

Curriculum Vitae



Name: **Dr. TUNGABIDYA MAHARANA**

Designation: **LECTURER**

Mobile: +91-7205207778

E-mail: mtungabidya@gmail.com

Subject: **CHEMISTRY**

Professional Experience:

Duration / Position held	Institution	Nature of Work
April, 2011- till date Lecturer	Ravenshaw University	Teaching and Research
Sep, 2010 to April, 2011 Guest faculty in chemistry	Ravenshaw University	Teaching
July, 2005 to June, 2010 NDF (AICTE)	IIT Roorkee	Teaching and Research
Jun, 2004 to July, 2005 JRF (CSIR)	IIT Roorkee	Research
May, 2002 to Jun, 2004 JRF (CSIR)	Ravenshaw University	Research

Education:

Degree	Institution	Specialization	Year	Division / Grade/
B.Sc.	Utkal University	Phy, Math, Chem (Hons)	1999	1 st Div. Hons.
M.Sc.	Ravenshaw University	Chemistry (Adv. Inorganic Chemistry, Physical & Organic Chemistry)	2001	1 st Div.
M.Phil	Ravenshaw University	Adv. Inorganic Chemistry	2003	1 st Div.
Ph.D.	Indian Institute of Technology, Roorkee	Polymer Science and Technology	2010	-

Title of the Ph.D. Thesis: Synthesis and Characterization of Polylactic Acid and its Nanoparticles.

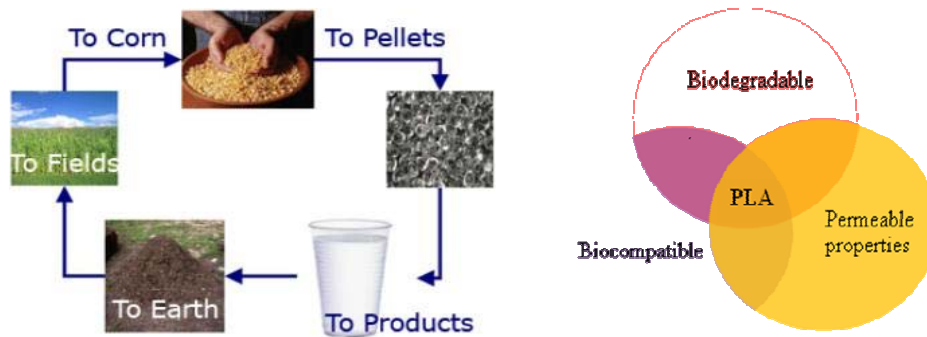
Area (s) of specialization:

- Carbon dioxide sequestration
- Polymer synthesis
- Biodegradable polymers

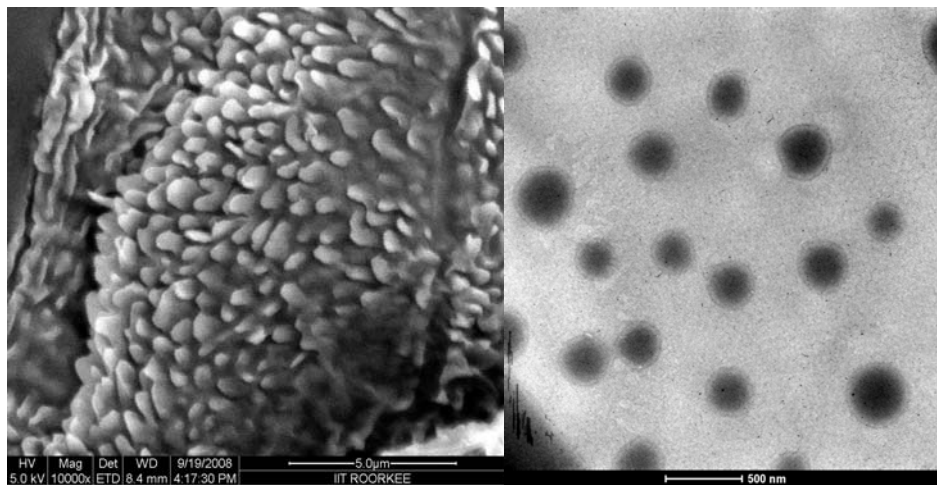
- The development of novel biocompatible and bioassimilable metal complexes for Ring Opening Polymerization (ROP) of cyclic esters,
- Polymers as intelligent and smart material.
- Kinetics and mechanism of homogenous and heterogeneous catalysis

