HINDUSTHAN EDUCATIONAL AND CHARITABLE TRUST
HICET

HINDUSTHAN

COLLEGE OF ENGINEERING AND TECHNOLOGY

JUNE 2019 – NOV 2020, NEWSLETTER – 01

"CHEMERSATZ"

Official Newsletter of Department of Chemical Engineering

STUDENT ASSOCIATION OF CHEMICAL ENGINEERING

Student Editors:

Mr Karthick L (II Year)

Mr John Bernic J (II Year)

Coordinator:

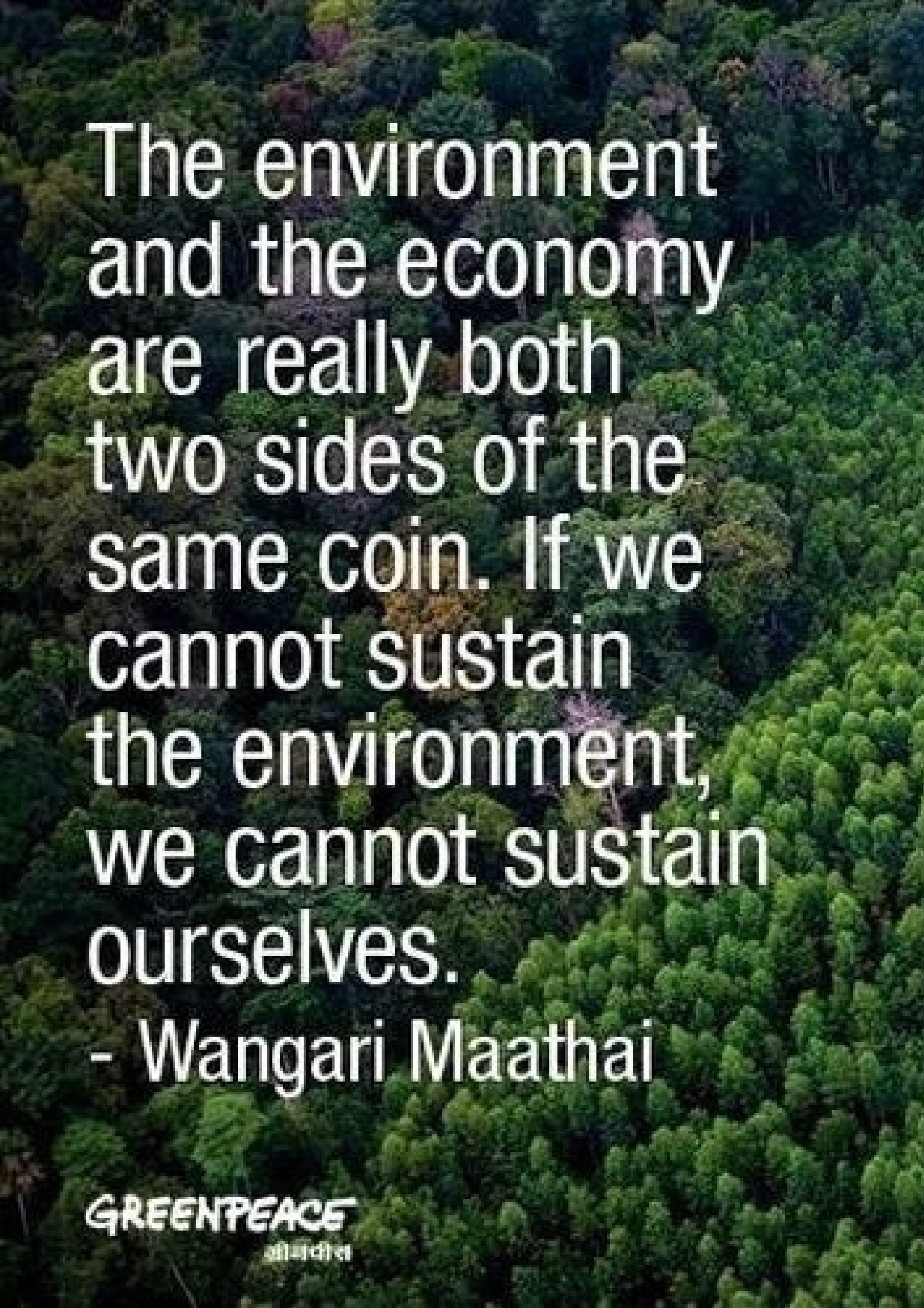
Mr Rajkumar A, AP

Convenor:

Dr Seenuvasan M, HoD

ABOUT CHEMICAL ENGINEERING AT HICET

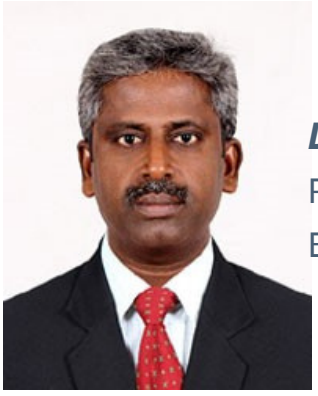
Department of Chemical Engineering was introduced in the academic year 2019-20, with the intake of 60 students which offers a UG programme (B. Tech) in Chemical Engineering. Students in the department are experiencing with the highest quality education via required infrastructure, well qualified & motivating faculty and state-of-art facilities for various laboratories. To empower the students in their domain specific, the department is offering certain value added and industry ready courses like solid material handling, waste water treatment, chemical process simulation and AI for chemical engineers beyond their curriculum. The department is kept in touch with the industries in fields of Petroleum, Petrochemicals, agriculture for Fertilizers and Pesticides, Pharmaceuticals, dyes and pigments, etc for placing and creating job opportunities for the students.


The environment and the economy are really both two sides of the same coin. If we cannot sustain the environment, we cannot sustain ourselves.
- Wangari Maathai
GREENPEACE

“START A CAREER AND BE PINNACLED AS UNIVERSAL ENGINEERS”

HoD'S Message

“The main job of chemical engineers to convert chemicals, raw materials and energy to useful product for living. Thus, they require the knowledge on chemistry, physics, mathematics, biology and nanotechnology. As the chemical engineering opens up the wide range of job opportunity, our aim to mould every student to be an expert. By keeping this in mind, we designed the core curriculum by blending chemical fundamentals & its allied branches along with practical skills. Our core curriculum which mainly covers the all the aspects of chemical engineering by converting the feed into products, process control, process design and simulation, safety and hazards, process economics, AI and its applications in chemical engineering and pollution control. We organize the workshops, conferences, seminars, guest lectures and other co-curricular activities to create an opportunity to the students to interact with industry experts and academia”.



