

W.e.f 20AH Batch

**OBJECTIVES:** To enable the students to –

- Gain the concept of fresh water fish/shrimp cultivation
- Get the expertise in fish preservation
- Know the bacterial and fungal diseases of aquatic forms
- Acquire the protozoan and helminthic diseases of aquatic forms
- Be skilful in viral diseases of aquatic forms

**I. Learning outcomes:**

1. Cultivation of fresh water and marine fish, shrimps and shell fish.
2. Methods of handling of fresh fish, fish preservation techniques
3. About bacterial and fungal diseases of aquatic forms and remedial measures.
4. About protozoan and helminthic diseases of aquatic forms.
5. About viral diseases of aquatic forms.

**UNIT-I: Bacterial and fungal diseases of finfish**

1. Etiology, pathogenesis, virulence mechanisms, epidemiology, prophylaxis, treatment and control measures of Bacterial diseases of finfish with emphasis on Furunculosis, Aeromoniasis, Columnaris disease, Bacterial gill disease, Vibriosis, Mycobacteriosis, Nocardiosis, Haemophilosis, Edwardsiellosis, enteric red mouth, Pasteurellosis, Piscirickettsiosis, Streptococcosis and Clostridium disease.

**UNIT – II: Bacterial diseases of shellfish**

1. Vibriosis, AHPND, Necrotizing hepato-pancreatitis, rickettsial diseases, mycobacteriosis.
2. Fungal diseases of finfish viz Aphanomycosis, Cotton wool disease, Branchiomycosis, and Aspergillosis. Fungal pathogens of shellfish viz Lagenidium, Sirolopidium, Fusarium.
3. Epizootic ulcerative syndrome (EUS) in fishes- Etiology, epidemiology, pathogenesis diagnosis and management.

**UNIT – III: Parasitic diseases**

1. Parasite pathology, treatments and control of the disease caused by protozoan parasites; Costianecatrix, Trypanosoma, Trypanoplasma, Ichthyophthirius, Urceolariid ciliates, Microsporidians, Myxozoans.
2. Pathology treatments and control of the disease caused by Metazoan parasites; Trematodes: Dactylogyrus, Gyrodactylus, Diplozoan, Sanguinicola, Neascuscuticola, Cestodes, Diphylobothrium latum, Caryophyllaeus, Ligula; Nematodes: Capillaria, Camallanus.
3. Pathology treatments and control of disease caused by Acanthocephalan parasites, Crustacean parasites: Lerneae, Argulus, Ergasilus.
4. Shellfish parasites: Pathology, treatment and control of the disease caused by the Microsporidian, Haplosporidian, ciliates, cephaline gregarines.

#### **UNIT – IV: Viral diseases of finfish and shellfish**

1. Etiology, pathogenesis, epidemiology, treatment and control, immunology and molecular biology of viruses.
2. Viral diseases of finfishes with emphasis on the following: Epizootic hematopoietic Necrosis (EHN), Infectious Hematopoietic Necrosis (IHN), Oncorhynchusmasou Virus (OMV), Viral Encephalopathy and Retinopathy (VER), Spring Viraemia of Carp (SVC), Viral HemorrhagicSepticemia (VHS), Lymphocystis, Koi herpes virus (KHV), Infectious Salmon anaemia, Salmonidalphavirus and Red seabreamiridoviral disease.

#### **UNIT V: Major commercial viral pathogens**

1. Major viral pathogens of commercially important cultured crustaceans with special reference to shrimp and freshwater prawn.
2. Etiology, clinical signs, pathogenesis, diagnostic methods, epidemiology, treatment and control associated with these viral pathogens: WSSV, YHV, TSV, IHHNV, MBV, HPV, BP, BMN, LSNV, GAV, MrNV& XSV, Infectious myonecrosis virus.

#### **REFERENCES**

1. Treves-Brown, K.M., 2000. Applied Fish Pharmacology. Kluwar Academic Publishers, 309 p
2. Lydia Brown (Ed). 1993. Aquaculture for Veterinarians. Pergamon Press; 447 p.
3. Clucas IJ. 1981. Fish Handling, Preservation and Processing in the Tropics. Parts I, II. FAO.
4. Cheng TC. 1964. The Biology of Animal Parasites. W.B. Saunders Company, Philadelphia, Pennsylvania, USA.
5. Conroy CA and Herman RL. 1968. Text book of Fish Diseases.TFH (Great Britain) Ltd, England.
6. Lightner DV. 1996. A Handbook of Shrimp Pathology and Diagnostic Procedures for diseases of Cultured Penaeid Shrimp. World Aquaculture Society, Louisiana, USA.
7. Reichenbach KH. 1965. Fish Pathology. TFH (Gt. Britain) Ltd, England.
8. Ribelin WE and Miguki G. 1975. The Pathology of Fishes. The Univ. of Wisconsin Press Ltd, Great Russel Street, London, UK.
9. Shuzo Egusa.1978. Infectious Diseases of Fish. Oxonian Press Pvt. Ltd. New Delhi.
10. Van Duijn, C. 1973. Diseases of Fishes. Cox and Wyman Ltd. London.

\*\* \*\* \*