SYLLABUS

AP STATE COUNCIL OF HIGHER EDUCATION
CBCS PATTERN FOR MICROBIOLOGY
B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS - 2020

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDICTS
I	I	MBT - I	INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY	100	
		MBP – I	INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY	50	
	II	MBT – II	MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY	100	
		MBP – II	MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY	50	
II	III	MBT –III	MEDICAL MICROBIOLOGY AND IMMUNOLOGY	100	
		MBP – III	MEDICAL MICROBIOLOGY AND IMMUNOLOGY	50	
		MBT - IV	INDUSTRIAL MICROBIOLOGY	100	
		MBP – IV	INDUSTRIAL MICROBIOLOGY	50	
	IV	MBT - V	MOLECULAR BIOLOGY AND MICROBIAL GENETICS	100	
		MBP - V	MOLECULAR BIOLOGY AND MICROBIAL GENETICS	50	
III	V	**A – PAIR**			
		MBT – A1	FOOD, AGRICULTURE AND ENVIRONMENTAL MICROBIOLOGY	100	
		MBP – A1	FOOD, AGRICULTURE AND ENVIRONMENTAL MICROBIOLOGY	50	

		MBT – A2	MANAGEMENT OF HUMAN MICROBIAL DISEASES AND DIAGNOSIS	100	
		MBP – A2	MANAGEMENT OF HUMAN MICROBIAL DISEASES AND DIAGNOSIS	50	
		B – PAIR			
		MBT – B1	MICROBIAL BIOTECHNOLOGY AND r – DNA TECHNOLOGY	100	
		MBP – B1	MICROBIAL BIOTECHNOLOGY AND r – DNA TECHNOLOGY	50	
		MBT – B2	BIOSTATISTICS AND BIOINFORMATICS	100	
		MBP – B2	BIOSTATISTICS AND BIOINFORMATICS	50	
		C – PAIR			
		MBT – C1	MICROBIAL QUALITY CONTROL INSTRUMENTATION AND TECHNIQUES	100	
		MBP – C1	MICROBIAL QUALITY CONTROL INSTRUMENTATION AND TECHNIQUES	50	
		MBT – C2	DRUG DESIGN, DISCOVERY AND ITELECTUAL PROPERTY RIGHTS (IPR)	100	
		MBP – C2	DRUG DESIGN, DISCOVERY AND ITELECTUAL PROPERTY RIGHTS (IPR)	50	

AP STATE COUNCIL OF HIGHER EDUCATION
CBCS PATTERN FOR MICROBIOLOGY

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS - 2020

MBT- I: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

TOTAL HOURS: 48 **CREDITS: 4**

UNIT-I: **No. of hours: 10**

History and developmemt with special emphasis on Anton von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Ivanowsky. Importance and applications of microbiology. Whittaker's five kingdom concept, Out lines of Bergey's Manual of Systematic Bacteriology. General characteristics prokaryotes, eukaryotes, (Fungi, Algae, Protozoa and viruses).

UNIT-II: **No. of hours: 10**

Ultra structure of Prokaryotic cell- Variant components and invariant components. Cell wall of bacteria and fungi, Gram positive cell wall, Gram negative cell wall, Cell wall of fungi and yeasts. Morphology,Ultrastructure and chemical composition of bacteria, Actinomycetes,
Spirochetes, Rickettsiae, Mycoplasma, Chlamydiae.

UNIT-III: **No. of hours: 8**

Methods of sterilization: Physical methods – Dry heat, moist heat, radiation methods, filtration methods, Chemical methods and their application.
Isolation of pure cultures by streak plate spread plate, pour plate.
Single cell isolation, and pure culture development.
Preservation of microbial cultures: subculturing, overlaying cultures with mineral oils, lyophilization, and cultures, storage at low temperature.

UNIT-IV: **No. of hours: 10**

Culture types
Microscopy-simple, compound, microbial counting using Haemocytometer
Staining Techniques - Simple and Differential staining techniques.
Principles of microscopy - Bright field and Electron microscopy (SEM and TEM).

UNIT-V: **No. of hours: 10**

Microbial growth: Principles of growth, Kinetics of growth, Methods of measuring growth: Direct methods: viable plate counts, membrane filtration. Indirect methods: Economic importance of algae and fungi. SCP.

Cultivation of aerobes and anaerobes.

Reproduction in bacteria and spore formation.

MBP- I: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

TOTAL HOURS: 30 **CREDITS: 2**

1. Microbiology Good Laboratory Practices and Biosafety.
2. Light compound microscope and its handling
3. Sterilization of medium using Autoclave
4. Sterilization of glassware using Hot Air Oven
5. Preparation of culture media for cultivation of bacteria
6. Preparation of culture media for cultivation of fungi
7. Microscopic observation of bacteria (Gram +ve bacilli and cocci, Gram -ve bacilli), Cyanobacteria, Algae and Fungi.
8. Simple staining
9. Gram's staining
10. Hanging-drop method.
11. Isolation of pure cultures of bacteria by streaking method.
12. Preservation of bacterial cultures by various techniques.

SUGGESTED READING:

- Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. (1993). Microbiology. 5th Edition, Tata Mc Graw Hill Publishing Co., Ltd., New Delhi.
- Dube, R.C. and Maheswari, D.K. (2000) General Microbiology. S Chand, New Delhi. Edition), Himalaya Publishing House, Mumbai.

- Power, C.B. and Daginawala, H.F. (1986). General Microbiology Vol I & II
- Prescott, M.J., Harley, J.P. and Klein, D.A. (2010). Microbiology. 5th Edition, WCB Mc GrawHill, New York.
- Reddy, S.M. and Reddy, S.R. (1998). Microbiology Practical Manual, 3 rd Edition, Sri Padmavathi Publications, Hyderabad.
- Singh, R.P. (2007). General Microbiology. Kalyani Publishers, New Delhi.
- Stanier, R.Y., Adelberg, E.A. and Ingram, J.L. (1991). General Microbiology, 5th Ed., Prentice Hall of India Pvt. Ltd., New Delhi.
- Microbiology Edited by Prescott
- Jaya Babu (2006). Practical Manual on Microbial Metabolisms and General Microbiology. Kalyani Publishers, New Delhi.
- Gopal Reddy *et al.*, Laboratory Experiments in Microbiology

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS – 2020

MBT – II: MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

TOTAL HOURS: 48 **CREDITS: 4**

UNIT-I: **No. of hours: 8**

Carbohydrates – Classification, chemistry, properties, and function– mono, di, oligo and polysaccharides. Lipids – classification, chemistry, properties and function – free fatty acids, triglycerides, phospholipids, glycolipids &waxes

UNIT-II: **No. of hours: 10**

Aminoacids –classification, structure and function. Essential amino Acids & amphoteric nature of amino acids and reactions and functions of carboxyl and amino groups and side chains. Proteins– isolation and characterization of proteins. Structural levels of proteins– primary, secondary, tertiary and quaternary, denaturation of proteins. Hydrolysis of proteins. Outlines of Protein sequencing using various methods.

UNIT – III: **No. of hours: 10**

Nucleic acids–structure, function and their properties. Types of DNA, RNA. Chemical structure and base composition of nucleic acids, Chargaff's rules, Watson Crick Model (B-DNA), deviations from Watson-Crick model, other forms of DNA (A- and Z-DNA), forces stabilizing nucleic acid structures, (hydrogen bonds and hydrophobic associations, base stacking). Structural characteristics of RNA. Types of RNA.

UNIT- IV **No. of hours: 10**

Properties and classification of Enzymes. Biocatalysis- induced fit and lock and key models.

Coenzymes and Cofactors. Factors affecting catalytic activity.

Inhibition of enzyme activity- competitive, noncompetitive, uncompetitive and allosteric.

Enzyme kinetics: Michaelis-Menten equation, effect of substrate concentration, effect of enzyme concentration, effect of p H and temperature, temperature.