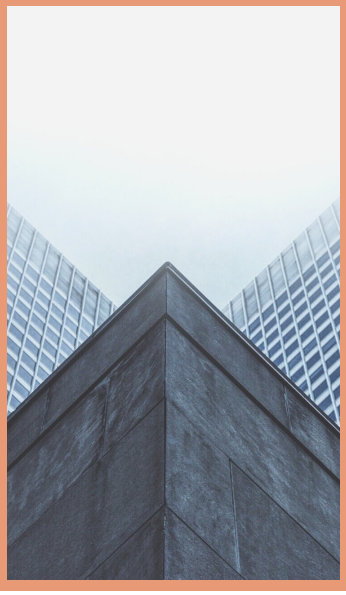
Dr Seenuvasan M, M.E, Ph.D
Professor & Head of Chemical Engineering

Vision of the Department

To produce dynamic Engineers with excellence in process operations and problem-solving skills to meet the challenges and drive for the growth of the nation.

Mission of the Department

- To foster engineers with quality engineering education to meet the challenging and developing technology in the chemical sectors.
- To prepare students for leadership in diverse careers, create knowledge and provide multidisciplinary solutions to broad societal problems.
- To emphasize on the practical aspects of research, innovation and ensuring the realities of sustainable development.



PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Chemical Engineering will be able to:

- Participate as leaders in their fields of expertise and in activities that support service and economic development nationally and throughout the world.
- Pursue continued life-long learning through professional practice, research and training programs in the field of chemical engineering and science.
- Solve real-life problems in a broad perspective to fulfill ethical, economic, environmental and social responsibilities.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Graduates of Chemical Engineering will be able to:

- Apply the knowledge of unit processes and operations for the design of Chemical plant.
- Acquire working knowledge of process safety and environment issues in Chemical Processes.
- Innovate and integrate the new ideas of Chemical Engineering processes as a team for the complex problems and development of chemical industries.

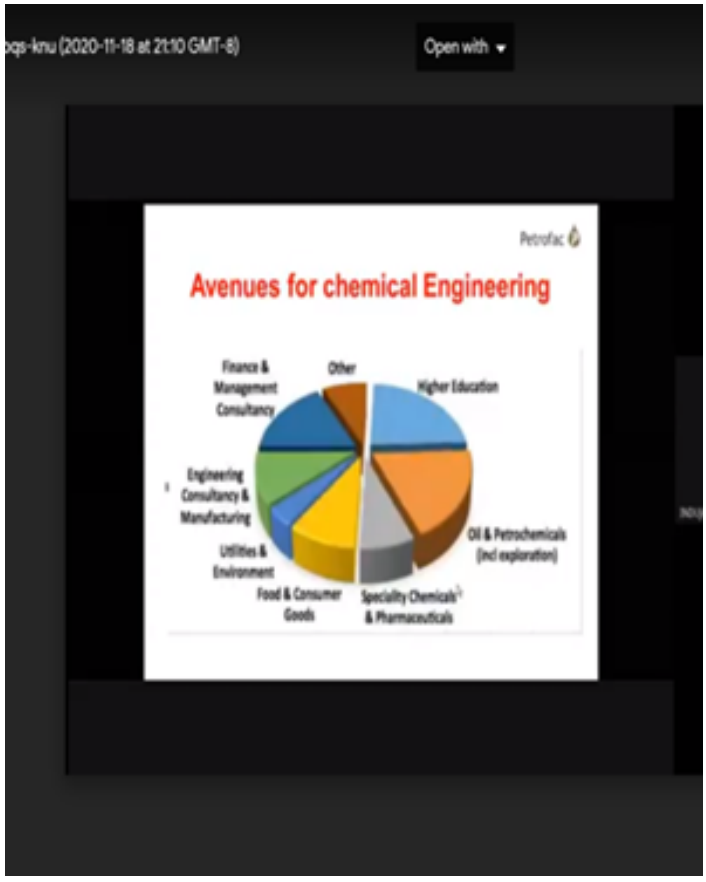
"CHEMERSATZ"

TABLE OF CONTENTS

INAUGURATION OF

"CHEMERSATZ"

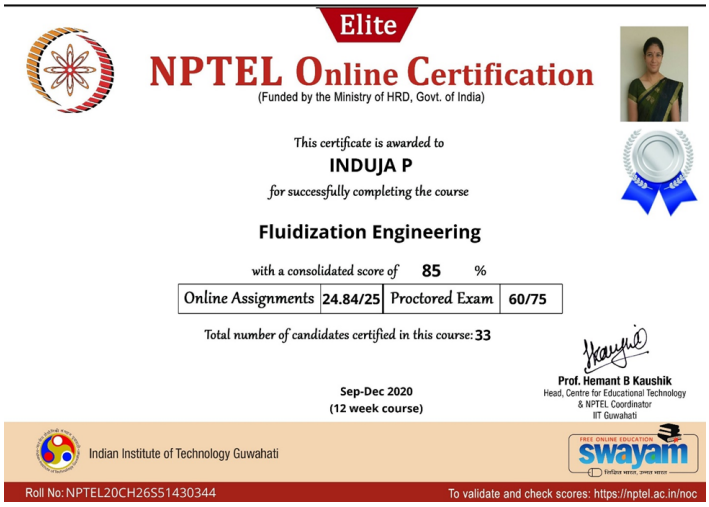
Students Association of Chemical Engineering



Students Association of Chemical Engineering **"Chemersatz"** was Inaugurated by **Dr Matheshwaran P**, AGM & HOD – Process, Petrofac Engineering Pvt Ltd on 18.11.2020 and he shared his experience and talked about the detailed view of Approach on Process Engineering in Chemical Industry .

ACHIEVEMENTS AND AWARDS

Dr Seenuvasan M, Prof & Head Recognized for his service as a Guest Editor of Special issue entitled "Recent Advances in Environmental Science and Pollution Research" Published in "Journal of Environmental Biology" .



Ms Induja P, AP/Chem Engg., has successfully completed the 12-week (Sep-Dec 2020) NPTEL Course (Fluidization Engineering) with Elite Grade.

Dr Seenuvasan M, Prof & Head Recognized for his service as a Session Chair for the technical session in the international Conference (ICRAMM) during 20-21st November 2020.

Dr Seenuvasan M, Prof & Head Recognized for his contribution towards a lecture on "Nanotechnology and its applications" in the 10 days "Internship Program on Nanotechnology" during 20-30th July 2020.