Significant Contribution through Research:

Our research group is involved in the synthesis of biodegradable polymers for different applications like packaging and biomedical. We are also involved in carbon dioxide sequestration and formation of cyclic carbonates from carbon dioxide. We are also involved in synthesizing single metal / mixed metal alkoxide as initiator for ROP of cyclic esters.

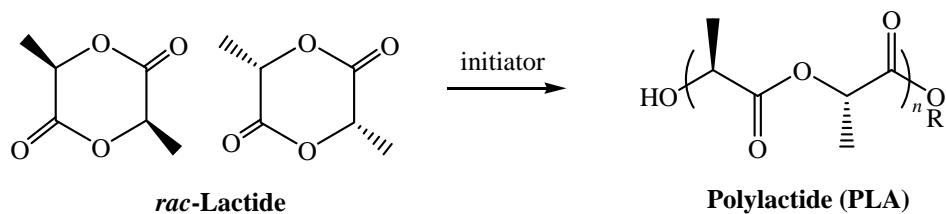


Biodegradation cycle of Polymer.

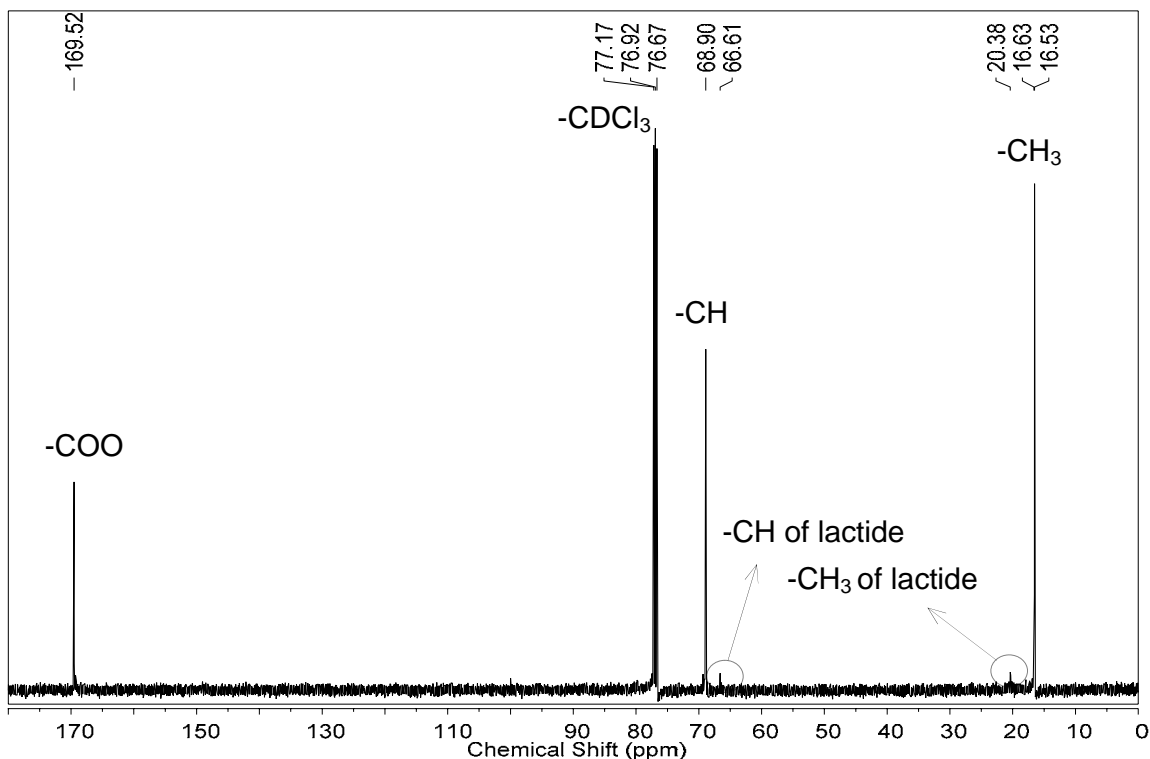


FESEM image of PLA

TEM images of PLA nanoparticles



Synthesis of PLA



Publications:

1. **Maharana T**, Mohanty B, and Negi YS; Melt-Solid Polycondensation of Lactic Acid and Its Biodegradability; *Progress in Polymer Science* 34(2009) 99-124. (Impact factor-23.753)-Received 325US\$ from Elsevier.
2. Sutar AK, **Maharana T**, Dutta S, Chen CT and Lin CC; *Ring-opening Polymerization by Lithium catalysts: An Overview*, *Chemical Society Review* 39 (2010) 1724–1746. (Impact factor-20.086).
3. **Maharana T**, Mohanty B, Negi YS; entitled "Preparation of poly(lactic acid) nanoparticles and optimization of the particle size" *International Journal of Green Nanotechnology* 2010; 2(2) 100 – 109.
4. Rani M, Agarwal A, **Maharana T** and Negi YS; A comparative study for interpenetrating polymeric network (IPN) of chitosan-amino acid beads for controlled

- drug release; *African Journal of Pharmacy and Pharmacology*. 2010;4(2) 035 – 054. (Impact factor-0.667).
5. **Maharana T**, Negi YS, Mohanty B; **Review Article: Recycling of Polystyrene. Polymer-Plastics Technology and Engineering** (2007), 46(7), 729-736. (Impact factor-0.521)
 6. **Maharana T**, Singh BC; Synthesis and characterization of biodegradable polyethylene by graft copolymerization of starch using glucose-Ce(IV) redox system. *Journal of Applied Polymer Science* (2006), 100(4), 3229-3239. (Impact factor-1.2)
 7. **Maharana T**, Singh BC; Graft copolymerization of starch onto polyvinylchloride(PVC) using glucose-Ce(IV) redox system and study of its biodegradability. *Journal of Teaching and Research in Chemistry* (2004), 11(1), 70-81.
 8. **Maharana T**, Mohanty B, and Negi YS; Analysis of molecular weight distribution of polylactic acid; Submitted to Chromatographia.
 9. **Maharana T.**, Mohanty B., and Negi Y.S.; Response Surface Methodology Approach for the Optimization of Polylactic Acid Synthesis by Solid State Polycondensation; Submitted to Biomacromolecules.

BOOK CHAPTER:

1. AK Sutar, CC Lin and **T Maharana**, "Title: Synthesis and characterization of block copolymer" was accepted by **NOVA publisher, USA** and the book will be published in 2011.

CONFERENCES / SYMPOSIA (Presented)

International Conferences:

1. **Maharana T**, Mohanty B, Ray AK and Negi YS; Physico-thermal and temperature dependent computational thermal kinetic studies of poly(lactic acid); ICAPP 2007 – *The 2nd International Conference on Advances in Petrochemicals and Polymers June 25th – 28th, 2007, Bangkok, Thailand.*
2. **Maharana T**, Mohanty B, and Negi YS; Synthesis of poly(lactic acid) by melt polycondensation and their characterizations; "*Asian Polymer Association International Conference POLY-08*" January 28th – 31st, 2008, IIT Delhi, India.
3. **Maharana T**, Mohanty B, and Negi YS; Application of response surface methodology to optimize production of polylactic acid by melt polycondensation; "*Polymer Science & Technology: Vision & Scenario (APA-2009)*" at New Delhi, India on December 17-20, 2009.
4. **Maharana T**, Mohanty B, and Negi YS; Preparation of polylactic acid nanoparticles by nanoprecipitation method; "*Polymer Science & Technology: Vision & Scenario (APA-2009)*" at New Delhi, India on December 17-20, 2009.
5. **Maharana T**, Mohanty B, and Negi YS; A novel method for the synthesis of high molecular weight polylactic acid by melt-solid polycondensation under vacuum; *International Conference on Advancements in Polymeric Materials; APM-2010, Trends & Technology at CIPET Bhubaneswar on February 20-22, 2010.*

