



## Industrial Microbiology Summer Training

NTHRYS provides Industrial Microbiology Summer Training for interested candidates at its Hyderabad facility, Telangana. Please refer below for more details including Fee structures, Eligibility, Protocols and Modules etc.,. Please do call / message / whatsapp for more details on 9014935156 [India - +91]

**Eligibility:** BSc / BTech / MSc / MTech / MPhil / PhD in any Life Sciences studying or completed students

### Protocols / Techniques Covered

#### Module - I

1. Isolation & Screening of enzyme [protease] producing microorganisms from soil
2. Isolation & Screening of Antibiotics producing microorganisms from soil
3. Quantitative Analysis of Enzyme levels in cultured media
4. Extraction & Purification of enzymes from culture media
5. Quantitative Analysis of Antibiotic levels in cultured media
6. Extraction & Purification of Antibiotic from culture media

#### Module - II

7. Microbial stainings [Normal & Gram Staining]
8. Production of Bioinsecticide [Biopesticide] from bacillus thuringiensis [BtK] strain
9. Production of Biolarvicide [Biopesticide] from Bacillus thuringiensis israelensis [BtI] strain
10. Production of non-symbiotic nitrogen-fixing bacteria Biofertilizers from Azobacter
11. Colony Forming Unit[CFU] Assay

#### Module - III

12. Bacterial Motility test

#### Screening assays (Biochemical assays)

13. Catalase Test

14. Mannitol Salt Agar Test
15. Blood Agar plates assay
16. Optochin sensitivity test
17. Bacitracin sensitivity test
18. CAMP Test
19. Bile esculin agar test

## **Module - IV**

20. Nitrate broth test
21. Spirit blue agar test
22. Starch hydrolysis test
23. Coagulase test
24. Oxidase test
  - Sugar broth with Durham's tubes test [Carbohydrate metabolism test]
  - Glucose Test
  - Sucrose Test
  - Mannose Test
25. Methyl Red Voges Proskauer Test [MRVP Test]
26. Kligler's Iron Test
27. MacConkey Agar Test
28. Simmons' Citrate Test

## **Module - V**

29. Urea Test
30. Sulfur Indole motility media test
31. Indole Test
32. Kligler's Iron Test

## **Industrial Microbial Fermentation**

33. Industrial Bacterial Fermentation Aspects, Practical Strategies & Approaches
34. Industrial Microbial Fermentation Upstream Processing Strategies
35. Industrial Microbial Fermentation Downstream Processing Strategies

5 Days Duration - Module - I

10 Days Duration - Modules - I & II

20 Days Duration - Modules - I, II & III

1 Month Duration - Modules I, II, III & IV

45 Days Duration - Modules I, II, III, IV & V

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Fee details in Rs per student					
Fee	5 Days	10 Days	20 days	1 Month	45 Days
Individual	19900	20900	26900	33500	40000
Group 2 - 4	18800	18800	25500	32000	38100
Group 5 - 7	18600	18600	25200	31600	37700
Group 8 - 10	18400	18400	25000	31300	37400