ACHIEVEMENTS AND AWARDS

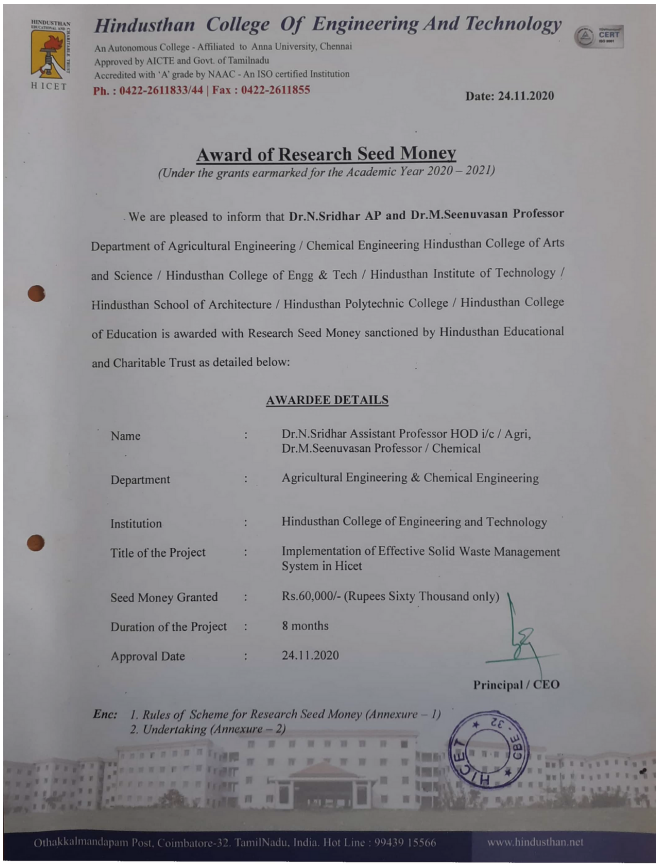
Dr Seenuvasan M, Prof & Head Successfully completed the online, non-credit specialization course “English for Research Publication Purposes” in Coursera on 14th July 2020.

Dr Seenuvasan M, Prof & Head Appreciated for sharing his knowledge as a Resource Person at the Webinar “Fundamental Concepts and Application of Heat Exchanging Equipment” on 21st June 2020.

Dr Seenuvasan M, Prof & Head Recognized for his contribution as the invited speaker and overwhelming response of 600+ participants for the webinar “Magnetic Nanocarriers for Enhanced Enzyme Activity” on 30th May 2020.

Dr Seenuvasan M, Prof & Head Recognized as an Elsevier Reviewer for Elsevier Journal “Chemical Engineering Journal” since March 2020.

ACHIEVEMENTS AND AWARDS



Hindusthan College Of Engineering And Technology

An Autonomous College - Affiliated to Anna University, Chennai
Approved by AICTE and Govt. of Tamilnadu
Accredited with 'A' grade by NAAC - An ISO certified Institution
HICET
Ph. : 0422-2611833/44 | Fax : 0422-2611855

Date: 24.11.2020

Award of Research Seed Money

(Under the grants earmarked for the Academic Year 2020 – 2021)

We are pleased to inform that **Dr.N.Sridhar AP and Dr.M.Seenuvasan Professor** Department of Agricultural Engineering / Chemical Engineering Hindusthan College of Arts and Science / Hindusthan College of Engg & Tech / Hindusthan Institute of Technology / Hindusthan School of Architecture / Hindusthan Polytechnic College / Hindusthan College of Education is awarded with Research Seed Money sanctioned by Hindusthan Educational and Charitable Trust as detailed below:

AWARDEE DETAILS

Name	:	Dr.N.Sridhar Assistant Professor HOD i/c / Agri, Dr.M.Seenuvasan Professor / Chemical
Department	:	Agricultural Engineering & Chemical Engineering
Institution	:	Hindusthan College of Engineering and Technology
Title of the Project	:	Implementation of Effective Solid Waste Management System in Hicet
Seed Money Granted	:	Rs.60,000/- (Rupees Sixty Thousand only)
Duration of the Project	:	8 months
Approval Date	:	24.11.2020

Principal / CEO

Enc: 1. Rules of Scheme for Research Seed Money (Annexure – 1)
2. Undertaking (Annexure – 2)

Othakkalmandapam Post, Coimbatore-32, TamilNadu, India. Hot Line : 99439 15566 www.hindusthan.net

Dr M Seenuvasn, Prof & Head, awarded with a Research Seed Money of Rs. 60,000/- for the Implementaion of Effective Solid Waste Management System in HiCET, Valley Campus sanctioned by Hindusthan Educational Trust

Dr Seenuvasan M, Prof & Head Appreciated for sharing his knowledge as a Resource Person in the plenary session and chaired a technical session in the National Conference held on 21-22nd February 2020.

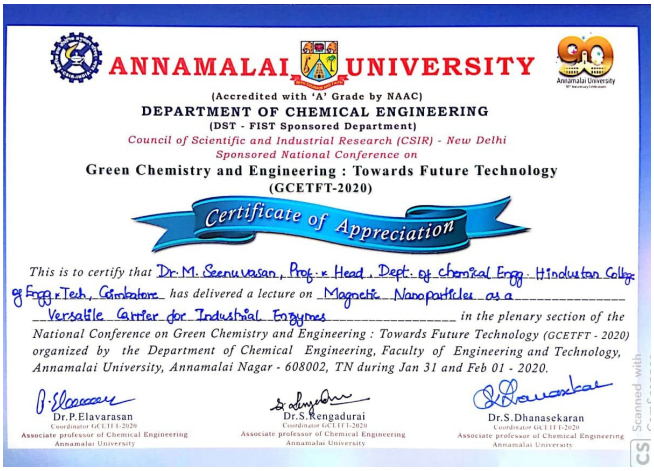
Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12 B
Coimbatore-641 043, Tamil Nadu, India

Certificate of Appreciation

Department of Food Processing and Preservation Technology
(Accredited by NBA)
School of Engineering
Two Day National Conference
on
Role of IoT in Food Processing and Agricultural Sector - FPAS' 2020

This is to certify that Dr./Ms./Mrs./Mr. M. Seenuvasan., Professor & Head of Dept. of Chemical Engg., Hindusthan College has been the Chairperson/Lead Speaker in the two days National Conference on "ROLE OF IoT IN FOOD PROCESSING AND AGRICULTURE SECTOR" held on 21st & 22nd February 2020.

