites that are stored in their salivary glands.
 - When these mosquitoes bite a human, the sporozoites are introduced into his/her body, initiating the events mentioned above.
- (d) Antimalarial drugs used for the treatment are quinine and chloroquin.
- (e) Malaria can be prevented by killing mosquitoes by spraying DDT, BHC, etc., and using insect repellents, mosquito nets, etc.
- (ii) Amoebiasis (amoebic dysentery) is caused by an intestinal endoparasite, *Entamoeba histolytica*, which is found in large intestine of humans.
- (a) Carrier of pathogen is housefly. It transmits the parasite from faeces of infected person to the food, thereby contaminating them.
- (b) Infection takes place mainly through the contaminated food and water.
- (c) Symptoms are abdominal pain, constipation, cramps, faeces with excess mucous and blood clots.