R. Vivek

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RESEARCH INTERESTS

Bioprocess Optimization	• Downstream/Upstream processing	
Bioreactors	• Enzyme engineering	
WORK EXPERIENCE		
Assistant Professor, SASTRA University	July 2005 – April 2010	
Research Associate, IIT Kharagpur	Aug 2014 –July 2015	
Post-Doctoral Reseacher, Stellenbosch University, South Africa	Aug 2015 – Dec 2016	
Assistant Professor, BITS Pilani Goa campus	Feb 2017 -	
EDUCATION		
Ph. D., Biotechnology, IIT Kharagpur, India	– July 2015	
Dissertation title: Process intensification for production and purification	ation of marine bacterial lipopeptide and	
its application in nanoparticle synthesis		

Advisor: Prof. Ramkrishna Sen

M.Tech., Industrial Biotechnology, SASTRA University, India	CGPA:9.1/10	June 2005
B.Tech., Chemical Engineering, SASTRA university, India	Per: 79%	May 2003

AWARDS/GRANTS

• Research grant from State Government for Science and Technology for project titled "Decolorization of textile dyes by Trametes versicolor immobilized on rotating perforated tubes biofilm reactor" under student's project scheme (successfully completed).

PEER REVIEWED PUBLICATIONS

- Rangarajan V & Clarke K G. Towards bacterial lipopeptide products for specific applications a review of appropriate downstream processing schemes. Process Biochemistry, 51 (2016) 2176-2185 (IF- 2.529).
- Dhanarajan G, Rangarajan V, Perali Ramu Sridhar and Sen R. Development and scale-up of an efficient and green process for HPLC purification of antimicrobial homologues of commercially important microbial lipopeptides. ACS Sustainable Chemistry and Engineering, 4 (2016) 6638-6646 (IF-5.267)
- Rangarajan V and Clarke K G. Process development and intensification for enhanced production of Bacillus lipopeptides. Biotechnology and Genetic Engineering Reviews, 31 (2015) 46-68 (IF-1.9)

- Patel J, Borgohain S, Kumar M, Rangarajan V, Somasundaram P and Sen R. Recent Developments in Microbial Enhanced Oil Recovery. Renewable & Sustainable Energy Reviews, 52 (2015) 1539-1558 (IF-6.798)
- 5) Dhanarajan G, Rangarajan V and Sen R. Dual gradient macroporous resin column chromatography for concurrent separation and purification of three families of marine bacterial lipopeptides from cell free broth. Separation & Purification Technology, 143 (2015) 72-79 (IF-3.299)
- Rangarajan V, Dhanarajan G and Sen R. Bioprocess design and intensification for selective enhancement of a particular lipopeptide family from a marine bacterium. Biochemical Engineering Journal, 99 (2015) 147–155 (IF-2.463)
- Rangarajan V, Dhanarajan G, Sen R. Improved Performance of Cross-flow ultrafiltra-tion for the recovery and purification of Ca²⁺ conditioned lipopeptides in diafiltration mode of operation. Journal of Membrane Science, 454 (2014) 436–443 (IF-5.55)
- 8) Mondal D, Bhowmick B, Mollick MR, Maity D, Saha NR, Rangarajan V, Rana D, Sen R and Chattopadhyay D. Antimicrobial activity and biodegradation behavior of Poly(butylenes adipate- co terephthalate)/Clay Nanocomposites. Journal of applied polymer science, 131 (2014) 1-9 (IF-1.6)
- Rangarajan V, Majumder S and Sen R. Biosurfactant mediated nanoparticle synthesis A green and sustainable approach. Biosurfactants- Research Trends and Applications, 2014; CRC press: 217-230 [Book chapter]
- 10) Mondal D, Bhowmick B, Mollick MR, Maity D, Rangarajan V, Rana D, Sen R and Chattopadhyay D. Investigation on sodium benzoate release from poly(butylene adipate-coterephthalate)/organoclay/sodium benzoate based nanocomposite film and their antimicrobial activity. *Journal of Food Science*, Accepted, (2014) (IF-1.649)
- 11) Mahesh N, Rangarajan V, Arunkumar M and Srinaivasan B. Statistical designing of Enriched pectin extract medium for the enhanced production of pectinase by *Aspergillus niger*, International Journal of Pharmacy and Pharmaceutical Sciences. 6 (2014) 666-672 (IF-0.54)
- 12) Rangarajan V, Gudina EJ, Sen R and Rodrigues LR. Potential therapeutic applications of biosurfactants. Trends in Pharmacological Sciences, 34 (2013) 667-675 (*Equal contribution by first two authors*) (IF-11.84)
- 13) Rangarajan V & Sen R. An inexpensive strategy for facilitated recovery of metals and fermentation products by foam fractionation process. Colloids Surfaces B: Biointerfaces, 104 (2013) 99-106 (IF-3.9)
- 14) Rangarajan V, Dhanarajan G, Kumar R, Sen R and Mandal M. Time-dependent dosing of Fe²⁺ for improved lipopeptide production by marine *Bacillus megaterium*. Journal of Chemical Technology Biotechnology, 87 (2012) 1661-1669 (IF-2.73)