Er. S. Ramani & Er. R. Sharmeela, Co-ordinators
Dr. A. Lovelin Jerald, Organizing Secretary
Dr. S. Maragatham, Convenor



ANNAMALAI UNIVERSITY

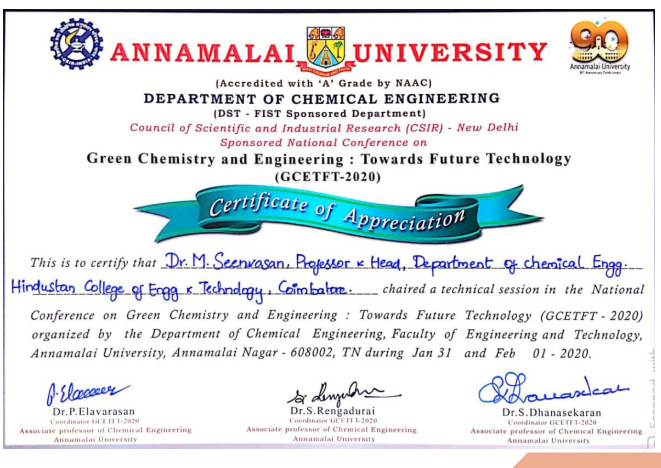
(Accredited with 'A' Grade by NAAC)
DEPARTMENT OF CHEMICAL ENGINEERING
(DST - FIST Sponsored Department)
Council of Scientific and Industrial Research (CSIR) - New Delhi
Sponsored National Conference on
Green Chemistry and Engineering : Towards Future Technology
(GCETFT-2020)

Certificate of Appreciation

This is to certify that Dr. M. Seenuvasan, Prof. & Head, Dept. of Chemical Engg. Hindustan Colleg of Engg & Tech, Coimbatore has delivered a lecture on Magnetic Nanoparticles as a Versatile Carrier for Industrial Enzymes in the plenary section of the National Conference on Green Chemistry and Engineering : Towards Future Technology (GCETFT - 2020) organized by the Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar - 608002, TN during Jan 31 and Feb 01 - 2020.

Dr.P.Elavarasan, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University
Dr.S.Rengadurai, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University
Dr.S.Dhanasekaran, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University

Dr Seenuvasan M, Prof & Head Recognized for his service as a Session Chair for the technical session in the DST Sponsored National Conference during 31st January & 1st February 2020.



ANNAMALAI UNIVERSITY

(Accredited with 'A' Grade by NAAC)
DEPARTMENT OF CHEMICAL ENGINEERING
(DST - FIST Sponsored Department)
Council of Scientific and Industrial Research (CSIR) - New Delhi
Sponsored National Conference on
Green Chemistry and Engineering : Towards Future Technology
(GCETFT-2020)

Certificate of Appreciation

This is to certify that Dr. M. Seenuvasan, Professor & Head, Department of chemical Engg. Hindustan College of Engg & Technology, Coimbatore. chaired a technical session in the National Conference on Green Chemistry and Engineering : Towards Future Technology (GCETFT - 2020) organized by the Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar - 608002, TN during Jan 31 and Feb 01 - 2020.

Dr.P.Elavarasan, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University
Dr.S.Rengadurai, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University
Dr.S.Dhanasekaran, Coordinator GCETFT-2020, Associate professor of Chemical Engineering, Annamalai University

Dr Seenuvasan M, Prof & Head Recognized for sharing his knowledge as a Resource Person in the plenary section of DST Sponsored National Conference during 31st January & 1st February 2020.

CONTINUOUS LEARNING

- 08.06.2020 to 19.06.2020 - **Dr Seenuvasan M** attended Faculty Development Programme (FDP) through online on “Advances in Biotechnology and Chemical Engineering” organized by Department of Biotechnology and Chemical Engineering, Vel Tech High Tech Dr. Rangarajan Dr.Sakunthala Engineering College, Chennai.
- 21.08.2020 to 30.08.2020 - **Dr Seenuvasan M** attended Faculty Development Programme (FDP) through online on “Green and Sustainable Technology for Next Generation” in webinar orgnaized by Department of Chemical Engineering, SSN College of Engineering, Chennai.
- 25.07.2020 to 26.07.2020 - **Dr Seenuvasan M** attended Webinar on "Publication Process for Novice Researchers" organized by Claspin Tech, Bangalore.
- 05.08.2020 to 06.08.2020 - **Dr Seenuvasan M** attended Webinar on "An art of writing a research article and research proposal" organized by Claspin Tech, Bangalore.
- 27.07.2020 to 01.08.2020 - **Dr Seenuvasan M** attended Faculty Development Programme (FDP) through online on "Integrated Planning for NIRF ranking and Best Practices in Engineering College" organized by HiCET, Coimbatore.
- 26.10.2020 to 31.10.2020 - **Dr Seenuvasan M** attended Webinar on AICTE Sponsored STTP on "An Awareness Programme - Green Engineering Concepts and Treatment Method for Farmers on Department of Chemical Engineering, Paavai Engineering College, Namakkal.
- 21.6.2020 - **Dr Seenuvasan M** attended Webinar on "Advancement in Chemical Engineering, Petroleum, Oil and Gas organized by Department of Chemical Engineering, Kalasalingam Academy of Research & Education, Virudhunagar .
- 21.6.2020 - **Dr Seenuvasan M** attended Webinar on "Innovative approach in Chemical Engineering" organized by Department of Chemical Engineering, Kalasalingam Academy of Research & Education , Virudhunagar .

CONTINUOUS LEARNING

- 17.08.2020, 18.08.2020 & 20.08.2020 - **Dr Seenuvasan M** attended workshop on "Aligning yourself to the Publication Process" organized by Elsevier.
- 11.07.2020 - **Dr Seenuvasan M** attended MHRD's Leadership Talk organized by MHRD'S Innovation Cell.
- 03.08.2020 - **Dr Seenuvasan M** attended Panel Discussion on Autonomy organized by Master Soft ERP Solutions Pvt. Ltd.
- 26.10.2020 to 31.10.2020 - Mr Rajkumar A attended AICTE Sponsored one-week STTP on "Big-data Analytics and Cyber Security in Smart Grid Monitoring and Control" at Department of Electrical and Electronics Engineering, Knowledge Institute of Technology, Salem, Tamilnadu.
- 02.11.2020 to 6.11.2020 - **Mr Rajkumar A** attended AICTE Training And Learning (ATAL) Academy Sponsored five day's Online FDP on "Waste Technology" at L.D.College Of Engineering.
- 16.11.2020 to 21.11.2020 - **Mr Rajkumar A** attended AICTE sponsored One Week Online Short Term Training Program (STTP) through online, Phase-I on "Repair and Rehabilitation of Structures".
- 16.11.2020 to 21.11.2020 - **Mr Rajkumar A** attended AICTE sponsored one week online STTP on "Additive Manufacturing for Medical and Aerospace Applications" organized by Department of Mechanical Engineering, Shri Vishnu Engineering College for Women (Autonomous), Bhimavaram, Andhra Pradesh in online.

