

INNOVATIONS BY THE FACULTY IN TEACHING AND LEARNING

INNOVATIONS IN TEACHING

• USE OF ICT

- Teachers use ICT enabled tools for effective teaching-learning processes.
- Use of online Videos, PowerPoint Presentations during regular teaching. It helps the faculties to represent the content in a more demonstrative manner.



Faculty members use the ICT tools for regular teaching for better understanding

Expected Outcome

- ✓ Capture attention of students
- ✓ Clear images for better understanding
- ✓ Motivation to learn more

• USE OF 3D MODELS

Faculty members organised Exhibition for the equipment used in industries. The 3D models prepared by the students were utilized to teach the under graduate students. It significantly helps the students to better understand the concept besides using blackboard teaching



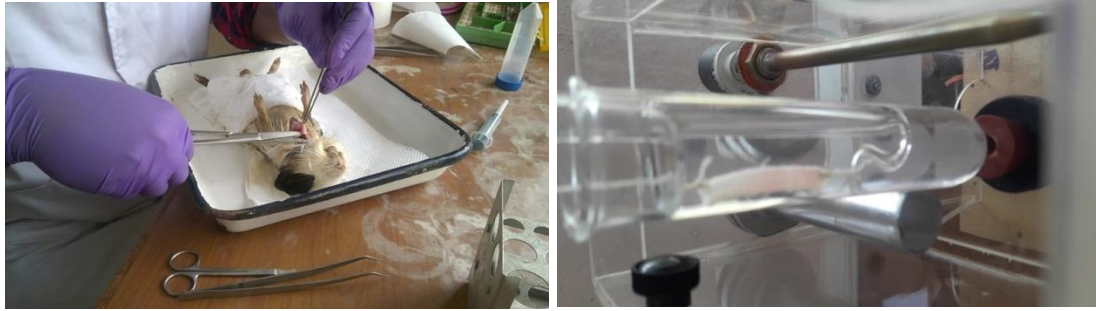
Students prepared 3D models and exhibited before the faculty members and students

Expected Outcome

- ✓ Gain and hold student interest
- ✓ Knowledge becomes permanent as they do the model on their own
- ✓ Psychomotor objective is easily achieved

Video lectures and software in regular teaching

- Use of software in regular teaching learning such as dissolution, optimization etc.
- Animal experimentation through simulation for the subject of pharmacology
- Videos on animal experimentation for the course Basic Laboratory animal sciences were prepared by the concerned faculty member.



Video presentation of animal stuies prepared by our faculty members

- **ACADEMIC INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT PROGRAM – EDII - AIEDP:**

Innovation and Entrepreneurship culture of a country is often regarded as a greatest national advantage in an increasingly competitive world. The Entrepreneurship Development and Innovation Institute, has launched a comprehensive program i.e. Academic Innovation and Entrepreneurship Development Program (IEDP or AIEDP), Trichy for entrepreneurship and innovation development in our campus. The Entrepreneurship Educator Training for Faculty is offered by AIEDP.

The trained faculty will in turn undertake the training to about 100 students. Successful implementation of the program is based on structured set of activities on campus, ideation, opportunity evaluation and selection. EDII-AIEDP provides all possible assistance to promote creative thinking and an entrepreneurial mind set among the students so as to help convert socially relevant innovative ideas into products. It also organizes various competitions throughout the year to encourage students.

Expected Outcome

- ✓ Improving employability skills such that they can grab more opportunities.
- ✓ Students can do projects

- **TRAINING PROGRAMS THROUGH PLACEMENT CELL**

Training Classes for competitive exams such as Civil Services and GATE provide students an opportunity for personal development.



- **TEACHING THROUGH GOOGLE CLASSROOM**

Teachers have created their Google classroom and enrolled students in the same. This method has facilitated teacher student interaction along with online distribution of notes and communication of assignments.