- 15) Rangarajan V, Shanmugham P and Narayanan M. Optmization of Xanthan Production by *Xanthomonas campestris* -NCIM 2961 using Response Surface Methodology and Characterization of Purified Xanthan. International Journal of Applied Biotechnology and Biochemistry, 2 (2012) 7-17
- 16) Mahesh N, Balakumar S, Parkavi R, Ayyadurai A, **Rangarajan V** (2012) Optimization and Production of Hyaluronidase by *Streptococcus mitis* MTCC 2695. Biomolecul 1:101. doi:10.4172/bom.1000101
- 17) Mahesh N, Balakumar S, Indumathi P, Ayyadurai A, Rangarajan V. Production and Optimization of Mevastatin using *Penicillium citrinum* NCIM 768. Journal Microbial & Biochemical Technology, doi:10.4172/1948-5948.1000063
- 18) Rangarajan V, Rajasekharan M, Ravichandran R, Sriganesh K and Vaitheeswaran V. Pectinase Production from Orange Peel Extract and Dried Orange Peel Solid as Substrates Using Aspergillus niger. International Journal of Biotechnology and Biochemistry, 6 (2010) 445–453
- 19) Rajagopalan M, Rangarajan V, Kumaresan R, Dhanarajan G, Shankar RS, Sunil Kumar KS and Raj KV. Assessment of Oxygen Transfer Efficiency in Internal Loop Air-Lift Reactor and a Study on the Role of Oxygen Vectors in the Enhancement of Oxygen Transfer. International Journal of Biotechnology and Bioengineering Research, 1 (2010) 107–114
- 20) Rajendran NK and Rangarajan V. Acid Hydrolysis and Kinetics of Bioethanol Production from Impending lignocellulosic Substrates Using Saccharomyces Cereviseae. International Journal of Biotechnology and Biochemistry, 5 (2009) 135–146.

INTERNATIONAL CONFERENCES

- **Rangarajan V**, Bhandari S, Khastgir D and Sen R. Biosurfactant based synthesis of nanostructured polyaniline. ICRRM 2013, IIT Kharagpur
- **Rangarajan V** & Clarke K G. Production of Bacillus Lipopeptides for Biocontrol of Postharvest Crops. ICBSE 2016, Cape Town
- **Rangarajan V &** Clarke K G. Purification of Bacillus Lipopeptides for Diverse Applications. ICBSE 2016, Cape Town

RESEARCH ASSOCIATE/ IIT KHARAGPUR

- Involved in conceptualizing and designing experiments for yeast bio-refinery in a DBT sponsored project
- Monitored the overall progress of the research activities of scholars working in the project and reporting the same to the principal investigator

POST-DOCTORAL RESEARCHER/ STELLENBOSCH UNIVERSITY

- Working for South African NRF-HortGro project in producing, purifying, evaluating and testing the application potential of *Bacillus* lipopeptides for post-harvest disease control applications.
- Mentor under graduate and post graduate students in their research projects.

PROFESSIONAL SERVICE

SASTRA University

• Officially assigned as Lab In-charge of Bioprocess Engineering Lab for the five years.

2005-2010

- Supervised and guided undergraduate (12) and graduate students (16) on scientific research projects.
- Refereed manuscripts/articles published in journals.
- Handled Bioprocess engineering laboratory class for five years. Designed lab experiments for both undergraduate and graduate level.
- Subjects taught: Bioprocess engineering, Bioreactor design, Fermentation technology, Enzyme engineering and Process calculations
- Assigned as In-charge of Reverse Osmosis water treatment plant for 2 years.
- Served as Deputy Warden for a period of one year in the students home, SASTRA University.
- Guided mini-projects during summer vacation

PROJECTS SUPERVISED

- Number of undergraduate projects: 12
- Number of postgraduate projects: 18

REFERENCES

- Dr. Ramkrishna Sen Professor Department of Biotechnology IIT Kharagpur Email: <u>rksen@yahoo.com</u>
- Dr. Kim. G. Clarke Department of Process Engineering Stellenbosch University South Africa-7600 Email: <u>kclarke@sun.ac.za</u>
- Dr. K. S. Rajan Professor School of Chemical & Biotechnology SASTRA University Thanjavur -613402, India Email: <u>ksrajan@chem.sastra.edu</u>
- 4. Dr. S. Raja

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