CONTINUOUS LEARNING

- 16.11.2020 to 20.10.2020 - **Mr Rajkumar A** attended DST SERB sponsored Five days Online Short Term Training Programme (STTP)on “Electrochemical Technology for Environmental Treatment and Clean Energy Conversion - ECTCEC 2020” Organized by Department of Chemical Engineering, National Institute of Technology Calicut.
- 19.10.2020 to 24.10.2020 - **Mr Rajkumar A** attended AICTE sponsored Six Days Online Short Term Training Programme on “Changing Paradigms on Food Security and Food Sufficiency” organized by College of Food and Dairy Technology, Koduveli, Chennai - 600 052.
- 30.11.2020 to 05.12.2020 - **Mr Rajkumar A** attended AICTE Sponsored online Short Term Training Programme (Phase II) on “Demystifying Blockchain Technology & Cyber Security Threats: Issues and Challenges”by Department of Computer Science and Engineering, S.A. Engineering College, Thiruverkadu, chennai-600077.
- 15.10.2020 to 23.10.2020 - **Mr Rajkumar A** attended and successfully completed MHRD/AICTENational IP Literacy week organised under Kalam Program for IP Literacy and Awareness and Successfully Passed the Assessments for Sessions.
- 05.10.2020 to 11.10.2020 - **Ms Induja P** attended seven days International FDP on Sustainable Developemtn and Research Opportuiies in food and chemical engineering organized by Hindusthan College of Engineering and Technology, Coimbatore.

CONTINUOUS LEARNING

- 10.10.2020 - **Ms Induja P** attended virtual seminar on Food Additivs and its Health Impact organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 23.10.2020 – **Ms Induja P** attended virtual seminar on Process Plant Overview and Control Valve Basics organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 07.11.2020 - **Ms Induja P** attended a webinar on Intellectual Property Rights, Startup & innovations organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 11.11.2020 – **Ms Induja P** attended online seminar on Overview on Gasoline Engine Management System organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 16.11.2020 - **Ms Induja P** attended webinar on CO Attainment Evaluation, IQAC – NBA/Programme Assessment and OBE Implementation organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 16.11.2020 to 21.11.2020 - **Ms Induja P** attended a Six days online AICTE sponsored (AQIS) Short Term Training Program on Outcome Based Education for Technical Education organized by Rajagiri School of Engineering & Technology, Kerala.
- 18.11.2020 – **Ms Induja P** attended a Athmanibhar Bharat – Webinar Series on “Growth Opportunities in Emerging Sectors” organized by Hindusthan College of Engineering and Technology, Coimbatore.
- 23.11.2020 to 28.11.2020 – **Ms Induja P** attended One week AICTE sponsored (AQIS) Short Term Training Programme on Augumentaion of Smart Materials and Technologies for Commercial Energy Harvestations organized by Kongu Engineering College, Erode.

International Faculty Development Programme

Organized International Virtual online Faculty Development Programme on Sustainable Development and Research Opportunities in Food and Chemical Engineering during 05.10.2020-11.10.2020 (1 Week)

09.10.2020

Dr Raja T

Professor in Chemical Engineering,

Salalah College of Technology, Sultanate of Oman

International Invitee

08.10.2020

Dr Balasubramanium V M

Professor & Editor in Chief (Journal of Food Process Engg)

USA

International Invitee

09.10.2020

Dr Anjineyulu Kothakota

Scientist, CSIR (NIIST),

Thiruvananthapuram

National Invitee

10.10.2020

Dr Mishra NN

Adjunct Professor,

Delhousie University, Canada

International Invitee

10.10.2020

Dr Sivamani Selvaraaju

Lecturer

Salalah College of Technology, Sultanate of Oman

International Invitee

11.10.2020

Dr Padmesh TVN

Associate Professor, Manipal International University

Manipal International University, Malaysia

International Invitee

11.10.2020

Dr. Anil Kumar Madhava

Senior Scientist,

CSMCRI, CSIR, Gujrat

National Invitee

05.10.2020

Dr Balakrishnan M

Associate Professor,

TNAU, Coimbatore

National Invitee

06.10.2020

Dr Krishnakumar T

Scientist,

ICAR (CTCRI), Thiruvananthapuram

National Invitee

07.10.2020

Dr Pandiselvam R

Scientist,

ICAR (CPCRI), Kasaragod

07.10.2020

Dr Kaliramesh Siliveru

Assistant Professor,

Kansas State University, USA

EXPERT LECTURE

Mr Rajkumar A, AP/Chem Engg., Organized a Virtual Seminar on "Process Plant Overview and Control Valve Basics" on 21st October 2020.

Materials Science & Engineering C 103 (2019) 109832

Contents lists available at ScienceDirect

Materials Science & Engineering C

journal homepage: www.elsevier.com/locate/msec

Improvisation of diffusion coefficient in surface modified magnetite nanoparticles: A novel perspective

Carlin Geor Malar[a], Muthulingam Seenuvasan[b,c,*], Kannaiyan Sathish Kumar[d,**]

[a] Department of Biotechnology, Rajalakshmi Engineering College, Thandalam, India
[b] Department of Petrochemical Engineering, SVS College of Engineering, Coimbatore, India
[c] Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore, India
[d] Department of Chemical Engineering, SSN College of Engineering, Kalavakkam, India

Biochemical Engineering Journal 158 (2020) 107574

Contents lists available at ScienceDirect

Biochemical Engineering Journal

journal homepage: www.elsevier.com/locate/bej

Review on surface modification of nanocarriers to overcome diffusion limitations: An enzyme immobilization aspect

Carlin geor malar[a], Muthulingam Seenuvasan[b,*], Kannaiyan Sathish Kumar[c,*], Anil Kumar[d], R Parthiban[c]

[a] Department of Biotechnology, Rajalakshmi Engineering College, Thandalam, India
[b] Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore, India
[c] Department of Chemical Engineering, SSN College of Engineering, Kalavakkam, Tamilnadu, India
[d] Analytical and Environmental Science Division, CSIR-Central Salt & Marine Chemicals Research Institute, Gujarat, India

Special Issue

DOI: http://doi.org/10.22438/jeb/40/4(SI)/JEB_01

Journal Home page : www.jeb.co.in ★ E-mail : editor@jeb.co.in
Journal of Environmental Biology
JEB p-ISSN: 0254-8704 e-ISSN: 2394-0379 CODEN: JEBIDP

Characterization of squid pens extracted beta-chitosan coated magnetite nanoparticles

Paper received: 30.10.2018 Revised received: 06.03.2019 Accepted: 16.03.2019

Authors Info

Carlin Geor Malar[1], M. Seenuvasan[2,3]* and K. Sathishkumar[4]

[1]Department of Biotechnology, Rajalakshmi Engineering College, Chennai-602 105, India

[2]Department of Petrochemical Engineering, SVS College of Engineering, Coimbatore-642 109, India

[3]Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore-641 032, India

[4]Department of Chemical Engineering, SSN College of Engineering, Chennai-603 110, India

*Corresponding Author Email : msvasan.chem@gmail.com

Abstract

Aim: Squid pens, a feather shaped structure in squid species, are waste material which are successfully utilized for the production of industrially important chitosan. The present study deals with characterization of squid pens extracted beta-chitosan coated magnetite nanoparticles

Methodology: Beta-chitosan was extracted from squid pens. The extracted beta-chitosan was used as a surface amino coating polymer onto solvothermally prepared magnetite nanoparticles (MNs). Various characterization analysis was performed to understand the properties of MNs, chitosan and beta-chitosan coated MNs (β_c-MNs).

