

DEPARTMENT OF VETERINARY PARASITOLOGY

SEMESTER -III

GENERAL VETERINARY PARASITOLOGY AND HELMINTHOLOGY

VPA- 211

Credit Hours 3+1=4

THEORY

Parasites and parasitism. Types of Parasitism. Commensalism, symbiosis and predatorism, Types of hosts: Final and Intermediate hosts, paratenic hosts and reservoir hosts, natural and unnatural hosts. Host- parasite relationship; mode of transmission of parasites and methods of dissemination of the infective stages of the parasite. Parasite specificity in relation to species, breed, sex and location. Tissue reactions caused by parasites to the host. Resistance of hosts to parasitic infections/infestations. Immunity against parasitic infections. Standardized Nomenclature of Animal Parasitic Diseases (SNOAPAD). General description of helminth parasites affecting domestic animals and birds.

Classification of helminths. Characteristics of phylum (Platyhelminthes, Nematelminthes and Acanthocephala). Salient morphological features of diagnostic importance. Life cycle of the helminths in relation to transmission, pathogenesis, epidemiology, diagnosis, general control measures of following helminthes of animals and birds.

Trematodes:

Liver flukes (*Fasciola*, *Dicrocoelium* and *Opisthorchis*), intestinal flukes (*Fasciolopsis*), blood flukes (nasal schistosomosis), cercarial dermatitis (*Schistosoma* and *Ornithobilharzia*), visceral schistosomosis (*S. spindale*, *S. indica*, *S. incognitum*), Amphistomes/immature amphistomosis (*Paramphistomum*, *Cotylophoron*, *Gastrothylax*, *Gastrodiscus*, *Gigantocotyle*, *Gastrodiscoides*, *Pseudodiscus*), Lung flukes(*Paragonimus*) and oviduct flukes (*Prosthogonimus*),their importance in the diagnosis.

Cestodes:

Metacestodes (bladder worm), Ruminant tape worms (*Moniezia*, *Avitellina*, *Stilesia*), Dog tape worms (*Dipylidium*, *Taenia*, *Multiceps* and *Echinococcus*), Equine tape worms

(*Anoplocephala*, *Paranoplocephala*), Poultry tape worms (*Davainea*, *Cotugnia*, *Raillietina*, *Amoebotaenia*) and Broad fish tape worm (*Diphyllobothrium*), Dwarf tape worm (*Hymenolepis*).

Nematodes:

Ascaris, *Parascaris*, *Toxocara*, *Toxascaris*, *Ascaridia*, *Heterakis* and *Oxyuris*.

Bursate Worms (*Strongyloides*, *Strongyles*, *Chabertia*, *Syngamus*, *Oesophagostomum*), Kidney worms (*Stephanurus*, *Dioctophyma*), Hook worms (*Ancylostoma*, *Agriostomum*, *Bunostomum*, *Trichostrongylus*, *Ostertagia*, *Cooperia*, *Nematodirus*). Stomach worms (*Haemonchus*, *Mecistocirrus*). Tissue round worms (*Habronema*, *Thelazia*, *Spirocerca*, *Gongylonema*). Filarial worm *Dirofilaria*, *Parafilaria*, *Onchocerca*, *Setaria*, *Stephanofilaria*). Lung worms (*Dictyocaulus*, *Mullerius* and *Protostrongylus*). Guinea worms (*Dracunculus*). International regulations for control of different helminthic diseases.

PRACTICAL

Methods of collection, fixation, preservation and mounting of helminth parasites. Study of morphological characters of adults and their larval stages and damages caused by them. Identification of important trematodes, cestodes and nematodes. Examination of faecal samples for eggs of trematodes, cestodes and nematodes. Demonstration of the life cycle and development of the type species of Trematode, Cestode and Nematode.

REFERENCE BOOKS

1. Helminths, Arthropods and Protozoa of Domesticated Animals - E.J.L. Soulsby.
2. Veterinary Parasitology - G.M. Urquhart *et. al.*
3. Introduction to Animal Parasitology - J.D. Smyth.
4. A Text Book of Veterinary Parasitology - B.B. Bhatia, K.M.L. Pathak. &D.P. Banerjee
5. Veterinary Helminthology – T. Kassai
6. General Veterinary Parasitology - P.C. Jain
7. Manual of General Veterinary Parasitology - S.S. Chaudhari & S.K. Gupta
8. Manual of Veterinary Helminthology – S.S. Chaudhari, *et. al.*
9. Introduction to Animal Parasitology – J.D. Smyth

SEMESTER- IV

VETERINARY ENTOMOLOGY AND ACAROLOGY

VPA-221

Credit Hours 1+1=2

THEORY

General description of insecta and arachnida affecting domestic animals and birds. Arthropoda as direct/indirect parasites. Classification, Life Cycle and vector potentiality in relation to disease transmission, pathogenesis and control of following arthropods affecting animals and birds.