UNIT – V: **No. of hours: 10**

Aerobic respiration - Glycolysis, HMP path way, ED path way, TCA cycle, Electron transport, oxidative and substrate level phosphorylation. Kreb'scycle, glyoxylatecycle, hexose monophosphate (HMP) shunt, gluconeogenesis.

Anaerobic respiration Fermentation, Biochemical mechanisms of lacticacid, ethanol fermentations. Nitrate and sulphate respiration. Outlines of oxygenic and anoxy genic photosynthesis in bacteria.

MBP – II: MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

TOTAL HOURS: 48 **CREDITS: 2**

1. Qualitative Analysis of Carbohydrates.
2. Qualitative Analysis of Aminoacids.
3. Estimation of DNA by diphenylamine method.
4. Estimation of RNA by Orcinol method.
5. Estimation of proteins by Biuret / Lowry method.
6. Estimation of sugar by titration method–Benedict's method.
7. Determination of pKa and pI values of amino acids.
8. Assay of amylase activity

10. Effect of temperature / pH on enzyme activity

11. demonstration of immobilization of enzyme activity.

SUGGESTED READING:

- Lehninger, A.L., Nelson, D.L. and Cox, M.M. (1993). Principles of Biochemistry, 2 nd Edition, CBS Publishers and Distributors, New Delhi.
- Sashidhara Rao, B. and Deshpande, V. (2007). Experimental Biochemistry: A student Companion. I.K. International Pvt. Ltd.
- Tymoczko JL, Berg JM and Stryer L (2012) Biochemistry: A short course, 2nd ed., W.H.Freeman
- Voet,D. and Voet J.G (2004) Biochemistry 3rd edition, John Wiley and Sons
  White, D. (1995). The Physiology and Biochemistry of Prokaryotes, Oxford University Press, New York.

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS – 2020

MBT – III: MEDICAL MICROBIOLOGY AND IMMUNOLOGY

TOTAL HOURS: 48 **CREDITS: 4**

UNIT- I: **No. of hours: 8**

Pathogen cycle (infection, invasion, pathogen, pathogenicity). Normal flora of human body. **Types of infections: opportunistic and** nosocomial infection. General principles of diagnostic

microbiology- collection, transport and processing of clinical samples. **M**ethods of diagnosis - cultural, biochemical, serological and molecular methods.

UNIT- II: **No. of hours: 10**

General account on microbial diseases - causal organism, pathogenesis, epidemiology, diagnosis, prevention and control**.**

Bacterial diseases - Cholera and Typhoid

Fungal diseases – Candidiasis, Aspergillosis

Protozoal diseases – Amoebians and leishmaniasis.

Viral Diseases – Hepatitis, SARS and Covid-19.

UNIT- III: **No. of hours: 10**

Controlling measures: therapeutic, Principles of chemotherapy, Antibacterial drugs – Penicillin, Antifungaldrugs – Nystatin, Antiviralagents – Robovirin, Prophyllactic- viruses. Antibiotic resistance in bacteria.

UNIT- IV: **No. of hours: 10**

Types of immunity - innate and acquired; active and passive; humoral and cell-mediated immunity.

Primary and secondary organs of immune system - Thymus, Bursa fabricus, bone marrow, spleen and lymph nodes.

Cells of immune system.

Identiification and function of B and T lymphocytes, null cells, monocytes, macrophages, neutrophils, basophils and eosinophils.

UNIT – V: **No. of hours: 10**

Antigens - types, chemical nature, antigenic determinants, haptens. Factors affecting antigenicity.

Antibodies - basic structure, types, properties and functions of immunoglobulins.

Types of antigen-antibody reactions - Agglutinations, Precipitation, Neutralization, complement fixation, blood groups.

ELISA, RIA and monoclonal antibodies - production and applications.

MBP – III: MEDICAL MICROBIOLOGY AND IMMUNOLOGY

TOTAL HOURS: 48 **CREDITS: 2**

1. Identification of human blood groups.
2. Separate serum from the blood sample (demonstration).
3. Estimation of blood haemoglobin.
4. Total Leukocyte Count of the given blood sample.
5. Differential Leukocyte Count of the given blood sample.
6. Immunodiffusion by Ouchterlony method.
7. Identification of Pathogens: Bacteria (2), fungi (2), protozoa (2), viruses (2)
8. biochemical characteristics: IMViC, urease production and catalase tests
9. Antibacterial sensitivity by Kirby-Bauer method
10. Study symptoms of the diseases with the help of photographs: Anthrax, Polio, Herpes, chicken pox, HPV warts, Dermatomycoses (ring worms)

SUGGESTED READING:

- Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication.
- Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2013) Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Publication.
- Delves P, Martin S, Burton D, Roitt IM. (2006). Roitt's Essential Immunology.11th edition Wiley-Blackwell Scientific Publication, Oxford.
- Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
- Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
- Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Microbiology. 4th edition. Elsevier Publication.
- Willey JM, Sherwood LM, and Woolverton CJ. (2013) Prescott, Harley and Klein's Microbiology. 9th edition. McGraw Hill Higher Education.

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS - 2020

MBT – IV INDUSTRIAL MICROBIOLOGY

UNIT – I **No. of hours: 7**

Microorganisms of industrial importance – bacteria, yeasts, moulds and actinomycetes. Types of microbial metabolites. Screening and strain improvement techniques of industrially important metabolites microbes.

UNIT – II **No.of hours: 10**

Fermentation and fermenter: concept and discovery of fermentation. Fermenter: its parts and function. Types of fermenter – batch, continuous and fed batch.

Types of fermentation processes – solid state, liquid state, batch, fed-batch, continuous.

Ingredients of Fermentation media (composition and types).

Downstream processing - filtration, centrifugation, cell disruption, solvent extraction.

UNIT – III **No.of hours: 8**

Microorganisms involved in Pharma and therapeutic enzymes. Industrially important Enzymes (detergents, textiles and leather industries). Production of amylases and Proteases. Production of therapeutic enzymes.

UNIT – IV **No.of hours: 7**

Industrial microorganisms: principles of production media. Microbial production of Industrial products: Citric acid, Ethanol, Penicillin, Glutamic acid, and vitamin B12.

UNIT – V **No.of hours:7**

Bioreactors: basic structure of bioreactor, types of bioreactors, kinetics and methodology of batch and continuous bioreactors. Sterilization of bioreactors: fibrous filter sterilization. Aeration and agitation: agitation in shake flask and tube rollers.

MBP – IV INDUSTRIAL MICROBIOLOGY

Total hours: 36 **Credits: 2**

1. Isolation of amylase producing microorganisms from soil

2. Assay of amylase
3. Demonstration of fermenter
4. Microbial fermentation for the production and estimation of ethanol from grapes
5. Microbial fermentation for the production and estimation of citric acid

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS - 2020

MBT – V: MOLECULAR BIOLOGY AND MICROBIAL GENETICS

TOTAL HOURS: 48 **CREDITS: 4**

UNIT- I **No. of hours: 8**

DNA and RNA as genetic material. Structure and organization of prokaryotic DNA. Watson and Crick model of DNA. Extra chromosomal genetic elements - Plasmids and transposons.
Replication of DNA - Semi conservative mechanism, Enzymes involved in replication.

UNIT- II **No. of hours: 10**

Mutations - spontaneous and induced, base pair changes, frame shifts, deletions, inversions, tandem duplications, insertions.
Mutagens - Physical and Chemical mutagens.
Outlines of DNA damage and repair mechanisms.
Genetic recombination in bacteria - Conjugation, Transformation and Transduction.

UNIT- III **No. of hours: 10**

Concept of gene. Muton, Recon and Cistron. One gene one enzyme and one gene one polypeptide hypotheses.
Bacterial recombination – Bacterial transformation, Bacterial conjugation, Transduction– Generalized and specialized transductions.