Results: Peak at 448 nm in UV-Spectrum corresponded the magnetite and required absorption peaks in IR spectrum showed perfect magnetite and chitosan formation. Also, electron micrographs revealed the flaky structure of chitosan, spherical structure of MNs and less aggregated structures of beta-chitosan coated MNs (β_c-MNs). Diffraction pattern from X-ray diffraction (XRD) suggested the formation of MNs and β_c-MNs and crystallite size (13.9 nm) was determined using Debye-Scherrer equation. Superparamagnetic behaviors of MNs were observed from the magnetization curve of vibrating sample magnetometer (VSM) plot.

Interpretation: The characteristic studies revealed the extraction of beta-chitosan from squid pens and formation of MNs and β_c-MNs.

Key words: Beta–Chitosan, Magnetite, Nanoparticles, Squid pens

Special Issue

DOI: http://doi.org/10.22438/jeb/40/4(SI)/JEB_10

Journal Home page : www.jeb.co.in ★ E-mail : editor@jeb.co.in
Journal of Environmental Biology
JEB p-ISSN: 0254-8704 e-ISSN: 2394-0379 CODEN: JEBIDP

Adsorption of nickel ions by surface modified magnetite nanoparticles: Kinetics study

Paper received: 30.10.2018 Revised received: 06.03.2019 Accepted: 16.03.2019

Authors Info

Carlin Geor Malar[1], M. Seenuvasan[2,3]* and K. Sathishkumar[4],

[1]Department of Biotechnology, Rajalakshmi Engineering College, Chennai-602 105, India

[2]Department of Petrochemical Engineering, SVS College of Engineering, Coimbatore-642 109, India

[3]Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore-641 032, India

[4]Department of Chemical Engineering, SSN College of Engineering, Chennai-603 110, India

*Corresponding Author Email : msvasan.chem@gmail.com

Abstract

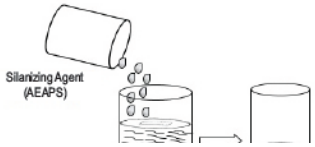
Aim: In this study, the adsorption ability of surface modified magnetite nanoparticles was investigated.

Methodology: Magnetite nanoparticles (MNs) were prepared by solvothermal method and the surface was modified by 3-(2-Aminoethylamino) propyldimethoxymethylsilane (AEAPS) and utilized as an adsorbent against nickel ions in aqueous solution. Characteristic studies were performed to study the various properties of MNs before and after surface modification. Ni_2^+ adsorption was studied as a function of contact time, initial concentration and adsorbent dosage at neutral pH and constant temperature (100 °C).

Results: Presence of required characteristic peaks in IR spectrum and X-ray diffraction (XRD) patterns revealed formation of magnetite and surface modification. Spherical and defined morphology of surface modified MNs (aMNs) was studied through electron micrographs. The kinetic data obeyed the first-order equation.

Interpretation: Surface modified MNs can be used for the efficient removal of Ni_2^+ from aqueous solution. Also, the kinetics study revealed the adsorption capacity of MNs against nickel ions.

Key words: Adsorption, Kinetics, Magnetite, Nanoparticles, Nickel ions



Special Issue

DOI: http://doi.org/10.22438/jeb/40/4(SI)/JEB_02

Journal Home page : www.jeb.co.in ★ E-mail : editor@jeb.co.in
Journal of Environmental Biology
JEB p-ISSN: 0254-8704 e-ISSN: 2394-0379 CODEN: JEBIDP

Utilizing *Borassus flabellifer* sprout peel sugars by *Pseudomonas fluorescence* for degradation of textile effluent

Paper received: 30.10.2018 Revised received: 06.03.2019 Accepted: 16.03.2019

Authors Info

Joyce Hellen Sathya[1]*, N. Franklin[2], N. Balaji[3], S. Selvaraj[2] and M. Seenuvasan[4]

[1]Department of Biotechnology, Prathyusha Engineering College, Chennai - 602 025, India

[2]Department of Biotechnology, Madha Engineering College, Chennai - 600 069, India

[3]Department of Petrochemical Engineering, SVS College of Engineering, Coimbatore- 642 109, India

[4]Department of Chemical Engineering, Hindusthan College of Engineering and Technology, Coimbatore-641 032, India

*Corresponding Author Email : joycehellensathya@gmail.com

Abstract

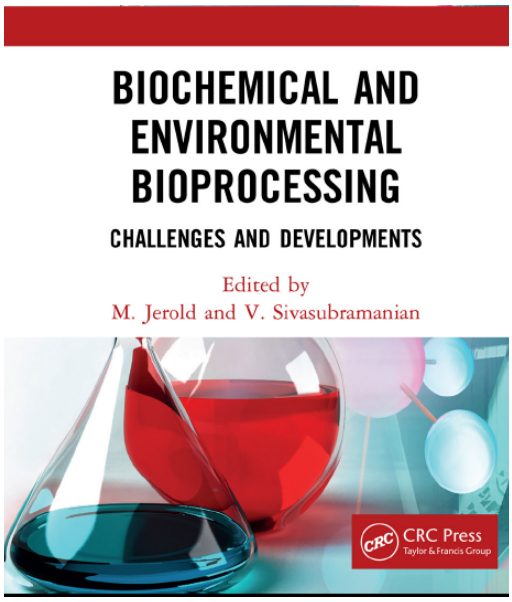
Aim : The present investigation deals with the extraction of sugars from tuber peels of *Borassus flabellifer* and their subsequent utilization for the growth of a bacterial isolate. The study also aims to degrade the textile effluent using *B. flabellifer* sprout peel sugar supplemented bacterial isolate.

Methodology : The isolate was screened from a textile effluent and was identified as *Pseudomonas fluorescence*. The sugar peels were pretreated by dilute acid hydrolysis and extracted sugars were used as supplement for the growth of *Pseudomonas fluorescence*. The textile effluent was treated with the bacterial isolate for degradation. The decolorization and degradation was monitored using UV-Visible spectrophotometry, Fourier Transform Infrared (FT-IR) Spectroscopy and Gas Chromatography With Mass Spectrometry (GC-MS).