9/22/22, 12:19 PM 2021 UOPI gradebook

2021 UOPI

	Stream	Classwork	People	Grades	
Sort by last name	May 17, 20... Internal Assessm... out of 50	May 12, 20... Manufacture re of... out of 10	Apr 24, 20... Second Internal... out of 40	Mar 29, 20... Internal Assessm... out of 30	Feb 26, 20... Unit 1- Pharmac... out of 10
Class average	40.4	9	32.98	23.23	9.87
19_7034_SANTHOSH KUM...	42	8 Draft	33	21	10
7001_Aarthi T	42	10 Draft	35	23	10
7002_Berney Sephia A	34	9 Draft	35	23	10
7003_Buvaneshwari V	34	9 Draft	34	23	10
7004_Carolin Lincy B J	42	8 Draft	34	24	10
7006_Charulatha k	48	8 Draft	34	26	10
7006_DEEPIKA. R	40	9 Done late	34	23	8 Draft
7007_Dhivakaran. A	44	8 Draft	34	24	10
7008_Dhivya.S	34	9 Draft	24	24	10
7009_DIVYA DARSHINI R	42	8 Draft	34	24	10
7011_GOMATHI M	42	7 Draft	34	26	8
7014_JEGANRAJ.M	34	8 Draft	33	22	8 Draft
7016_Karthik S	34	7 Draft	27	20	10
7017_Kasika S	49	8 Draft	37	24	8 Draft

<https://classroom.google.com/u/1/c/Mjc1NTA2NDU0Nzky/gb/sort-name/all-classwork> 1/3

• DEVELOPMENT OF E-CONTENT

- The subject teachers have prepared subject related e- content and uploaded in slideshare etc., and in their own blog and developed videos based on syllabus for students.

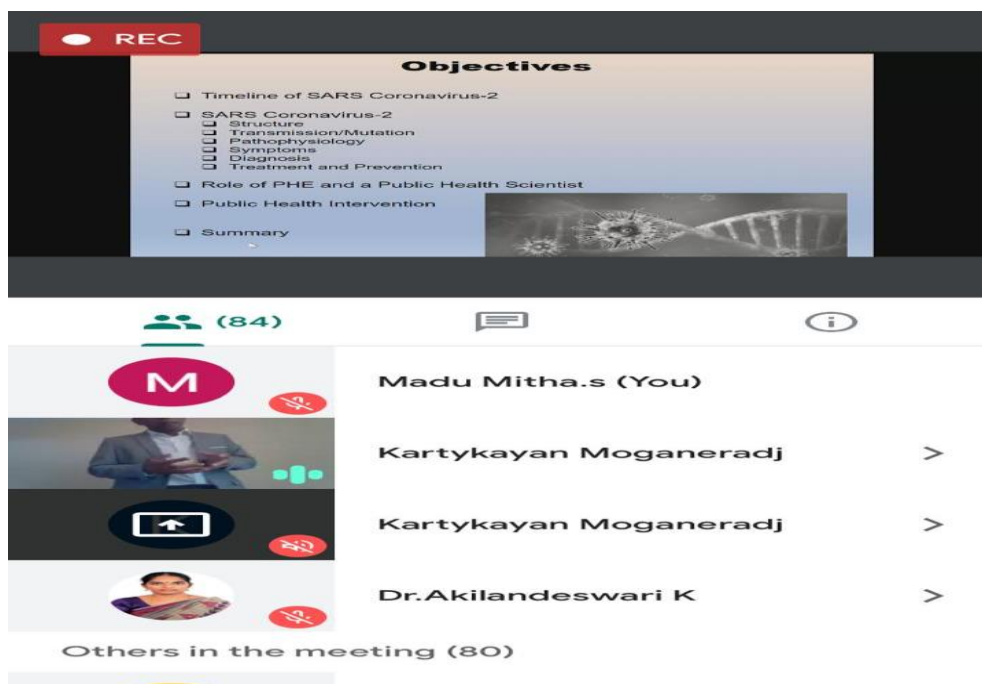
The screenshot shows a Slideshare interface. At the top, there is a search bar and the Slideshare logo. The main content area displays the title "Crystallization in pharmaceutical industry" by user "kavithaaut" on "Feb. 18, 2020" with "4 likes" and "526 views". Below this is a preview of the presentation slide. The slide has a blue background with the word "CRYSTALLIZATION" in large, white, serif font. Below the title, it says "Presented by DR.K.KAVITHA, Asst. Professor, University College of Engineering, BIT campus, Anna University, Tiruchirappalli." At the bottom of the slide, it indicates "1 of 47" slides. The interface also shows a language selector with "English" and "Tamil" options.