UNIT- IV **No. of hours: 8**

Transcription *E.coli* RNA polymerase, Mechanism of transcription, Classes of RNA molecules, processing of tRNA and rRNA in *E.coli*, Transcription in Eukaryotes: RNA Polymerases of eukaryotes. Differences between Pro and eukaryotic transcription, Post transcriptional

modifications **Translation:** Ribosomes, Genetic Code, Protein Synthesis, Inhibitors of protein synthesis.

UNIT- V **No. of hours: 10**

Regulation of gene expression in bacteria - operon concepts - Negative and positive control of the Lac Operon, trp operon. Poly and Mono cistronic m-RNA.

MBP – V: MOLECULAR BIOLOGY AND MICROBIAL GENETICS

TOTAL HOURS: 48 **CREDITS: 2**

1. Study of different types of DNA and RNA using micrographs and model / schematic representations.
2. Study of semi-conservative replication of DNA through micrographs / schematic representations
3. Isolation of genomic DNA from *E. coli*
4. Estimation of DNA using UV spectrophotometer.
5. Resolution and visualization of DNA by Agarose Gel Electrophoresis.
6. Resolution and visualization of proteins by Polyacrylamide Gel Electrophoresis (SDS - PAGE).
7. Problems related to DNA and RNA characteristics, Transcription and Translation.
8. Induction of mutations in bacteria by UV light.
9. Instrumentation in molecular biology - Ultra centrifuge, Transilluminator, PCR

SUGGESTED READING:

- Freifelder, D. (1990). Microbial Genetics. Narosa Publishing House, New Delhi. Freifelder, D. (1997). Essentials of Molecular Biology. Narosa Publishing House, New Delhi.
- Glick, B.P. and Pasternack, J. (1998). Molecular Biotechnology, ASM Press, Washington D.C., USA.
- Lewin, B. (2000). Genes VIII. Oxford University Press, England.

- Maloy, S.R., Cronan, J.E. and Freifelder, D. (1994). Microbial Genetics, Jones and Bartlett Publishers, London.
- Ram Reddy, S., Venkateshwarlu, K. and Krishna Reddy, V. (2007) A text Book of Molecular Biotechnology. Himalaya Publishers, Hyderabad.
- Sinnot E.W., L.C. Dunn and T. Dobzhansky. (1958). Principles of Genetics. 5 th Edition. McGraw Hill, New York.
- Smith, J.E. (1996). Biotechnology, Cambridge University Press.
- Snyder, L. and Champness, W. (1997). Molecular Genetics of Bacteria. ASM press,
- Strickberger, M.W. (1967). Genetics. Oxford & IBH, New Delhi.
- Verma, P.S. and Agarwal, V.K. (2004). Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Co. Ltd., New Delhi.

B.Sc MICROBIOLOGY (CBCS) REVISED SYLLABUS
MBT – IV INDUSTRIAL MICROBIOLOGY

UNIT – I No. of hours: 12

Microorganisms of industrial importance – yeasts (Saccharomyces cerevisiae), moulds (Aspergillus niger) bacteria (E.coli), actinomycetes (Streptomyces griseus). Industrially important Primary and secondary microbial metabolites. Screening techniques. Techniques involved in selection of industrially important metabolites from microbes.

UNIT – II No.of hours: 12

Fermentation and fermenter: concept and discovery of fermentation. Fermenter: its parts and function. Types of fermenter – batch, continuous and fed batch.Types of fermentation processes – solid state, liquid state, batch, fed-batch, continuous. Basic concepts of Design of fermenter.Ingredients of Fermentation media.Downstream processing - filtration, centrifugation, cell disruption, solvent extraction.

UNIT – III No.of hours: 12

Microorganisms involved in Pharma and therapeutic enzymes. Enzymes used in detergents,textiles and leather industries. Production of amylases and Proteases. Production of therapeutic enzymes. Role of microorganisms in bioleaching and textile industry.

UNIT – IV No.of hours: 12

Industrial microorganisms: cell growth, microbial growth kinetics, factors affecting growth,basic nutrition, principles of production media, components of media, chemical composition of media.

Microbial production of Industrail products: Citric acid, Ethanol, Penicillin, Glutamic acid, and vitamin B12.

UNIT – V No.of hours:12

Bioreactors: basic structure of bioreactor, types of bioreactors, kinetics and methodology of batch and continuous bioreactors. Sterilization of bioreactors: fibrous filter sterilization. Aeration and agitation: agitation in shake flask and tube rollers.

MBP – IV INDUSTRIAL MICROBIOLOGY

Total hours: 36 Credits: 2

1. Production of ethanol
2. Estimation of ethanol
3. Isolation of amylase producing microorganisms from soil
4. Production of amylase from bacteria and fungi
5. Assay of amylase
6. Demonstration of fermenter
7. Production of wine from grapes
8. Growth curve and kinetics of any two industrially important microorganisms.
9. Microbial fermentation for the production and estimation of ethanol from grapes
10. Microbial fermentation for the production and estimation of citric acid

REFERENCES

1 CASIDA
2 PRESCOTT AND DUNN
3 CRUGER AND CRUGER

ANDHRA LOYOLA COLLEGE (AUTONOMOUS)

THIRD YEAR – Semester- V MICROBIOLOGY MBT- A1 A – PAIR

MBT A1 – FOOD, AGRICULTURE AND ENVIRONMENTAL MICROBIOLOGY

UNIT – 1 **No. of Hours: 8**

Intrinsic and extrinsic parameters that affect microbial growth in food

Microbial spoilage of food - fruits, vegetables, milk, meat, egg, bread and canned foods

Food intoxication (botulism).

Food-borne diseases (salmonellosis) and their detection.

UNIT – II **No. of Hours: 8**

Principles of food preservation - Physical and chemical methods.

Fermented Dairy foods – cheese and yogurt.

Microorganisms as food – SCP, edible mushrooms (white button, oyster and paddy straw). Probiotics and their benefits.

UNIT – III **No. of Hours: 8**

Soil Microbiology: Microbial groups in soil, microbial transformations of carbon, nitrogen, phosphorus and sulphur, Biological nitrogen fixation. Microflora of Rhizosphere and Phyllosphere microflora, microbes in composting. Importance of mycorrhizal inoculums, types of mycorrhizae associated plants, mass inoculums. Production of VAM, field applications of Ectomycorrhizae and VAM.

UNIT - IV **No. of Hours: 8**

Beneficial microorganisms in Agriculture: Biofertilizer (Bacterial Cyanobacterial and Fungal), microbial insecticides, Microbial agents for control of Plant diseases, Biodegradation, Biogas production, Biodegradable plastics, Plant – Microbe interactions.Diseases caused by bacteria and fungi to various commercial and food crops (2 examples each)Management of soil biota for maintaining soil fertility. Convertion of waste lands into fertile lands.Management of soil nutrients.

UNIT – V **No. of Hours: 12**

Terrestrial Environment: Soil profile and soil microflora. Aquatic Environment: Microflora of fresh water and marine habitats. Atmosphere: Aeromicroflora and dispersal of microbes. Extremophiles. Nutrient cycling - Carbon, nitrogen, phosphorus. Methods to detect portability of water samples.Outlines of Solid Waste management: Sources and types of solid waste, Methods of solid waste disposal (composting and sanitary landfill).LiquidwastemanagementComposition and strength of sewage (BOD and COD), Primary, secondary treatment

LEARNING RESOURCES:

Reference Books:

1. Food Microbiology : W.C. Frazier & O.C. West Hoff
2. Modern Food Microbiology: James M. Jay
3. Industrial Microbiology : Prescott &Donns
4. Industrial Microbiology : L.E.Casida
5. A Text Book of Industrial Biotechnology : Cruger&Cruger
6. Industrial Microbiology : Patel,A.H.

Web Learning Resources: https://microbiologyinfo.com/top-and-best-microbiology-books -textbook-of..microbiology

https://www.sapnaonline.com/.../food and industrial microbiology rp-singh-81272...