Results : *B. flabellifer* sprout peel sugar was supplemented as a macronutrient to support the growth of *Pseudomonas fluorescence* for the degradation of textile effluent. Higher decolorization efficiency (95%) within 7 days under aerobic condition at pH- 7.0 and temperature 35°C was achieved.

Interpretation : The present study showed that the growth of *Pseudomonas fluorescence* was possible in tuber peel extracted sugars which was used as a carbon source. The bacteria grown in tuber peel extracted sugars was able to decolorize and degrade the textile effluent.

Key words : *Borassus flabellifer*, Degradation, Extracted sugars, *Pseudomonas fluorescence*



CRC Press
Taylor & Francis Group
Boca Raton London New York
CRC Press is an imprint of the
Taylor & Francis Group, an informa business

8 Diffusion Limitations in Biocatalytic Reactions *Challenges and Solutions*

Carlin Geor Malar, Muthulingam Seenuvasan and Kannaiyan Sathish Kumar

CONTENTS

9 Recent Advancements and Applications of Nanotechnology in Expelling Heavy Metal Contaminants from Wastewater

Muthulingam Seenuvasan, Venkatachalam Vinothini, Madhava Anil Kumar and Ayyanar Sowmiya

CONTENTS

CHAPTER 6

Recovery of chitosan from natural biotic waste

Muthulingam Seenuvasan[1], Gopalakrishnan Sarojini[2], Myilsamy Dineshkumar[2]
[1]Department of Chemical Engineering Hindusthan College of Engineering and Technology, Coimbatore, India; [2]Department of Petrochemical Engineering, SVS College of Engineering, Coimbatore, Tamil Nadu, India

1. Introduction

Resource retrieval is a separation process which involves selective removal of materials from waste with the intention of whirling them into a valuable product. Waste is viewed as a potential source, and recovery from waste involves the initiation of the new product by reducing the environmental disposal. To develop an eco-friendly green environment, it is significant to convert the way of usage of resources. A modern food industry produces a huge amount of inedible waste during the treatment of seafood. Generation of wastes is

Current Developments in Biotechnology and Bioengineering. https://doi.org/10.1016/B978-0-444-64321-6.00006-9

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202041044259
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	12/10/2020
APPLICANT NAME	HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
TITLE OF INVENTION	POLYESTER RESIN LOADED NANOCOMPOSITE MATERIAL FOR CARBON DIOXIDE SEQUESTRATION AND THE METHOD OF PRE
FIELD OF INVENTION	CHEMICAL
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	msvasan.chem@hindusthan.net
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	12/10/2020
PUBLICATION DATE (U/S 11A)	16/10/2020
REPLY TO FER DATE	15/04/2021

Application Status	
APPLICATION STATUS	Application in Hearing

View Documents

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202041044700
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	14/10/2020
APPLICANT NAME	S. KAVITHA
TITLE OF INVENTION	PRODUCTION OF BIODEGRADABLE PLASTIC FROM ORGANIC FLOUR AND THE METHOD OF PREPARATION THEREOF
FIELD OF INVENTION	POLYMER TECHNOLOGY
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	kavitha212418@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	14/10/2020
PUBLICATION DATE (U/S 11A)	30/10/2020
REPLY TO FER DATE	02/09/2021

Application Status	
APPLICATION STATUS	Reply Filed. Application in amended examination

View Documents

Students corner

Academic Toppers
(upto II Sem)

Pragadeswar Babu V

(CGPA - 9.52)

Gokul Jothi R

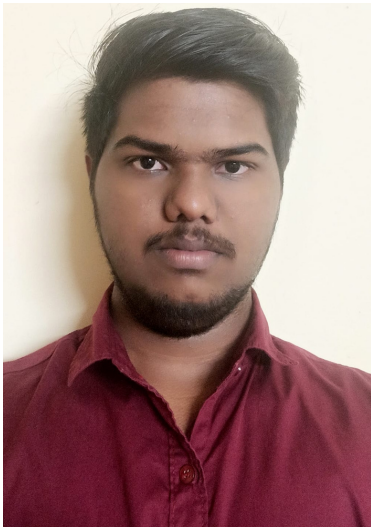
(CGPA - 9.38)

Easwari A B

(CGPA - 9.31)

Miruthula T

(CGPA - 9.24)



Karthick L

(CGPA - 9.10)

STUDENTS CORNER

PARTICIPATION IN EXTENSION ACTIVITIES

HINDUSTHAN EDUCATIONAL AND CHARITABLE TRUST
HECT

GOVERNMENT OF TAMIL NADU

राष्ट्रीय सेवा योजना
NATIONAL SERVICE SCHEME

TAMILNADU FOREST DEPARTMENT

ENVIRONMENTAL AWARENESS PROGRAMME – AUGUST 2020

CERTIFICATE OF PARTICIPATION

This Is Certify That Selvan/ Selvi MOHAN RAJ.M Of Hindustan college of engineering and technology otthakalamandaam Has Participated In Online Environmental Awareness Programme Jointly Organized By National Service Scheme, Hindusthan College Of Engineering And Technology, Coimbatore With Tamilnadu Forest Department.

Held on: august 30, 2020

Mr.N.Prasanna Venkatesan, M.E.
NSS Programme officer.

Mr. M.Rajesh, B.E.
Forester,
Tamilnadu Forest Department.

Mr Mohan Raj, II B.Tech Chemical Engg., participated an Environmental Awareness programme on August 30, 2020 jointly organized by Tamilnadu Forest Department and National Service Scheme, Hindusthan College of Engineering and Technology, Coimbatore.

HINDUSTHAN COLLEGE OF ENGINEERING & TECHNOLOGY

(An autonomous Institution)

(Approved by AICTE, Affiliated to Anna University, Chennai, Accredited with "A" Grade by NAAC)

Coimbatore 641 032

राष्ट्रीय सेवा योजना

NATIONAL SERVICE SCHEME

Certificate of Appreciation

This is to Certify that Mr./Ms. MOHAN RAJ.M
Department of Chemical engineering
has participated in the "NATIONAL SERVICE SCHEME" Activities and
Achieved Grade Point of B+ Grade in the Academic Year of
2020-2021(Odd Semester)

Points - 7.3

Mr. N. Prasanna Venkatesan M. E.
NSS Program Officer

Mr Mohan Raj, II B.Tech Chemical Engg.,participated in the National Service Scheme activities and achieved grade point of B+ in the Academic Year 2020-2021, Hindusthan College of Engineering and Technology, Coimbatore.

Carbon Capture: What It Is, Why It's Important for the Environment?