Power point presentation prepared and uploaded in slide share website by the faculty members

- Teachers have generated Google forms and other evaluation methods for online assessment of students' knowledge.

- **WEBINAR SERIES FOR STUDENTS**

Faculty members have conducted Webinar series on Pharmaceutical technology discipline for enrichment of domain knowledge of students.



Faculty members of our department organised international webinar during COVID- 19

- **FACULTY MEMBERS ATTENDED E-COURSES ORGANIZED BY NPTEL – SWAYAM.**

- Faculty members have attended various online courses such as courses organized by NPTEL under SWAYAM platform by Ministry of Human Resources Development, Government of India.



Roll No.: NPTEL18HS45S12070223

To: S. LAKSHMANA PRABU
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REL. NO. 9750550965

Duration of NPTEL course: 12 Weeks



No. of weeks of NPTEL Courses	Equivalence of NPTEL course with regular FDP
4	$\frac{3}{2}$ FDP of one week
8	Full FDP of one week
12	$1\frac{1}{2}$ FDP



NPTEL-AICTE
Faculty Development Programme
(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to
S. LAKSHMANA PRABU
for successfully completing the course
Intellectual Property
with a consolidated score of **91 %**



Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

(Jul-Oct 2018)



Prof. Dileep N. Malkhede
Advisor (Research, Institute & Faculty Development)
All India Council for Technical Education

Roll No: NPTEL18HS45S12070223

To validate and check scores: <http://nptel.ac.in/noc>

The candidate has studied the above course through MOOCs mode, has submitted online assignments and passed proctored exams. This certificate is therefore acceptable for promotions under CAS as per AICTE notifications dated 24th July 2018, similar to other refresher / orientation courses. F.No. AICTE / RIFD / FDP through MOOCs / 2017-18

Faculty member of our department completed NPTEL online course

INNOVATIONS IN LEARNING

- **EXPERIENTIAL LEARNING:**

- The students perform theory -based experiments in the practical which help for experiential learning of topics in theory.
- In addition, subject based Assignments, Seminars, Projects and Dissertations are given to students for enhancing their creativity and self-learning capacity.



Rajarathi student of final year of our department presenting a seminar in presence of faculty member

- For easy and better understanding, live examples of day to day experiences are cited, explained in the context of the subject.
- Industrial visits are arranged.



Students of Final year of our Department visited Core Company SANCE Laboratories in Kerala as Industrial Visit

● PARTICIPATIVE LEARNING:

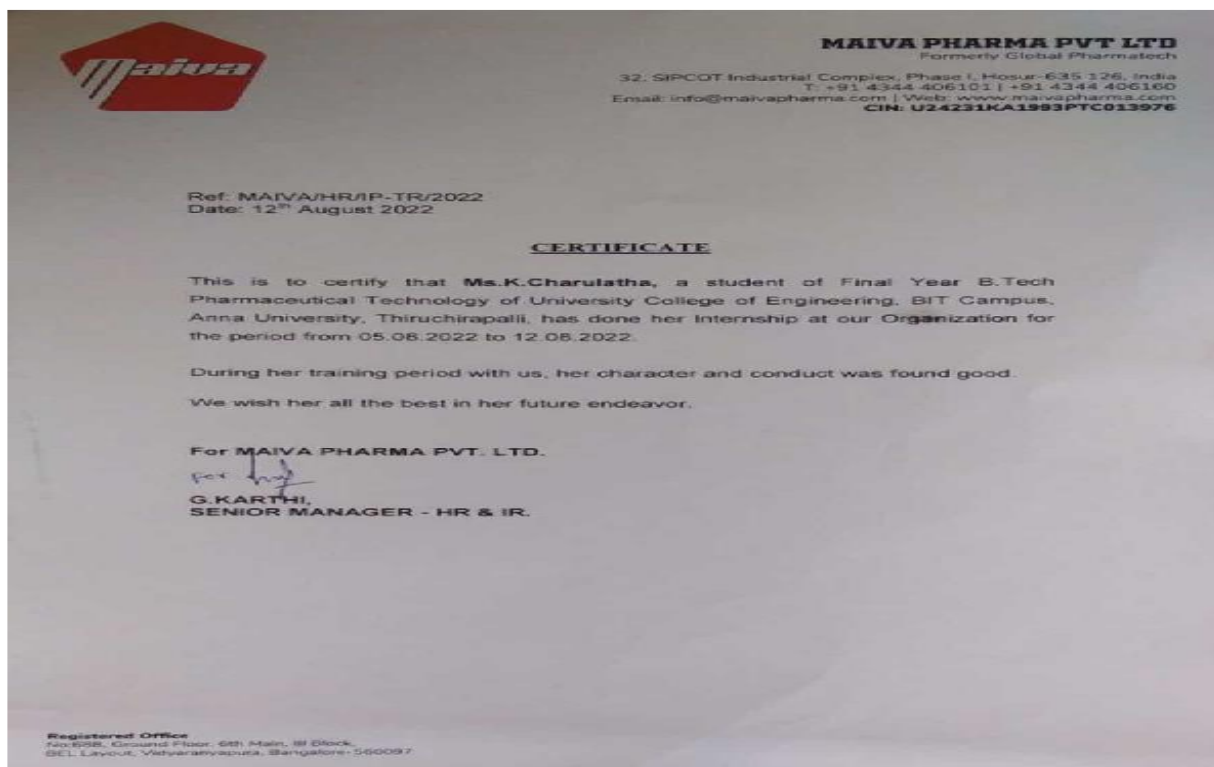
- The students are motivated to participate in co-curricular activities in the department such as subject based quiz competition and poster presentation. In addition, the department supports their participation in intercollegiate competitions.



Pavithran student of our department won the Best E-Poster award in international conference.

- Third and final year students undergo two weeks industrial training. During the industrial training, students get acquainted with the working of various

departments in the pharmaceutical industry and they also get exposure to problems faced by the industry and the solution there upon.



Student's certificate for attending internship in Core Company, MAIVA Pharma Pvt Ltd.



Student's certificate for attending internship at Institute of Forest Genetics and Tree Breeding, Coimbatore.

FT/HRD/SRTP-2020/060

28.08.2020



CERTIFICATE

This is to certify that

VENKATA KRISHNAN P
Appln. No. 6176768

has participated in the
CSIR-Summer Research Training Programme (ONLINE) 2020
at CSIR-Central Food Technological Research Institute, Mysuru,
held during **June - August, 2020** and successfully completed
the project and assignments under the mentorship of

DR. DR.P.VIJAYARAJ
LIPID SCIENCE




Dr. R.P. Singh
Coordinator
CSIR-SRTP@CFTRI

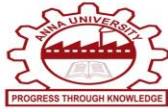

Dr. KSMS Raghavarao
Director
CSIR-CFTRI

ಸಿಎಸ್‌ಐಆರ್‌ಆರ್ - ಕೇಂದ್ರೀಯ ಆಹಾರ ತಾಂತ್ರಿಕ ಸಂಶೋಧನಾಲಯ, ಮೈಸೂರು
सीएसआईआर - केन्द्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान, मैसूर
CSIR - Central Food Technological Research Institute, Mysore
Ministry of Science & Technology, Govt. of India



Student's certificate for attending Summer Research Training programme at CSIR- Central Food Technological Research Institute, Mysuru.

- Friendly and interactive atmosphere is generated in the classroom so that the students fearlessly ask the questions, which are explained by the teacher until they understand. Their level of understanding is assessed by counter questions. If required, teaching is further improvised for easy learning.
- Department encourages students to participate in the oral and poster presentation competitions.