ANDHRA LOYOLA COLLEGE (AUTONOMOUS)

MBT A2 – MANAGEMENT OF HUMAN MICROBIAL DISEASES AND DIAGNOSIS MBT -A2

UNIT – I **No.of Hours: 8**

Definition and concept of health, disease, infection, and pathogen. Bacterial, Viral, Fungal and Protozoan Diseases of various human body systems. Disease associated clinical samples for diagnosis - any three diseases of each.

UNIT- II **No. of hours: 8**

General account of epidemiology: principles of epidemiology, current epidemics (AIDS, nosocomal, acute respiratory syndromes). Collection of clinical samples (oral cavity, throat, skin, blood, CSF, urine and faeces) and precautions required.

Method of transport of clinical samples to laboratory and storage.

UNIT- III **No. of hours: 8**

Mechanism of bacterial pathogenicity, colonization and growth, virulence, virulence factors, exotoxins, enterotoxins, endotoxins and neurotoxins.

Examination of sample by staining - Gram stain, Ziehl-Neelson staining for tuberculosis, Giemsa-stained thin blood film for malaria.

Preparation and use of culture media - Blood agar, Chocolate agar, Lowenstein-Jensen medium, MacConkey agar, Distinct colony properties of various bacterial pathogens.

UNIT- IV **No. of hours: 6**

Serological Methods - Agglutination, ELISA, immunofluorescence, Nucleic acid based methods - PCR, Nucleic acid probes.

Diagnosis of Typhoid, Dengue and HIV, Swine flu. Role of vectors- biology of vectors. (1) House fly (2) Mosquitoes (3) sand fly.

UNIT- V **No. of hours: 6**

Importance, Determination of resistance/sensitivity of bacteria using disc diffusion method, Determination of minimal inhibitory concentration (MIC) of an antibiotic by serial double dilution method. Epidemiological investigations to identify a disease, Problems of drug resistance and drug sensitivity. Drug resistance in bacteria.

Learning Resources (Course Name MICROBIAL DIAGNOSIS IN HEALTH CLINICS)

TEXT/ REFERENCE BOOKS:

1. Text book of Microbiology : ANANTHNARAYAN
2. Text Book of Microbiology . P. Chakrabarthy.
3. Microbiology : PRESCOTT
4. Microbiology : RAMANICSOOD

Web Learning Resources:https://microbiologyinfo.com/top-and-best-microbiology-books
http://am-medicine.com/2015/06/ananthanarayan-and-panikers-textbook-of..microbiology
https://www.sapnaonline.com/...--microbiology-rp-singh-81272...
microbiology.sbmu.ac.ir/uploads/jawetz_2013__medical_miceobiology.pdf

ACADEMIC ACTIVITIES

1 ACADEMIC AWARDS WON BY OUR STUDENTS

- Ms.T.AmruthaJyothi, AMB 18 has participated in poster making, held by department of political science, Andhra Loyola college, Vijayawada and has won 2nd prize
- Mr L.Ganesh, AMB-39 has Participated in spoorthi event essay writing (telugu)
- Mr. V. Chandanasai , NMB-42, has participated in the Essay writing competition held by Dept of Chemistry, ndhra Loyola College, Vijayawada.
- Ms.Harika , AMB -03 , has participated in the poster making competition held by dept of political science , Andhra Loyola College, Vijayawada and has won 2nd prize
- Ms.Harika AMB-3, has participated in the Essay writing competition held by dept of chemistry, Andhra Loyola College, Vijayawada and has won special appreciation prize
- Ms.Harika, AMB_3, has participated in the Essay writing competition held by dept of women cell, Andhra Loyola College, Vijayawada and has won first prize
- Ms.Harika, AMB-3, has participated in the Essay writing competition held by dept of political science, Andhra Loyola College, Vijayawada
- Ms.Harika,AMB-3 has participated in Essay writing competition held for spoorthi event
- Ms. Harika, AMB-3, has participated in the debate held for spoorthi event
- Ms. P. Swetha, NMB-54 Had Participated In Poster Presentation Competition Held In "CLOCKS IN HEALTH AND ENVIRONMENT" Conducted By The Departments Of Biotechnology, Microbiology and Botany. Have Won 2nd Prize.
- Ms. Sumedha Nmb52 won 2nd prize at poster presentation held by department of biotechnology,
- Ms. Sumedha, NMB52 won consolation prize at cartoon contest at chemconi held by department of chemistry.
- Ms. I.Sumedha participated in inter college debate contest held by M.J.Naidu multi speciality hospital.
- Ms. P. Navya Sri Adilakshmi, NMB-21, has participated in the Essay writing competition held by Dept of Chemistry, Andhra Loyola College, Vijayawada and has won 2nd prize.
- Ms. P. Navya Sri Adilakshmi NMB-21, has participated in the poster presentation competition held by Dept of biotechnology, Andhra Loyola College, Vijayawada and has won 1st prize.
- Ms. P. Jyoshitha, NMB-14 has Participated in posture presentation held by Dept of Biotechnology and won 1st prize and

- Ms. P. Jyoshitha, NMB-14 ,participated in Essay Writing held by Dept of chemistry and instrumentation held by Dept of Botany and Biotechnology.
- Ms Bhargavi.P, NMB-33 has participated in the essay writing competition held by Dept of Chemistry, Andhra Loyola College, Vijayawada.
- Ms Bhargavi.P, NMB-33 has participated in the poster presentation competition held by Dept of Botany, Andhra Loyola College, Vijayawada.
- Ms. J. Sai Padma , NMB25, has participated in drawing competition and won 1st prize held by chemistry department , Andhra Loyola College, Vijayawada
- Ms. J. Sai Padma , NMB25 has participated in traditional dress competition won 1st prize ,held by KBN college , Vijayawada

2. RESERCH PROJECTS UNDERTAKEN BY STUDENTS:

The food tech students of final year under went for research projects as a part of curriculum here list of project titles were enclosed.

1. Isolation of microbes from street foods
2. A study report on probiotic foods
3. Sanitary analysis of water samples
4. Isolation of soil bacteria from Loyola campus
5. Wine production and fermentation

3. DETAILS OF STAFF ACTED AS RESOURCE PERSON

- Dr. K. Bala Chandra, HOD, Department of Microbiology attended as guest speaker in siddhrdha mahila kalsala on the topic Carrer Guidance and Opportunities in life sciences in abroad.
- Dr. K. Bala Chandra, HOD, Department of Microbiology attended as guest speaker on Covid -19 awareness enlightment campaign in writers voice a writings publishing online platform on a topic Series Of Fact Sheets What Do I Need To Know about Covid -19 Astma , Cancer, Chronic Kidney Disease , Diabetes, Heart Diseases

4. HIGH LIGHTS OF DEPARTMENTAL ACTIVITIES

- The Department of Microbiology has organized a One Day International Webinar through Google Meet/YouTube Live on 10.07.2021 from 10:00am -4:00pm on **Drug Discovery and Global Prospects in Biological Sciences**.
- The Department of Microbiology has organized a One Day State level Workshop on 08.09.2021 from 9:00am -4:00pm on **A Practical Approach on FSSAI Based Food Adulteration Techniques**.

