

MBH 402: BACTERIOLOGY AND VIROLOGY

52 HRS

UNIT- I

(13hr)

Bacteria: Morphological types; cell wall – cell walls of Gram negative, Gram positive, Cell wall synthesis, cell membrane, capsule type's composition and function. Structure and function of flagella, fimbriae and pili, gas vesicles, Intracytoplasmic inclusions: nucleoid, plasmids, transposons, gas vacuoles, cellulosomes, carboxysomes, magnetosomes. Endospore and exospores. chlorosomes, and phycobilisomes. Reserve food materials -polyhydroxybutyrate, polyphosphates, cyanophycin ,Nuclear material - bacterial chromosomes and bacterial plasmids

UNIT II

(13hr)

Taxonomy of bacteria- morphological, biochemical and molecular methods for identification;16srRNA analysis, phylogenetic analysis, DNA sequencing and comparison ; Bergy's Manual of Systematic Bacteriology; characteristics of major groups of bacteria. – general characteristics, classification ultra-structure, reproduction and economic importance; a) Actinomycetes b) Cyanobacteria c) Mycoplasma d) Archaeobacteria

UNIT III

(13 hr)

Viruses, Discovery, nomenclature, classification and properties of viruses, Morphology and ultra structure - capsid and their arrangement, envelope - types and their composition, viral genome – types and structure, Sub viral agents- viroids, prions, virusoids and satellite viruses, Virus-Host interaction; Multiplication of viruses: attachment, uncoating, penetration, biosynthesis and release viral pathogenesis: transmission, tropism, virulence, host factors, host defense mechanism.

UNIT- IV

(13 hr)

Plant viruses: General symptoms, economic importance, diseases in pulses: transmission and control. Special references - BCMV, PMV, SMV, ULCV, BYMV, Human viruses: importance epidemiology symptoms and control measures - HIV, H1N1 Ebola virus, SARS virus, Small pox virus, Rabies virus, Zika virus. Bacterial viruses: classification, Lytic and lysogenic cycle. Phage Mu, M13, T4, P1, Bacteriophage typing, Cultivation & Maintenance of virus; cell culture techniques and their types, Host plant inoculation test, Histopathological examination, ELISA, Dot assay, RIA, western blot, immunofluorescence