INTELLIGENCE IN PHARMACEUTICAL PACKAGING – EDIBLE FILMS FROM AGRO WASTES

SANTHOSHINI A, SRI AISHWARYA M, NANDHINEESWARI S, Dr.K.KAVITHA
DEPARTMENT OF PHARMACEUTICAL TECHNOLOGY,
UNIVERSITY COLLEGE OF ENGINEERING (BIT CAMPUS),
ANNA UNIVERSITY,
TIRUCHIRAPPALLI – 620 024

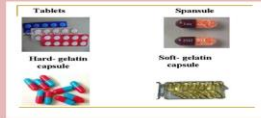


EDIBLE FILMS

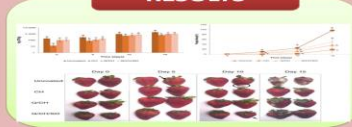
Edible film or coating is a thin layer of edible material formed as protective coating on food, can be directly coated to a product or made into film as a food wrap, to improve barriers, stability, antimicrobial, organoleptic properties and prolong shelf life of various products

WHY EDIBLE FILMS?

Synthetic packaging films based on petrochemicals has led to serious ecological problems due to their total non-biodegradability. Thus, consumer demand has shifted to safe and eco-friendly biodegradable materials, especially from renewable agriculture by-products and food processing industry wastes. .



RESULTS



HOW EDIBLE FILMS PREPARED

Using 2 process – Dry and wet process
➤ Polysaccharide – Chitosan, Carrageenan, Starch, Pectin, Alginate, Cellulose.
➤ Protein – Collagen, Gluten, Soy protein, Milk protein, Egg protein
➤ Lipid – Resin, Wax and Glycerol esters.

EDIBLE FILMS IN PHARMACEUTICS

In the present invention, the edible film package is further taken or eaten or eaten as it is without opening, and after being immersed in water for a predetermined time, it is taken or eaten or eaten as it is without opening. The present invention provides a method for ingesting an oral substance

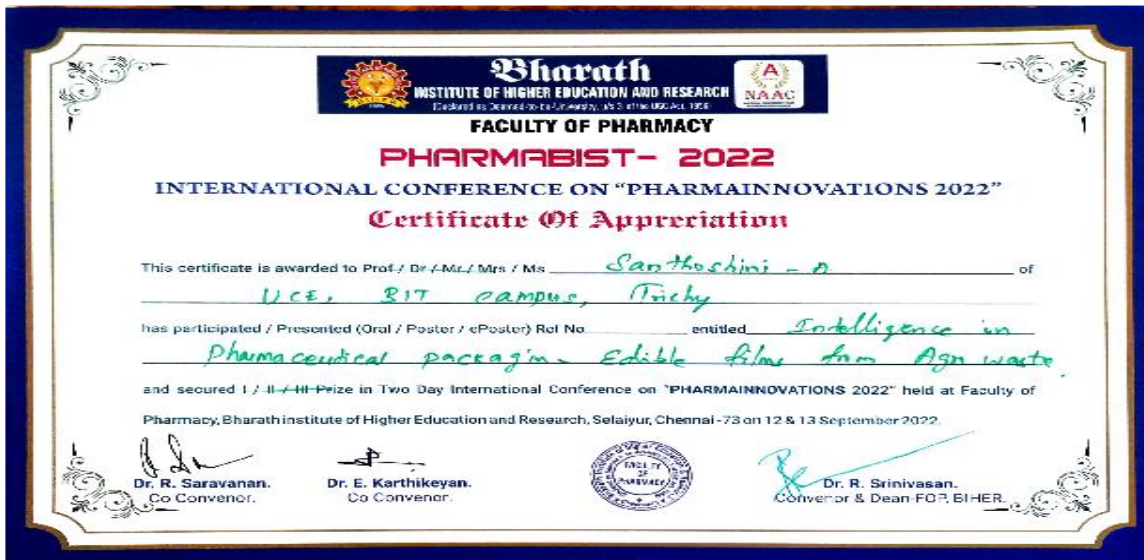
REFERENCES

Baldwin EA, Hagenmaier R, Bai J (eds) (2011) Edible coatings and films to improve food quality. Banker G, Gore A, Swarbrick J (1966) Water vapour transmission properties. J Pharmacy.