- The Department of Microbiology has organized a Two Day National level Seminar on 20.09.2021 and 21.09.2021 on **Role of Biological Clocks in Health and Environment**.
- The Department of Microbiology has organized a Guest lecture on 24.09.2021 from 2:00pm-4:00pm by **Pearl Training Laboratory, Guntur *on Advanced techniques and instrumentation in lifesciences.*** The Department of Microbiology has organized a Three-Day National Webinar through Google Meet from 4th December to 6th Decembers on **Recent trends in Drug Discovery, Nanobiotechnology and Food fermentation technology.**

5. INNOVATIVE PROGRAMMES UNDER TAKEN IN DEPARTMENT

The department is organising an innovative programme in dairy technology and microbial quality control, clinical diagnosis in health clinics and bio fertilizers production as a part of or activities

ASSOCIATION ACTIVITIES

ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activity

ACADEMIC YEAR: 2017-2018

Department/Wing/Unit/Cell: MICROBIOLOGY

S. No. in the Activity Register:1

S. No. in the College Activity Register:1

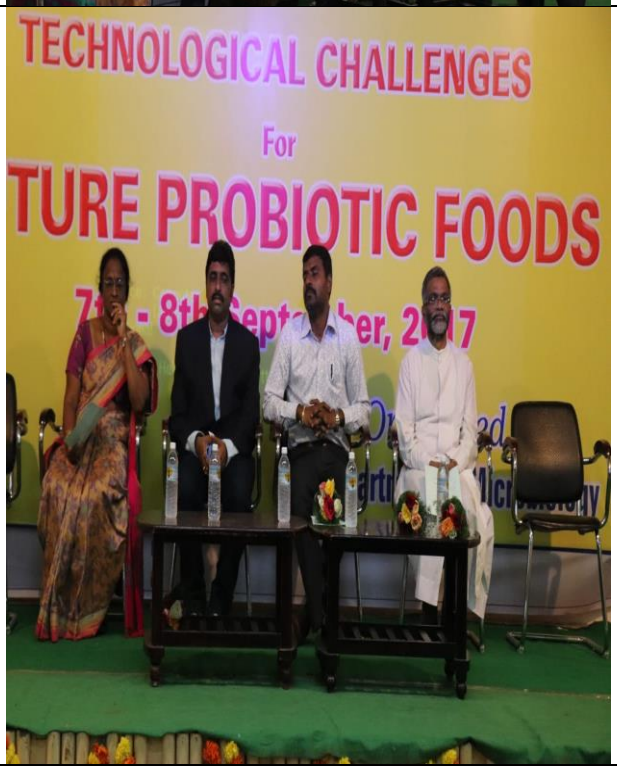
Name of the Activity:	National Seminar
Place:	ALC, Vijayawada
Date & Time:	7th & 8th September 2017
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	National

Details of the Activity:

This two day UGC sponsored National Seminar on "TECHNOLOGICAL CHALLENGES FOR PROBIOTIC FOODS" conducted on 7th and 8th of September finally reached the last session. Many members, invited speakers, paper presenters and delegates drawn from different states gave an excellent presentation enlightening us on the dynamic issues of probiotics. The inaugural session started with the chief guest Dr. M. CHANDRA SHEKHAR, lightning the lamp along with all the other dignitaries present on the dais, to start the proceedings. The souvenir was released by fathers and the chief guest stated that probiotics are used as vaccines. ASHA DUMPALA, MANAGER at UNIQUE BIOTECH LIMITED, gave guidelines about probiotics and its history, scope and various probiotic products presently available in the market. In the post noon session Dr.RAJA GOPAL SIR KODALI,CHIEF OPERATING OFFICER, RAMESH HOSPITALS, discussed about role of probiotics on immune functions and infections. Next invited talk by Dr. B SIDDHARTHA was about immunal effects of probiotics and the consequences that are caused due to less usage of probiotic products. Dr. K. AMMANI, BOTANY PROFESSOR at ANU, shared her knowledge on traditional probiotic foods and their importance. Later there were oral presentations given by research scholars and students from various colleges and intuitions. On the second day, the session was started with Professor RAMA RAO sir who gave knowledge and shared information on probiotics in prevention of cancer. Later Dr. S. HEMANTH PHANI KUMAR, SCIENTIST in YEUNGNAM UNIVERSITY, SOUTH KOREA, gave guidelines on Ochratoxin as probiotics. 100 participants from various universities presented papers and we got 120 abstracts.

K. Balachandra
Signature of the in charge

Photo(s):



ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activity

ACADEMIC YEAR: 2017-18

Department/Wing/Unit/Cell: MICROBIOLOGY

S. No. in the Activity Register:2

S. No. in the College Activity Register:2

Name of the Activity:	Academic competitions (Drawing and Slogan Writing)
Place:	ALC, Vijayawada
Date & Time:	23rd August 2017
No. of students participated:	50
Level: (College/Univ/State/Natl/Int)	College

Details of the Activity:

On the eve of Environment Conservation week , The Departments of Botany, Microbiology have organised Slogan and Drawing competitions for all the degree students of our college. 50 students have actively participated in the above said competitions . Topic for the Slogan writing and drawing competions is "SAVE NATURE SAVE EARTH". Prizes were distributed to the prize winners of Slogan writing and drawing competions on the next day on which Guest lecture was organised by the Dept of Botany.

Photo(s):

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 03

S. No. in the College Activity Register:03

Name of the Activity:	Industrial Visit
Place:	Sangam Dairy, Vadlamudi
Date & Time:	31st august 2019
No. of students participated:	76
Level: (College/Univ/State/Natl/Int)	College

Details of the Activity:

The Department of Microbiology organized one day Industrial visit to Sangam Dairy, Vadlamudi on 8th Feb 2018 for all the final year students of the Department. 76 students were accompanied by 2 staff members Mr. K. Balachandra & Ms. M. Glory, Dept of Microbiology.

Sangam Dairy is spread over a large area and it is known for production of various dairy products such as Milk, butter, butter milk, cheese, ghee, lassi, flavoured milks, cream, etc. They explained and shown us right from the milk receiving station, analysis of milk till production of various dairy products.

As a part of their curriculum, final year students need to know about the various procedures followed in dairy Industry as it will also be useful for skill enhancement and employability**.**

ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activity

ACADEMIC YEAR: 2018-19

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 01

S. No. in the College Activity Register:01

Name of the Activity:	A two-day DBT sponsored regional workshop on "Advanced techniques in microbial identification" conducted by the Departments of Biotechnology & Microbiology.
Place:	Andhra Loyola College (autonomous),
Date & Time:	31st August and 1st September 2018
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	College level

Details of the activity:

They explained about API (Analysing Profile Index) strip, an advanced technique helpful during research works which carry 24 fundamental biochemical tests for the unique identification of an organism. The API strip is provided with the nutrients in a dehydrated form that are required forth growth of an organism. It also contains all the required reagents.

Newspaper clipping(s):

బోనాల సమర్పణ

ముట్టుగుంట (సీతారాంపురం): అజిత్ సింగ్ నగర్ డివిజన్‌లోని మాయూరి నగర్ కోలా కలా ఉంటెనీ వీధిలో వెంచేసియున్న శ్రీకనకదుర్గ అమ్మవారికి ఆదివారం రాష్ట్ర బీసీ సమాఖ్య డైరెక్టర్ తమ్మిశెట్టి చక్రవర్తి దంపతులు బోనాలు సమర్పించారు. దేవస్థానం నిర్వాహకులు ప్రత్యేక పూజా కార్యక్రమాలు నిర్వహించారు.

విజయవాడ తూర్పు

విద్యార్థులకు అవగాహన కల్పిస్తున్న ప్రతినిధులు

పరిశోధన ఫలం..

