

**STARTED BATCH IN CERTIFICATE COURSE – 2016**

**IBSC STUDENTS - III SEMESTER**



# **CERTIFICATE COURSE**

PHARMACEUTICAL MICROBIOLOGY

**PHARMACEUTICAL MICROBIOLOGY**

**SRI Y.N. COLLEGE (AUTONOMOUS), NARSAPUR**

(Affiliated to Adikavi Nannayya University)

Accredited by NAAC at 'A' Grade With a CGPA of 3.40

Recognized by UGC as 'College With potential for Excellence'

**CERTIFICATE COURSE  
PHARMACEUTICAL MICROBIOLOGY**

**I-Microbial Spoilage and Preservation of pharmaceutical products**

Types of microbial spoilage, Factors affecting the microbial spoilage of pharmaceutical products, Sources and types of microbial contamination, Microbial standards for non-sterile pharmaceuticals, Assessment of microbial contamination and spoilage, Microbial limit tests, Preservative efficacy test: Challenge test.

**II-Sterilization**

Different methods - dry heat, moist heat, gaseous, radiation and filtration. Sterilization monitors, D-value, Z-value., Sterility testing of pharmaceutical products as per I.P

**III-Disinfections:**

Chemical classification of different disinfectants, dynamics and factors affecting on disinfectant action and selection of disinfectants, methods used for evaluation of disinfectant, Phenol coefficient test.

**IV-Aseptic Techniques:**

Designing of aseptic area, sources of contamination in aseptic area, and methods of prevention, laminar air flow.

**V-Microbial assays:**

Importance, assay of antibiotics (Penicillin and Streptomycin) and Vitamin B<sub>12</sub>. MIC

**Recommended Books**


1. Ananthnarayan R. and Panikar C. K. J., (2000). Textbook of Microbiology, 6/Ed., Orient Longman.
2. Aulton M. E., Pharmaceutics-The Science of Dosage Form Design, Churchill Livingstone, 1998
3. Baird, R.M., et al. (eds.), Handbook of Microbiological Quality Control - Pharmaceutical and Medical Devices. Taylor and Francis Inc., London, 2000.
4. Carter S. J., Copper and Gunn's Tutorial Pharmacy, CBS Publishers and Distributors, Delhi, 1996.


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- Edition, Churchill Livingstone Publications, New York, 1996.
6. Hugo W. B. and Russell A. D. Pharmaceutical Microbiology, 6/Ed., Blackwell Science, 1998.
  7. Kokare C. R., Pharmaceutical Microbiology-Principles and Applications, 6/Ed., Nirali Prakashan, Pune, India, 2008.
  8. Indian Pharmacopoeia, Govt. of India, Ministry of Health and Family Welfare. 1996 & 2007.
  9. Pelczar M. J. et al., Microbiology, 5/Ed., McGraw Hill, New York, 1986.
  10. Rawlins E. A., (eds.), Bentley's Textbook of Pharmaceutics, 8/Ed., Bailliere Tindall, London, 1992.
  11. Akers M. J., Parenteral Quality Control, 2/Ed., Marcel Dekker Inc., New York 1994
  12. Brooks. G.F, Butel. J. S., Morse. S. A, Jawetz, Metrics, & Adel bergs Medical Microbiology, 21/Ed., Appleton & Lange Publication, United State of America, 1989
  13. Maloy. S. R., Cronan. J. E., Microbial Genetics, 2/Ed., Narosa Publishing House, New Delhi, 2006.
  14. Ingraham.J. L , Ingraham C. A. , Introduction to Microbiology, 2/Ed., Thomson. Brooks Cole, U.S., 2000
  15. Wiley M. Sherwood L. M., Woolverton C. J. Prescott, Harley & Klein's Microbiology, 7/Ed., McGraw Hill International Edition, 2008.
  16. Frobisher M, HinsDill. R. D, Crabtree K.T., Good Heart. C. R, Fundamentals of Microbiology, 9/Ed., Saunders Company, Japan, 1974.
  17. Casida. L.E., Industrial Microbiology, 2/Ed., New Age International