Poster prepared by students of our department for presentation in conference

- Students of UG are sent for oral and poster presentation competitions in National seminars/ conferences/ workshops/ symposiums.



Santhoshini student of our department participated and presented a poster in international conference organised by Bharath Institute of Higher Education and Research

- Demonstrations on sophisticated instruments and software are organized by the department.

- Department organizes guest lectures from industries or professional organizations for the students.

Expected Outcome

- ✓ Develops oral communication skills
- ✓ Develops social interaction skills
- ✓ Increases leadership skills of students

● **COLLABORATIVE LEARNING:**

The ‘Collaborative learning’ programme has been successfully operational for the under graduate students, those who are unable to catch up with the pace of regular classes in the department. In this scheme, bright students of the same class act as mentors to weak students in groups and help them in learning, under the supervision of teachers.



Students sit in groups and discuss the topics among them under the supervision of faculty member

Expected Outcome

- ✓ Builds self-esteem in students
- ✓ Creates an active and exploratory learning
- ✓ Enhances student satisfaction with the learning experience.

- **SELF-LEARNING:**

Students are also motivated to follow the lectures uploaded by experts from academia on the web platforms like NPTEL. And also to attend the online NPTEL courses

This certificate is computer generated and can be verified by scanning the QR code given below.

Roll No: NPTEL22CY24514320765

To: KASIKA SOKKALINGAM
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WATTHEESWARAN KOVIL
MAYILADUTHURAI
TAMIL NADU - 605117
PH. NO :9361484195

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite
NPTEL Online Certification
(Funded by the MoE, Govt. of India)

This certificate is awarded to
KASIKA SOKKALINGAM
for successfully completing the course
Medicinal Chemistry

with a consolidated score of **75** %

Online Assignments	23.19/25	Proctored Exam	51.51/75
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Total number of candidates certified in this course: **324**

Prof. M. S. Santhanam
Dean, International Relations and Outreach
IISER Pune

Jan-Apr 2022
(12 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

IISER - Indian Institute of Science Education and Research Pune

Roll No: NPTEL22CY24514320765 To validate and check scores: <https://npTEL.ac.in/noc>

This certificate is computer generated and can be verified by scanning the QR code given below.

Roll No: NPTEL22CY24514320881

To: TAMILSELVAN N
NO.41/2,SATHIBA STREET
DHAMAL VILLAGE
KANCHIPURAM
TAMIL NADU - 631551
PH. NO :7397143654

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite
NPTEL Online Certification
(Funded by the MoE, Govt. of India)

This certificate is awarded to
TAMILSELVAN N
for successfully completing the course
Medicinal Chemistry

with a consolidated score of **66** %

Online Assignments	22.66/25	Proctored Exam	42.86/75
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Total number of candidates certified in this course: **324**

Prof. M. S. Santhanam
Dean, International Relations and Outreach
IISER Pune

Jan-Apr 2022
(12 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

IISER - Indian Institute of Science Education and Research Pune

Roll No: NPTEL22CY24514320881 To validate and check scores: <https://npTEL.ac.in/noc>

This certificate is computer generated and can be verified by scanning the QR code given below.

Roll No: NPTEL22CY24S24321607

To: HARISH M
THAZHAMPOO VATTAM, BALAPPALNATHAM
POOIGULAM, VANIVARBADI
VELLORE
TAMILNADU - 635710
PH. NO :9159282857

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

NPTEL Online Certification
(Funded by the MoE, Govt. of India)

This certificate is awarded to
HARISH M
for successfully completing the course
Medicinal Chemistry
with a consolidated score of **57** %

Online Assignments	22.88/25	Proctored Exam	34.5/75
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Total number of candidates certified in this course: **324**

Prof. M. S. Santhanam
 Dean, International Relations and Outreach
 IISER Pune

Jan-Apr 2022
 (12 week course)

Prof. Andrew Thangaraj
 NPTEL Coordinator
 IIT Madras

IISER - Indian Institute of Science Education
 and Research Pune

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Roll No: NPTEL22CY24S24321607 To validate and check scores: <https://npTEL.ac.in/noc>

Students attended NPTEL online certification courses

Expected Outcome

- ✓ It helps to augment the knowledge potentials of students
- ✓ It will enhance their employability skills.