పర్యావరణ హితం

న్యూస్‌టుడే
కరెన్సీనగర్ (విజయవాడ)

ప్రస్తుతం పర్యావరణానికి పెనుప్రమాదం వాటిల్లుతోంది. నీరు, భూమి, గాలి, చెట్లు, చేమ... అన్నీ విషపూరితం అవుతున్నాయి. వీటిలో ఉండే అతి చిన్న సూక్ష్మక్రిములను గుర్తించడంతో పాటు వాటి వల్ల కలిగే అనర్థాలను విద్యార్థి దశలోనే తెలుసుకుంటే పరిశోధనలు చేసి శాస్త్రవేత్తలుగా రాణించడానికి అవకాశం ఏర్పడుతుంది. ఇలాంటి సూక్ష్మజీవులను గుర్తించడానికి నెలల పర్యంతం అవుతున్న నేపథ్యంలో ఆధునిక పరిజ్ఞానం అందుబాటులోకి వచ్చింది. ప్రముఖ శాస్త్రవేత్త లాయిస్ పాశ్చర్ కనిపెట్టిన లారెన్స్ 'బయో మెరిక్స్' అనే సంస్థను స్థాపించారు. దీని ద్వారా ఫార్మా, వ్యవసాయ రంగాల్లో ఆధునిక పరిజ్ఞానాన్ని వినియోగించి సూక్ష్మక్రిములను గుర్తించి వాటిని నాశనం చేసే ప్రక్రియను కనుగొనేందుకు తోడ్పడుతున్నారు. ఈ సంస్థ ఆంధ్రప్రదేశ్‌లో ప్రప్రథమంగా డిగ్రీ స్థాయిలో విద్యార్థులకు ఆధునిక పరీక్ష విధానాలను అందుబాటులోకి తీసుకొచ్చింది. నగరంలోని ఆంధ్ర లయోలా కళాశాల బయో టెక్నాలజీ విభాగంలో 'సూక్ష్మజీవ శాస్త్ర విభాగంలో ఆధునిక పోకడలు' అంశంపై కార్యశాల నిర్వహించింది. వివిధ కళాశాలల నుంచి హాజరైన విద్యార్థులు రెండు రోజులపాటు ప్రయోగాలను ప్రత్యక్షంగా వీక్షించారు. బయోమెరిక్స్ లకి సమన్వయకర్త డాక్టర్ బి.శివకుమారి, బాలచంద్ర, కవిత వర్క్‌షాపును నిర్వహించారు. తమ ఉన్నత చదువులు, ఉపాధి, ఉద్యోగావకాశాలకు కార్యశాల దోహదపడిందని విద్యార్థులు చెప్పారు.

నిమిషాల వ్యవధిలోనే..

మట్టి, నీరు, పదార్థాల్లో దాగిన కలుషితాన్ని గుర్తించడానికి చేసే పరీక్షల్లో ఎంతో హాని ఉంటుంది. కల్తీ శాతాన్ని తెలుసుకోవాలంటే సరైన జాగ్రత్తలు తీసుకోవాలి. ఇలాంటి వాటికి నుంచి బయట పడేందుకు ఆధునిక పరిజ్ఞానంతో కూడిన కిట్లు అందుబాటులోకి రావడం ముదావహం. నిమిషాల వ్యవధిలో నమూనాల్లో దాగిన సూక్ష్మక్రిములను బట్టి పట్టేయవచ్చు. ఫార్మా రంగంలో కల్తీ బాగా జరుగుతోంది. సరిలేని మందులను ప్రయోగశాలల్లో పరీక్షలు చేయడానికి బాగా సమయం పడుతుంది. దీంతో దర్యాప్తులు ఆలస్యమవుతున్నాయి. కొత్త విధానంలో ఆ సమస్య ఉండదు.

– బలగాని తేజస్విని, సిద్ధార్థ మహిళా కళాశాల

క్షణాల్లో పరీక్షలు

నెలల తరబడి చేసే పరీక్షలను ఆధునిక ర్యాపిడ్ విధానంతో క్షణాల్లోనే చేసే అవకాశం అందుబాటులోకి వచ్చింది. డిగ్రీ, పీజీ స్థాయి విద్యార్థుల పరిశోధనకు ఎంతో తోడ్పడనుంది. ఈ ఆధునిక పరికరంతో ఒకేసారి 24 పరీక్షల్లో సూక్ష్మ క్రిములను గుర్తించే విధానం వచ్చింది. ఇప్పుడే కూడుకున్నా. సమయం ఆదాతో పాటు పరీక్షలు చేసే నిపుణులకు ఎటువంటి హాని జరగలో ఉండదు. ఇప్పటి వరకు ఫార్మా, ఆహార పదార్థాలు, వ్యవసాయ రంగాల వారికి అవగాహన కల్పించాం. మొదటి సారిగా ఆంధ్రప్రదేశ్‌లోని లయోలా కళాశాలలో విద్యార్థులకు ఈ పరీక్షలపై అవగాహన చేస్తున్నాం. ప్రస్తుతం 18వేల సూక్ష్మక్రిములు ఉంటే వీటిలో 8వేలకు పైగా క్రిములను ఆధునిక పరిజ్ఞానంతో తక్కువ సమయంలో గుర్తించాం.

– అభిరా, కాజోల్, బయో మెరిక్స్ ప్రతినిధులు

సూక్ష్మజీవశాస్త్రంలో మెరుగైన ఉపాధి అవకాశాలు

కార్యశాలలో విద్యార్థులకు అవగాహన

శాస్త్రవేత్తనవుతా

ప్రభుత్వ కళాశాలలో కల్చర్ పరీక్ష చేయాలంటే బాగా సమయం పడుతుంది. చివరి సంవత్సరంలో చేసే ప్రాజెక్టు గడువు పెరిగిపోతుంది. కార్యశాలకు రావడంతో ఒకేసారి 24 సూక్ష్మ క్రిముల పరీక్షలు చేయడం చూసి ఆశ్చర్య పోయా. ఈ సమయంలో సరైన జాగ్రత్తలు తీసుకోక పోతే శరీరంలోకి చొచ్చుకొని వచ్చే అవకాశం ఉంది. కానీ ఆధునిక పరీక్ష విధానంతో ఎంతో భద్రత ఉంది. హైబ్రిడ్ వంగడాలు కనిపెట్టాలనే సంకల్పంతో పీహెచ్‌డీ చేసి శాస్త్రవేత్త కావాలనేది నా లక్ష్యం.

– కె.ఎస్.మహార్షి, ఎస్ఆర్ఆర్ డిగ్రీ కళాశాల

కొత్త విధానాలు నేర్చుకున్నా

పీజీ ప్రాజెక్టులకు చాలా సమయం పడుతుంది. ఒక్కోసారి ఒక పరీక్ష చేయడానికి 2-3 నెలల సమయం పట్టేది. కానీ ఇంత తక్కువ సమయంలో 24 పరీక్షలు చేయడం అద్భుతంగా ఉంది. ఫార్మా రంగంలో ఎంతో ఉపయోగపడతాయి. మనం చేసే పరీక్షల ప్రమాణాలను వెబ్‌తో అనుసంధానం చేయడంతో విధానంలో లోటుపాట్లు వెంటనే తెలుస్తున్నాయి. ఎ.పి.ఐ.కిట్ ఇప్పుడే చూస్తున్నా పీజీ కళాశాలలో అందుబాటులో ఉంటే పరిశోధనలకు ఎంతో ఉపయుక్తంగా ఉంటాయి.

– కోమూరు నీరజాశ్రుతి, లయోలా పీజీ కళాశాల

photos


Vijayawada-520008
DBT (MHRD, GOVT. OF INDIA, NEW DELHI)
STAR COLLEGE SCHEME
SPONSORED
TWO DAY REGIONAL WORKSHOP IN COLLABORATION WITH
BIOMERIEUX INDUSTRIAL MICROBIOLOGY
ORGANIZED BY


WELCOME


Microbial


Andhra Loyola College (Autonomous)

Photo(s)


ANDHRA LOYOLA COLLEGE
ADVANCED


Microbial
TARSONS


TARSONS


ANDHRA LOYOLA COLLEGE


ANDHRA LOYOLA COLLEGE

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 02

S. No. in the College Activity Register:02

Name of the Activity:	INTERNATIONAL OZONE DAY Guest Lecture Academic competitions (Drawing and Slogan Writing)
Place:	Andhra Loyola college
Date & Time:	16th September 2018
No. of students participated:	100
Level:	college

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 03

S. No. in the College Activity Register:03

Name of the Activity:	Guest Lecture on lymphoid organs
Place:	Andhra Loyola college
Date & Time:	30th Nov, 2018
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	college

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 04

S. No. in the College Activity Register:04

Name of the Activity:	Guest Lecture on Impact of cancer awareness on Society
Place:	Andhra Loyola college
Date & Time:	2nd Feb, 2018
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	college

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 05

S. No. in the College Activity Register:05

Name of the Activity:	Industrial Visit

Place:	Cococola- tenali
Date & Time:	8th Feb 2018
No. of students participated:	76
Level: (College/Univ/State/Natl/Int)	College

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 06

S. No. in the College Activity Register:06

Name of the Activity:	Industrial Visit
Place:	Sangam Dairy, Vadlamudi
Date & Time:	31st august 2019
No. of students participated:	76
Level: (College/Univ/State/Natl/Int)	College

Details of the Activity:

The Department of Microbiology organized one day Industrial visit to Sangam Dairy, Vadlamudi on 8th Feb 2018 for all the final year students of the Department. 76 students were accompanied by 2 staff members Mr. K. Balachandra & Ms. M. Glory, Dept of Microbiology.