The biting midges (*Culicoides*), buffalo gnats /Black fly, (*Simulium*), sandflies (*Phlebotomus*). The mosquitoes (*Culex*, *Anopheles* and *Aedes*). Horse fly (*Tabanus*), *Musca*,

Stomoxys, *Sarcophaga*, Warbles (*Hypoderma*) and bots (*Gasterophilus*), Nasal bot (*Oestrus ovis*), Myiasis, Wingless flies (*Hippobosca*, *Melophagus*), bugs, lice (*Haematopinus*, *Linognathus*, *Trichodectus*, *Damalinia*, *Menopon*, *Lipeurus*, *Menacanthus* (Poultry lice). Fleas (*Pulex*, *Ctenocephalides*, *Echidnophaga*, *Xenopsylla*). Arachnids (Ticks and mites of Veterinary importance. Soft tick (Argasidae), (*Argas*, *Onirhodus* and *Otobius*).

Hard ticks (*Boophilus*, *Hyalomma*, *Rhipicephalus*, *Haemaphysalis*, *Amblyomma*, *Ixodes*), Mites (*Demodex*, *Sarcoptes*, *Psoroptes*, *Notoedreus*, *Chorioptes*). Anti-tick immunoprophylaxis Damages to hide and skins due to ectoparasitic infestation.

PRACTICAL

Demonstration of the type representatives of various groups of insects, ticks and mites through charts, specimen and mounted slides - Demonstration of different characters of Insecta and Arachnida (Ticks and mites). Procedure for diagnosis of arthropod infestation to hides and skin. Demonstration of enteric myiasis, Procedures for the collection, fixation, preservation and mounting of arthropod parasites.

REFERENCE BOOKS

1. Helminths, Arthropods & Protozoa of Domesticated Animals - E.J.L. Soulsby.
2. Veterinary Parasitology - G.M. Urquhart *et. al.*
3. A Text Book of Veterinary Parasitology - B.B. Bhatia, K.M.L. Pathak. & D.P. Banerjee
4. Manual of Veterinary Entomology & Acarology – S.K. Gupta & Rajindra Kumar
5. Veterinary Ectoparasites: Biology, Pathology & Control - Richard Wall & David Shearer

SEMESTER- IV

VETERINARY PROTOZOLOGY

VPA-222

Credit Hours 2+1= 3

THEORY

Introduction and general description to protozoa and their development. Differentiation from protophyta, bacteria and rickettsia, Classification. Life cycle in relation to transmission, pathogenesis, diagnosis and control of protozoa of veterinary importance.

Kala azar (visceral) and cutaneous leishmaniasis, Animal trypanosomosis (Surra), trypanosomosis (due to African *Trypanosoma*) in cattle and man.

Bovine and avian trichomonosis, black head in turkeys (*Histomonas*), Bovine amoebae (*Entamoeba*) and *Batantidium*, *Giardia* sp, Coccidia and coccidiosis of poultry and animals. Cryptosporidiosis, Cyst forming coccidian (*Toxoplasma*, *Sarcocystis*), *Neospora* (*Neospora caninum*). Malaria parasite of animals and poultry (*Plasmodium* and *Haemoproteus*), Piroplasmosis (*Babesia*), Theileriosis (*Theileria*),

Recent developments in protozoan vaccines for field use.

International regulations for control of different protozoan diseases.

PRACTICAL

Examination of faecal materials for identification of intestinal protozoa, coccidian and flagellates. Preparation of blood smears, their staining and examination of slides for haemoprotozoan parasites. Methods of collection, fixation, preservation and mounting of protozoan parasites. Identification of representative slides of protozoan parasites.

REFERENCE BOOKS

1. Helminths, Arthropods & Protozoa of Domesticated Animals - E.J.L. Soulsby.
2. Veterinary Parasitology - G.M. Urquhart *et. al.*
3. A Text Book of Veterinary Parasitology -B.B. Bhatia, K.M.L. Pathak & D.P. Banerjee
4. Text Book of Veterinary Protozoology - B.B. Bhatia
5. Protozoa and Protozoan diseases of Domestic Livestock - B.B. Bhatia & H.L. Shah