● **DISCUSSION CLASSES:**

Once in a fortnight the students are allowed to talk on any topic they are interested in. This discussion class will motivate the students to speak in spite of their stage fear. The other students of the class will involve in the topic as a discussion.

● **PROBLEM BASED LEARNING/ PROJECT BASED LEARNING:**

To inculcate the critical thinking ability among the students the following problem based learning activities are carried out by faculty.

- Problem solving during classroom teaching and lab hours.
- Project work (Research work) is assigned to final year UG students.



Formulation and evaluation of antimicrobial gel embedded with plant derived silver nanoparticles

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Accepted: 12-08-2018

ABSTRACT: In this article, a formulation of antimicrobial gel by using the biosynthesized silver nanoparticle [AgNP] from Piper betle L. leaf extract. Most of the researchers have reported about the nontoxic biosynthesis of silver nanoparticles using several microorganism and plant extracts. These nanoparticles exhibit completely improved properties based on their characteristics - size, distribution, morphology and many applications. In this research, the synthesis of silver nanoparticles using Piper betle L. Has investigated. We have synthesized silver Nano particles using silver nitrate solution with piper betle L. Extract, and characterized. Further, the synthesized nanoparticles were characterized by UV-Vis spectroscopy, Dynamic Light scattering, Particle size analysis, Zeta potential analysis, Fourier Transform Infrared, and Scanning Electron Microscopy analysis. The antimicrobial efficacy was also determined by disc diffusion method with *Escherichia coli* and *Pseudomonas aeruginosa* using the silver nanoparticle. The synthesized nanoparticle has more effect against various disease causing pathogens.

Keywords: Piper betle L. leaf; Biosynthesis; Silver Nanoparticles; Antimicrobial activity; and Antimicrobial gel

1 Introduction

The field of nanotechnology is one of the upcoming areas of research in the modern field of material science. Nanoparticle show completely improved properties such as size, distribution and morphology of the particle size, novel applications of nanoparticles and nanomaterials are emerging rapidly in various fields.

Metal nanoparticles have a high specific surface area and possess unique characteristics like catalytic activity, optical, electronic, antibacterial and magnetic properties. They are gaining the interest of scientist for their novel methods of synthesis. Over the past few years, the synthesis of metal nanoparticles is an important topic of research in modern material science. Nano-crystalline silver particles find tremendous applications in the field of high sensitivity biosensors, detection, diagnostics, antimicrobials, therapeutics, catalysis and micro-electronics. However, there is still need for economic commercially viable as well as environmentally clean

synthesis route to synthesis the silver nanoparticles. Silver is well known for possessing an inhibitory effect toward many bacterial strains and microorganism. In medicines silver and silver nanoparticles have simple application including skin ointments, cream and gel containing silver to prevent infection of burns and open wounds, medical devices and implants prepared with silver impregnated polymers. Nanoparticles can be synthesized using various approaches including chemical, physical and biological. Although chemical method of synthesis required short period of time for synthesis of large quantity of nanoparticles. This method requires capping agents for size stabilization of the nanoparticles. Chemicals used for nanoparticle synthesis are non eco-friendly. The need for environmental non-toxic synthetic products for nanoparticles synthesis leads to the developing interest in biological approaches which are free from the use of toxic chemicals and by-products. Many biological approaches

Research paper published in journal by the students under the guidance of faculty member

Expected Outcome

- ✓ Development of self-learning
- ✓ Enhancement of presentation skills
- ✓ Expansion of subject knowledge