  
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**PHARMACEUTICAL MICROBIOLOGY-PRACTICALS**

1. Preparation and sterilization of nutrient broth, nutrient agar, slants, stabs and plates.
2. Isolation of pure culture by streak plate technique.
3. Isolation of pure culture by pour plate technique.
4. Study of *Aspergillus*, *Penicillium* and *Candida* species with respect to morphology (wet mount technique).
5. Observation of motility of bacteria by hanging drop technique.
6. Identification of isolated bacteria by simple, negative, Gram, acid fast and spore staining.
7. Determination of microbial count of air by any suitable method.
8. Sterility testing of different pharmaceutical products.

    Injections

    Ophthalmic preparations

9. Antibiotic assays- Penicillin and Streptomycin.
10. MIC (minimum inhibitory concentration)
11. Study of microbial limits of following as per I.P.  
        Aluminum hydroxide gel.  
        Starch.

Microbial study of water by TPC, MPN and IMViC.

**Recommended Books**

1. Baird, R.M., et al. (eds.), (2000). Handbook of Microbiological Quality Control – Pharmaceutical and Medical Devices. Taylor and Francis Inc., London.
2. Cappuccino, J. G. and Sherman N., (1992). Microbiology- A Laboratory Manual, Third Edition, The Benjamin / Cummings Publishing Company.
3. Kokare C. R. (2007). Pharmaceutical Microbiology-Experiments and techniques, Second Edition, Career Publications, Nashik, India
4. Carter S. J., (1996). Copper and Gunn's Tutorial Pharmacy, CBS Publishers and Distributors, Delhi.
5. Collee J. G. et al., (1996). Mackey and McCartney Practical Medical Microbiology, Fourteenth Edition, Churchill Livingstone Publications, New York.
6. Hugo W. B. and Russell A. D., (1998). Pharmaceutical Microbiology, Sixth Edition, Blackwell Science.
7. Indian Pharmacopoeia, (1996 & 2007). Govt. of India, Ministry of Health and Family Welfare.
8. Rawlins E. A., (eds.), (1992). Bentley's textbook of Pharmaceutics, Eighth Edition, Bailliere Tindall, London.
9. Akers M. J., (1994). Parenteral Quality Control, Second Edition, Marcel Dekker Inc., New York.

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T. Sankar  
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V. Sankar  
L. Bindu Math  
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## SECTION - A

**2x10=20M**

- ## SECTION - B

5X4=20M

- ## SECTION - C

**5X2=10M**

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# PHARMACEUTICAL MICROBIOLOGY CERTIFICATE

	Sl.No. <b>0000225</b>
<b>Sri Y.N. College (Autonomous), Narsapur</b>	
	
(Affiliated to Adikavi Nannaya University) Re-Accredited by NAAC AT 'A' GRADE WITH A CGPA OF 3.40 RECOGNISED BY UGC AS "COLLEGE WITH POTENTIAL FOR EXCELLENCE"	
<b>Certificate</b>	
<i>This is to certify that</i>	
Mr./Miss. <u>N. V. Rani . Bommidu II B.sc [CBM]</u>	
has successfully completed Certificate Course in	
<u>Pharmaceutical Microbiology</u>	
conducted by department of	
<u>Microbiology</u>	
during the Year	
<u>2016 - 17</u>	
Head of the Dept. of Microbiology Sri Y. N. College (A) Accredited by NAAC at 'A' Grade With a CGPA of 3.40 Recognised by UGC as 'College With Potential for Excellence'  <b>HEAD OF THE DEPARTMENT</b>	 <b>PRINCIPAL</b>  Sri Y.N. College (Autonomous) NAAC Accredited 'A' Grade College NARSAPUR-534 275, W.G.D., A.P.