



UNIVERSITY OF CALCUTTA

FACULTY ACADEMIC PROFILE/ CV

Full name of the faculty member: Dr. Alok Kumar Sil

Designation: Associate Professor

Specialisation : Biochemistry, Cell Biology and Microbiology



Contact information :

Contact address,

Dept of Microbiology, University of Calcutta
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Academic qualifications:

College/ university from which the degree was obtained	Abbreviation of the degree
University of Calcutta	B.Sc (Chemistry Hons.)
University of Calcutta	M.Sc (Biochemistry)
University of Calcutta	Ph.D (Biochemistry)

Positions held/ holding:

Associate Professor (August 2013 to present); Department of Microbiology, University of Calcutta, India

Assistant Professor (March, 2004 to August, 2013); Department of Microbiology, University of Calcutta, India

Research interests:*Please cite briefly the areas of research interests*

- To study the underlying mechanisms involved in cigarette smoke-induced human diseases with particular emphasis on atherosclerosis and emphysema
- To investigate the anti-microbial activities of natural and synthetic compounds
- To study the microbial degradation of synthetic polymers
- To study the underlying mechanisms of waste water purification at East Kolkata Wetland

Research guidance :Number of researchers awarded **Ph.D** degrees : 06

Number of researchers pursuing Ph.D : 06

Projects :*Completed projects :*

Sl. No	Title	Agency	Period	Grant/ Amount Mobilised (Rs.)
1	Isolation and characterization of soil microbe that can degrade polythenes	DST, Govt. Of West Bengal	April 2007 to March 2009	4,70,000
2	To study the effect of ascorbic acid on CS-induced NF-kB activation	UGC, Govt. Of India	August 2007 to July 2007	97,000
3	To study the molecular mechanisms of CS-induced NF-kB activation	CSIR, Govt. of India	February 2008 to January 2011	12,50,000
4	Identification and characterization of an anti-mycobacterial agent	DRDO, Govt. of India	July , 2008 to June, 2011	16,26,300
5	To study nano particle mediated enhancement of anti-mycobacterial activity of an anti-mycobacterial agent	University of Calcutta	June 2009 to May 2010	2,00,000
6	Isolation and characterization of soil microorganism(s) that can degrade commercially available plastic	DBT, Govt. of West Bengal	Oct 2012 to Sept 2015	16,35, 000

Ongoing Projects

Sl. No	Title	Agency	Period	Grant/ Amount Mobilised (Rs.)
1	A Study of CS-induced atherosclerosis at	DBT,	October 27, 2014 to	52,03,800

	the molecular and cellular level	Govt. of India	October 26, 2017	
2	Identification of the community structure of the polyurethane degrading microorganisms from east Kolkata solid waste dumping ground (DHAPA)	DST, Govt. of West Bengal	January 2016 to December 2018	19,47,000

Selected list of publications:

- Das Gupta A, Sarkar S, Ghosh P, Saha T, **Sil AK** (2016). Phosphorous dynamics of the aquatic system constitutes an important axis for waste water purification in natural treatment pond(s) in East Kolkata Wetlands. . Ecological Engineering 90, 63-67; doi:10.1016/j.ecoleng.2016.01.056
- Sarkar S, Tribedi P, Ghosh P, Saha T, **Sil AK** (2016). Sequential Changes of Microbial Community Composition During Biological Wastewater Treatment in Single Unit Waste Stabilization System. Waste Biomass Valor, DOI 10.1007/s12649-015-9471-3
- Mukherjee K, and **Sil AK** (2015). Synthesis of Chiral Gold Nanoparticle by Direct Reduction with L and D-Serine and Enhanced Anti-Mycobacterial Activity by D-Serine Protected Gold Nanoparticle. Modern Chemistry and Applications, 3: 165. doi:10.4172/2329-6798.1000165
- Tribedi P, Das Gupta A and **Sil AK** (2015). Adaptation of *Pseudomonas* sp. AKS2 in biofilm on low-density polyethylene surface: an effective strategy for efficient survival and polymer degradation. Bioresources and Bioprocessing, 2: 14. doi:10.1186/s40643-015-0044-x
- Das B, Ray T, Panda K, Maiti A, Sarkar S, and **Sil AK** (2014). Leucine and its transporter provide protection against cigarette smoke-induced cell death: A potential therapy for emphysema. Toxicology Reports, 1, 752–763. doi:10.1016/j.toxrep.2014.09.011
- Mukherjee K, Mandal S, Mukhopadhyay B, Mandal NC, **Sil AK**. (2014). Bioactive compound from *Pseudomonas synxantha* inhibits the growth of Mycobacteria.. Microbiol Res; 169: 794-802. doi: 10.1016/j.
- Sarkar S, Ghosh PB, **Sil AK**, Saha, T. (2014). Suspended particulate matter dynamics act as a driving force for single pond sewage stabilization system. Ecological Engineering 69, 206-21
- Tribedi, P. and **Sil, A.K.** (2014), Cell surface hydrophobicity: a key component in the degradation of polyethylene succinate by *Pseudomonas* sp. AKS2. Journal of Applied Microbiology, 116: 295–303. doi: 10.1111/jam.12375
- Tribedi, P. and **Sil, A. K.** (2013), Founder effect uncovers a new axis in polyethylene succinate bioremediation during biostimulation. FEMS Microbiology Letters, 346: 113–120. doi: 10.1111/1574-6968.12210