Although we've been aware of the environmental impact of factories and manufacturing plants for decades now, little has been done about it over the years. It wasn't until recently that the government has looked to enforce stricter rules surrounding factories and air pollution. States such as California are looking to implement carbon capture systems — though the need for it has become somewhat of a debate.

What is carbon capture?

If you aren't familiar with technology that enables "carbon capture," an article from Common Dreams it effectively extracts carbon dioxide directly from smoke stacks, which heavily contribute to the ongoing climate crisis.

There are a few different types of carbon capture technology — Direct Air Capture (DAC) has been financially backed by both Bill Gates and Elon Musk. Using massive fans, it sucks the CO2 from the air into a filter, adds heat, turns it into gas, and buries it underground.

Bioenergy with Carbon Capture Storage (BECCS) is another method of carbon capture. According to Princeton Student Climate Initiative (PSCI), it extracts carbon from the air at pollutive sites and creates a cleaner alternative to fossil fuel energy, basically closing the loop.

BECCS involves relying on biomass (or burning organic matter) as an energy resource that is considered carbon neutral, according to PSCI. Then, the CO2 that comes from that would be stored and eventually used later on.

Cheaper forms of carbon capture revolve around reforestation, or planting more trees. By planting upwards of half a million trees, according to NASA, we could capture 205 gigatons of carbon, reducing the amount of carbon in the atmosphere by about 25 percent. The trees, however, should be native and oftentimes, they have to be "mature" to sequester said carbon — so it's a lengthy endeavor with many rules to abide by.

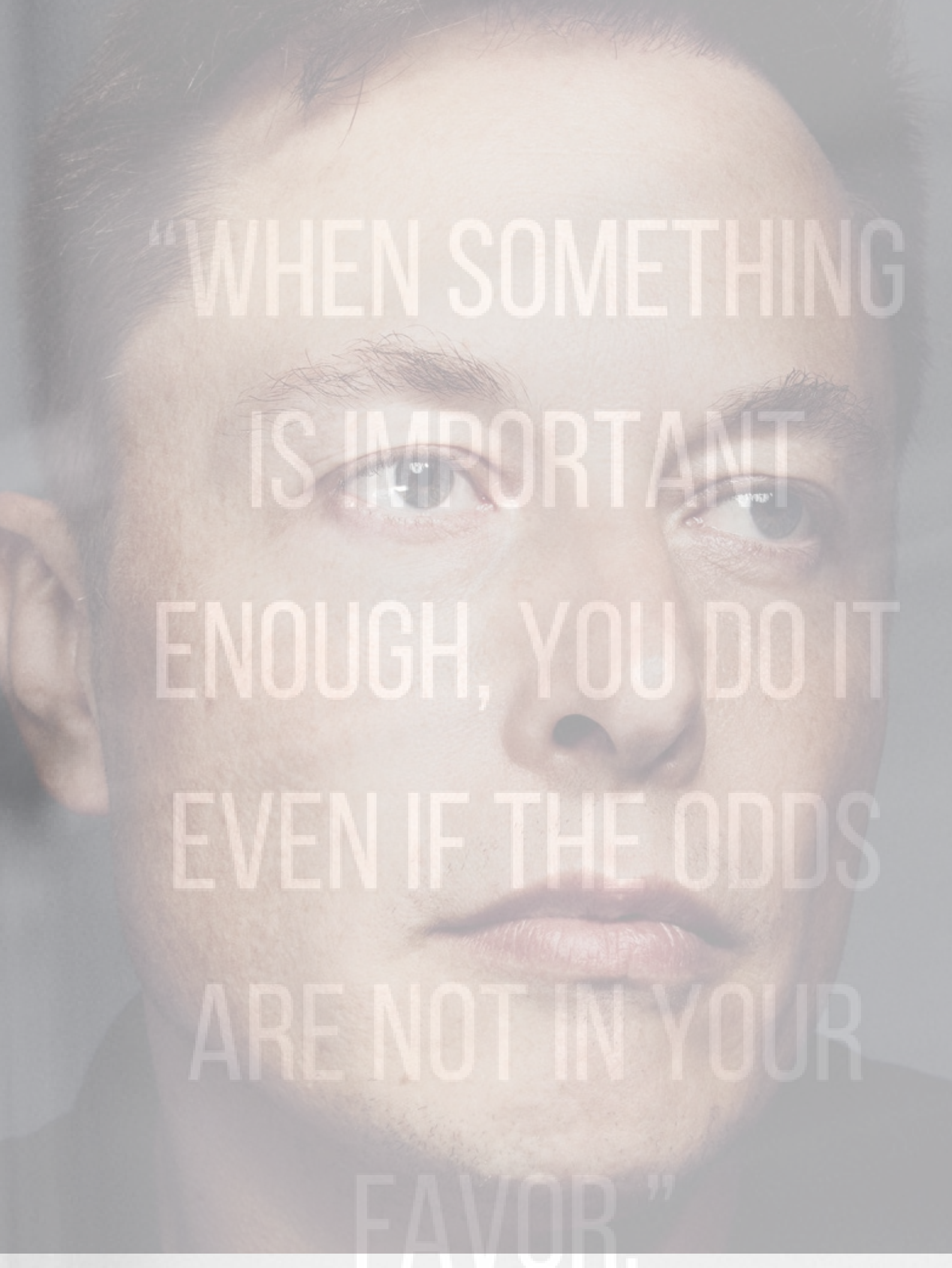
Why is carbon capture controversial?

Although carbon capture sounds like the ideal sustainable method, it's controversial for a few reasons. According to Grist, California State Assembly Member, Al Muratsuchi, created A.B. 1395 to increase the Sunshine State's sustainability efforts and to achieve net-zero emissions by 2045, but one of the most contentious aspects is carbon capture.

Many say it encourages the continued use of fossil fuels, still creating pollution and inhibiting the push to go totally electric.

The technology that enables carbon capture is also incredibly expensive. Although it's being financially supported by some of the U.S.'s most famous billionaires, it's a pricey endeavor that may not ultimately pay off in the long run — or help us meet our goals in transitioning to actually clean energy.

It could be worth it in the meantime, while we're still relying on fossil fuels. Though electric, solar, and wind are clearly cleaner means of energy.


"WHEN SOMETHING
IS IMPORTANT
ENOUGH, YOU DO IT
EVEN IF THE ODDS
ARE NOT IN YOUR
FAVOR."

A Little History

Sir Issac Newton

He was allegedely stuck on the head by an apple falling from a tree which eventully lead to his developing three laws of motion know as:

- Newtons Law of Motion

4 YEAR B.TECH IN CHEMICAL ENGINEERING

@

HINDUSTHAN

COLLEGE OF ENGINEERING AND TECHNOLOGY