Sangam Dairy is spread over a large area and it is known for production of various dairy products such as Milk, butter, butter milk, cheese, ghee, lassi, flavoured milks, cream, etc. They explained and shown us right from the milk receiving station, analysis of milk till production of various dairy products.

As a part of their curriculum, final year students need to know about the various procedures followed in dairy Industry as it will also be useful for skill enhancement and employability**.**

ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activity

ACADEMIC YEAR: 2018-19

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 07

S. No. in the College Activity Register:

Name of the Activity:	Industrial Visit
Place:	Agriculture Research station, Amaravathi
Date & Time:	8th Feb 2018
No. of students participated:	76
Level: (College/Univ/State/Natl/Int)	College


SS Bioreactor

ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activity

ACADEMIC YEAR: 2018-19

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 08

S. No. in the College Activity Register:

Name of the Activity:	DBT has organised one day DBT regional workshop on "MUSHROOM CULTIVATION" in collabaration with TANUSREE MUSHROOMS
Place:	Andhra Loyola college
Date & Time:	8th September 2018
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	College


2018-9-18 15:42


2018-9-8 14:50


2018-9-8 15:57


2018-9-18 15:42


2018-9-18 15:42

కాసిపగడ
(నిజాముపాక), న్యూస్‌టుడే

ఆదాయానికి 'పుట్ట' గొడుగు

తక్కువ పెట్టుబడితో ఎక్కువ రాబడి
తయారీపై విద్యార్థులకు శిక్షణ

తయారైన పుట్టగొడుగులు

ప్రస్తుతం ముంచి రుచుతో పట్టణాల్లో చాలా మంది ఆదివారం వస్తున్నాయి. మరో 30 శాతం మంది తరతరాలుగా వస్తున్న వ్యాపారాలు, ఇతర మార్గం చేస్తున్నారు. మిగిలిన 50 మంది చిన్నచిన్న ఉద్యోగాలతో, మొక్కుబడి వేతనాలతో కాలం వెళ్లదీస్తున్నారు. ఇలాంటి వారికి చుట్టిపెట్టి ఆలోచనపై శిక్షణ కల్పిస్తే స్వయం ఉపాధి పొందిన, తమ పొంత కాళ్లపై నిలబడటంతో పాటు మరికొంత మందికి ఉపాధి కల్పించే అవకాశముంది.

ఈ నేపథ్యంలో ఆంధ్ర ఉయాం కళాశాల కేంద్ర ప్రభుత్వ బయోటెక్నాలజీ విభాగం సహకారంతో పుట్టగొడుగుల పెంపకం, విద్యార్థులకు పుట్టగొడుగుల తయారీపై ప్రత్యేకంగా కార్యశాల నిర్వహిస్తున్నారు. ఇందులో పుట్టగొడుగుల్లో ఉండే పోషకాలు, లభ్యత, తయారీ విధానం, మార్కెటింగ్ అంశాలపై నిపుణులు వృత్తిపరంగా పలు విషయాలు వివరించారు.

నిమిషాల్లో ఆహారం..

అతిత వేడిమి కలిగిన ప్రాంతాల్లో మాస్టర్, బాగాలవ్ పుట్టగొడుగులు చాలా చాలా పరుగులు పెట్టిస్తాయి. దీని వాటి తయారీకి గానూ ఇళ్లలో వెలిసిన పుట్టగొడుగులు ఎంతో ఉపయుక్తం. పిండిపట్టి, మరగబట్టి నమిలినట్లుగా ఉండి కొవ్వు లేకుండా, తక్కువ పిండిపదార్థాలు ఉండటంతో మధుమేహం, స్థూలకాయ వ్యాధిగ్రస్తులకు సమతుల ఆహారంగా పుట్టగొడుగులు ఉపయోగపడతాయి. అన్ని రకాల రోగాలకు కాలం తరికాకి అందుబాటులో ఉండటంతో ఇవి ఆహారంగా వెలుతున్నారు.

విద్యావాణి శాఖ చేయూత..

ఆంధ్రప్రదేశ్ ఉన్నత విద్యా మండలి ఉపాధి పొందే నైపుణ్యాభివృద్ధి పథకంలో భాగంగా ఆంధ్ర ఉయాం కళాశాలకు రూ.2 లక్షలను మంజూరు చేసింది. దీనిలో ఇప్పటికే రూ.1.50 లక్షలు ఖర్చు చేశారు. ప్రస్తుతం తొలిదశ పుట్టగొడుగుల పెంపకం పూర్తయింది. ఇందులో ఆసక్తి ఉన్న విద్యార్థులకు ఈ నెల 17 నుంచి 21 వరకు ఐదు రోజులపాటు ఉచిత శిక్షణ ఇవ్వనున్నారు. ప్రస్తుతం తొలిదశ పుట్టగొడుగుల పెంపకం పూర్తయింది. ఇందులో ఆసక్తి ఉన్న విద్యార్థులకు ఈ నెల 17 నుంచి 21 వరకు ఐదు రోజులపాటు ఉచిత శిక్షణ ఇవ్వనున్నారు. ఇందులో పుట్టగొడుగుల్లో ఉండే పోషకాలు, లభ్యత, తయారీ విధానం, మార్కెటింగ్ అంశాలపై నిపుణులు వృత్తిపరంగా పలు విషయాలు వివరించారు.

కర్ర లేని శాఖాహారం

ఏదాండి కర్రలు లేని ఆదర పోషక విలువలు కలిగిన పుట్టగొడుగులు తయారీలో ఆదాయంతో పాటు ఆదాయం సమకూర్చుకోవచ్చు. ప్రస్తుతం వాణిజ్యపరంగా ఎంపికైన ఎనుగుళ్లు 4-5 సెం.మీ. కర్రుంచుకొని క్రమ పద్ధతిలో ఓ పాలిథిన్ కవర్‌లో ఉంచాలి. ప్రతి రోజూ నాలుగు నెలలోపుల్లో మధ్యగా పుట్టగొడుగుల విత్తనాలు(తొక్కులు) ఉంచి మూతను రబ్బరుబ్యాండుతో మూసివేయాలి. ఆరా తయారైన సుమారు రెండు రుతుల రోజు సమయ గారి, సిడి ప్రదేశం ఉండే ప్రదేశాల్లో ఉంచాలి. విత్తనాలు వేసిన 21 రోజుల తర్వాత కవర్లపై బయటకు వస్తాయి. అప్పటి నుంచి 31-40 రోజుల మధ్యన పంటదశకు వచ్చి పుట్టగొడుగులు తయారవుతాయి. వారానికి ఒక్కో విత్తు నుంచి 500-600 గ్రాముల పుట్టగొడుగులు వరుసగా వస్తాయి. ఇలా ఒక్కో విత్తు నుంచి 6-7 సార్లు పుట్టగొడుగులు లభించే అవకాశం ఉంటుంది.