- *Das B, Maity PC, Sil AK (2013). Vitamin C forestalls cigarette smoke induced NF-κB activation in alveolar epithelial cells. Toxicol Lett. 2013 Apr 21;220(1):76-81. doi: 10.1016/j.toxlet.2013.04.009.*
- *Tribedi P, Sil AK (2013). Low-density polyethylene degradation by Pseudomonas sp. AKS2 biofilm. Environ Sci Pollut Res Int. 2013 Jun;20(6):4146-53. doi: 10.1007/s11356-012-1378-y*
- *Mukherjee K, Tribedi P, Mukhopadhyay B, Sil AK (2013). Antibacterial activity of long-chain fatty alcohols against mycobacteria. FEMS Microbiol Lett. 338 : 177-83. doi: 10.1111/1574-6968.12043*
- *Tribedi P, Sil AK (2013). Bioaugmentation of polyethylene succinate-contaminated soil with Pseudomonas sp. AKS2 results in increased microbial activity and better polymer degradation. Environ Sci Pollut Res Int. 2013 Mar;20(3):1318-26. doi: 10.1007/s11356-012-1080-0.*
- *Tribedi P, Sarkar S, Mukherjee K, Sil AK (2011). Isolation of a novel Pseudomonas sp from soil that can efficiently degrade polyethylene succinate. Environ Sci Pollut Res Int. 2012 Jul;19(6):2115-24. doi: 10.1007/s11356-011-0711-1.*
- *Maity PC, Ray T, Das B, Sil AK (2012). IKKβ-I-κBε-c-Rel/p50: a new axis of NF-κB activation in lung epithelial cells. Oncogenesis. 2012 Apr 9;1:e8. doi: 10.1038/oncsis.2012.8*
- *Mukherjee K, Tribedi P, Chowdhury A, Ray T, Joardar A, Giri S, Sil A.K. (2011). Isolation of a Pseudomonas aeruginosa strain from soil that can degrade polyurethane diol. Biodegradation, 22: 377-88*
- *Ray, T., Maity, P.C., Banerjee, S., Deb, S., Dasgupta, A.K., Sarkar, S., Sil, A.K. (2010). Vitamin C Prevents Cigarette Smoke Induced Atherosclerosis in Guinea Pig Model. J Atheroscler Thromb, 17: 817-27*

Patents :

Name of faculty	Details of patent	Applied/Sanctioned	Year
Alok Kumar Sil	Animal model for cigarette smoke induced atherosclerosis and related methods (Patent no. US 8541645B2, dated September 24, 2013)	Sanctioned	2013

Invited lectures delivered:

Vidyasagar University, 2016

Orissa University of Agriculture and technology, 2015

Sixth World Congress on Biotechnology, Delhi, 2015

Other notable activities:

- Member of Postgraduate Board of Studies in Microbiology and Biotechnology in CU affiliated colleges