6. Y Das, B C Kalapahad, T K Bastia, P Rath, **T Maharana** and A K Sutar; Polymer supported Fe(III), Cu(II) and Zn(II) catalysts for oxidation of phenol; *International Conference on Advancements in Polymeric Materials; APM-2010, Trends & Technology at CIPET Bhubaneswar on February 20-22, 2010.*
7. **Maharana T**, Mohanty B, and Negi YS; Application of taguchi method for the Preparation of poly(lactic acid) nanoparticles; 2nd International Symposium Frontiers in Polymer Science, 2011; 29-31 May 2011, Centre de Congrès, Lyon, France; Abstract accepted.

National Conference:

1. **Maharana T**, Samantray A, Mohanty SN, Singh BC; Graft copolymerization of starch onto PVC using glucose-Ce(IV) redox system and study of its biodegradability; *National seminar on Eco-Friendly Biodegradable Polymers; 13-14, Dec 2002.*
2. Sutar AK and **Maharana T**. Polymer supported Fe(III), Cu(II) and Zn(II) catalysts for oxidation of phenol, National Symposium on Green Chemistry : Applications in Science & Engineering (NSGC-2009), Thapar University, Patiala (Punjab), 5-6 February 2009.
3. Sutar AK, **Maharana T** and Nayak SK; Oxidation of Phenol using Polymer Supported First Row Transition Metal Series Catalysts, National Seminar on Materials Chemistry and Catalysis, Baripada Odisha; April 3-4, 2010.
4. **Maharana T**, Mohanty B, and Negi YS; Synthesis of high molecular weight poly(lactic acid) by melt-solid polycondensation under high vacuum; 13th National Symposium in Chemistry NISER, Bhubaneswar.

Workshop/Conferences (Participated)

1. National Symposium on Green Chemistry: Applications in Science & Engineering (NSGC-2009), Thapar University, Patiala (Punjab), 5-6 February 2009.
2. National Conference on Emerging Nanotechnologies and their application in Polymers and textiles. 10 Mar 2007; IIT Delhi, India.
3. Developing a Model for Promoting Institute-Industry Linkages for IP Creation and Management. 24 Feb 2007; IIT Roorkee, India.
4. Techniques and Challenges for Structure Solution in Chemical Crystallography. 31st Aug -1 Sep, 2007; IIT Roorkee, India.
5. Intellectual Property Rights; 6 Oct 2007; IIT Roorkee, India.
6. Patent database search; 26 April 2008; IIT Roorkee, India.
7. Web of Science-as a research tool; 20 Nov 2008; IIT Roorkee, India.
8. Eco-friendly Biodegradable Polymers National Conference Organized by Ravenshaw College in Dec 2002.

Research Projects, Evaluation Research, Consultancies:

Applied research project proposal to Department of Science and Technology (DST), Government of India under Fast Track Proposals for Young Scientists scheme.

Honours, Fellowships:

- Received 325 USD from Elsevier for my publication in Progress in polymer science.
- Awarded “National Doctoral Fellowship” offered by AICTE for pursuing Ph.D. at IIT Roorkee.
- Qualified **CSIR-UGC NET LECTURESHIP** June 2005.
- Qualified All India Graduate Aptitude Test in Engineering (**GATE**) 2002, 2004.
- Received **MHRD** Fellowship for pursuing Ph.D, 2005.
- Received CSIR JRF-ship from May 2002 to July 2005.
- Honors in Bachelor of Science, 1999.

Membership in Professional Bodies:

- Life Member of “Orissa Chemical Society”

Personal Information:

- **Permanent Address:** W/O- Dr. Alekha Kumar Sutar
Keutalaguan, Khanditar, Jajpur, orissa-755009, India.
- **Languages known:** English (R/W/S), Hindi (R/W/S), Oriya (R/W/S), Bengali (S), Knowledge of foreign languages: French