ఇంటిలోనే ప్రారంభిస్తాం

– జి.హిమజ, ఎమ్మెస్సీ వృక్షశాస్త్రం, కొండపల్లి

మంచి మార్కులతో డిగ్రీలు పూర్తి చేసినా ప్రస్తుతం ఉపాధి కరవవుతుంది. ప్రైవేటు ఉద్యోగాలు అంతంత మాత్రమే. ప్రస్తుతం రాష్ట్ర ప్రభుత్వం ప్రైవేటు రంగాలకు పెద్ద పీట వేస్తుంది. ఈ నేపథ్యంలో స్వయం ఉపాధి కింద పుట్టగొడుగుల తయారీపై విద్యార్థుల మక్కువ చూస్తున్నారు. పెట్టుబడికి 5 రెట్లు అధికంగా రాబడి వచ్చే పుట్టగొడుగుల తయారీని ఇంటిలోనే మొదలుపెడతాం. తక్కువ రుచుపుతో ఉపయోగిస్తాం.

మార్కెటింగ్‌కు పూర్తి భరోసా

– తోట ఇయుచంద్, ఎమ్మెస్సీ వృక్ష విద్యార్థి

గత 15 ఏళ్లుగా పుట్టగొడుగుల తయారీ రంగంలో ఉన్నాను. కర్ణాటక, తమిళనాడు, తెలంగాణ, ఆంధ్రప్రదేశ్‌లలో అన్ని ప్రాంతాలకు పరిచయం చేస్తుంటాను. ప్రస్తుత మార్కెట్లో పుట్టగొడుగులకు ఎక్కువ డిమాండ్ ఉంది. నేను స్థాపించిన సంస్థకు రోజుకు 200 కిలోల మేర అవసరమవుతుంటే కేవలం 100 కిలోల మాత్రమే అవసరాలుతున్నాం. వ్యాపారాలు వ్యాపారులకు విద్యాపరంగా సహాయం చేస్తాం. తక్కువ పెట్టుబడికి ప్రయత్నం చేసినవారికి అద్భుత లాభాలు. నిరుద్యోగులకు ఉపాధి కల్పించవచ్చు. ఈ రంగంపై సలహా ఎంతో మంది విద్యార్థులకు, నిరుద్యోగులకు శిక్షణ ఇస్తుంటాం. ఎవరు వ్యాపారం మొదలుపెట్టినా పుట్టగొడుగులను కొనుగోలు చేసే బాధ్యత నాది.

ఉత్తమ ఉపాధి

– మూరి అవినాష్ కుమార్, ఎమ్మెస్సీ, రసాయనశాస్త్రం

పుట్టగొడుగుల తయారీలో ప్రైవేటు సంపాదించడం తక్కువ పెట్టుబడిలో మీడియం పెంచి రోజూ వారీ సంపాదన స్థిరాన్ని. మరింత వ్యాపారాన్ని పెంచి ఎంతో మందికి ఉపాధి అందిస్తా. మా 30 చేలు పెట్టుబడి పెట్టి రూ.30చేల వరకు సంపాదించాను. ప్రయోగాలతో తయారు చేసే ఉత్పత్తులకు మంచి డిమాండ్ ఉంది. త్వరలో పుట్టగొడుగులను ఎగుమతి చేస్తాను.

శిక్షణ పొందుతున్న విద్యార్థులు


2018-9-18 15:42


Andhra Loyola College (Autonomous)
Vijayawada-520008
WELCOME TO THE PARTICIPANTS
ONE DAY WORKSHOP ON
"MUSHROOM CULTIVATION"
PhotoCollage

ANDHRA LOYOLA COLLEGE (AUTONOMOUS), VIJAYAWADA - 8

Brief Report on the Activities

ACADEMIC YEAR: 2019-2020

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 01

S. No. in the College Activity Register:01

Name of the Activity:	Dr. V. Rajkumar, Scientist from Frankfurt University, Germany has delivered a talk on Global Placements in German Education
Place:	Andhra Loyola College (autonomous),
Date & Time:	28th January 2020.
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	College level

Details of the activity

The students of III BSC Biotechnology Participated in the program. He focused on different career oppoutunities and job prospectus in different companies for Life science students. Mr .K Balachandra , Dr. T. Rosemary Department Botany and faculty of Microbiology participated in the guest lecture. Rev .Fr Dr Victor Emmanuel principal Felicitated the resource person , the session end with vote of thanks.

Department/Wing/Unit/Cell: Microbiology

S. No. in the Activity Register: 02

S. No. in the College Activity Register:02

Name of the Activity:	Guest talk on Water Resources and Conservation
Place:	Andhra Loyola College (autonomous),
Date & Time:	31st January 2020
No. of students participated:	100
Level: (College/Univ/State/Natl/Int)	College level

Details of the activity:

Ajeet Kuntal from Mathura. He explained about how the water is being wasted by the humans in various parts of our co8untery and advised students not to waste water in homes. He further emphasised various measures to save or conserve water for our future generations.
Mr .K Balachandra , Head Department of Microbiology and faculty of the Department participated in the guest lecture. Rev .Fr Dr Victor Emmaneaual principal Felicitated the resource person, the session ends with vote of thanks.

A.Y:2022-23

ANDHRA LOYOLA COLLEGE (Autonomous) – Vij- 08

PRESS REPORT

Departments of Microbiology and Food Technology in association with IQAC has conducted a **Two – Day National Seminar** on "**RECENT TRENDS IN MICROBIAL THERAPEUTICS AND PROBIOTICS"**, on 16th and 17th February, 2024. Rev. Fr. G. Kiran Kumar S.J. has inaugurated the ceremony and gave his word of wisdom and blessed the gathering. Mr.B.Srinivasa Raju, Business Head of i20 fever came as a chief guest and given a talk on career guidance and opportunities in the field of Microbiology and Food Technology. Dr. G. Gladvin, Asst. Professor from the Department of Food Science and Technology, Secunderabad and Dr. T. Jagan Mohan Rao from the Department of Biotechnology NIT-AP delivered their talks on Microbial Therapeutics and Probiotics about how they function in our body and how they can be transformed into several other aspects and the benefits that a human body can obtain. The second day of the seminar has started with Dr. P. Harikanth, Scientist at Horticulture Fruit Research Station, Dr. S. Bhavana, Associate Professor and Dr. T. Bharani Krishna, Assistant Professor from Pinnamaneni Dental College shared their knowledge and their thought-provoking conversations has inspired students. The National Seminar has is concluded by Dr. K. Bala Chandra, HOD Microbiology and Food Technology with a formal vote of thanks.


ANDHRA LOYOLA COLLEGE
AUTONOMOUS, VIJAYAWADA

RESERCH FACILITIES

THE department of microbiology is collaborated with the interdisciplinary research lab. The research lab is well equipped with the highly sophisticated instruments like rotaevoporater for separation of compounds and UV-VISIBLE spectrophotometer for graphical representations and well advanced microbiological instruments like vertical laminar air flow for sterilization purpose and gel documentation for the DNA analysis student's undergone minor projects as part of curriculum by utilization of research facilities.

RESEARCH GUIDANCE: The department of microbiology designed and developed the curriculum keeping in view about the current research areas. Students and staff of the Dept use the resources provide by the college such as the interdisciplinary research laboratories well furnished equipment etc in order to carry out the research activities in the form of project works as a part of the curriculum. Staff of the dept motivates the students to apply the curricular aspects in identifying, analyzing and solving the problems and evoke innovative ideas

The curriculum is developed in such a way that it addressed the needs of the society and has relevance to the regional/national developmental needs. Papers such as Environmental and Agricultural Microbiology, Medical Microbiology, Clinical Microbiology are incorporated in the curriculum which consists of topics related to current areas of research to further the development and meet the needs of the society.

GALLERY

FELICITAION BY MANAGEMENT FOR Ph.D achievement