

LIST OF COMPLETE PUBLICATIONS

Research Publications in Snake Venom Biochemistry and Drug Discovery:

- **Mukherjee, A. K.**, Dutta, S., Mackessy, S. P. (2014) A new C-type lectin (RVsnaclec) purified from venom of *Daboia russelii russelii* shows anticoagulant activity via inhibition of FXa and concentration-dependent differential response to platelets in a Ca^{2+} -independent manner. ***Thrombosis Research*** 134, 1150-1156.
- Thakur, R., Kumar A., Bose B., Panda D., Saikia D, Chattopadhyay P, **Mukherjee A. K.** (2014) A new peptide (Ruviprase) purified from the venom of *Daboia russelii russelii* shows potent anticoagulant activity via non-enzymatic inhibition of thrombin and factor Xa. ***Biochimie*** 105, 149-158.
- Kalita, D., Saikia, J., **Mukherjee, A. K.**, Doley, R. (2014) An ethnomedicinal survey of traditionally used medicinal plants for the treatment of snakebite in Morigaon district of Assam, India. ***International Journal of Medicinal and Aromatic Plants*** 4, 97-102.
- **Mukherjee, A. K.**, Mackessy, S. P. (2014) Pharmacological properties and pathophysiological significance of a Kunitz-type protease inhibitor (Rusvikunin-II) and its protein complex (Rusvikunin complex) purified from *Daboia russelii russelii* venom. ***Toxicon*** 89, 55-66.
- **Mukherjee, A. K.**, Kalita, B., Thakur, R. (2014) Two acidic, anticoagulant PLA_2 isoenzymes purified from the venom of monocled cobra *Naja kaouthia* exhibit different potency to inhibit thrombin and factor Xa via phospholipids independent, non-enzymatic mechanism. ***PLoS One*** 9(8), e101334.
- **Mukherjee, A. K.**, Mackessy, S. P., Dutta, S. (2014) Characterization of a Kunitz-type protease inhibitor peptide (Rusvikunin) purified from *Daboia russelii russelii* venom. ***International Journal of Biological Macromolecules*** 67, 154-162.
- **Mukherjee, A. K.** (2014) The pro-coagulant fibrinogenolytic serine protease isoenzymes from *Daboia russelii russelii* venom coagulate the blood through factor V activation: Role of glycosylation on enzymatic activity. ***PLoS One*** 9(2): e86823. doi:10.1371/journal.pone.0086823.
- **Mukherjee, A. K.** (2014) A major phospholipase A_2 from *Daboia russelii russelii* venom shows potent anticoagulant action via thrombin inhibition and binding with plasma phospholipids. ***Biochimie*** 99, 153-161.
- **Mukherjee, A. K.**, Chatterjee, S., Majumdar, S., Saikia, D., Thakur, R., Chatterjee, A. (2014) Characterization of a pro-angiogenic, novel peptide from Russell's viper (*Daboia russelii russelii*) venom. ***Toxicon*** 77, 26–31.
- Saikia, D., Majumdar, S., **Mukherjee, A. K.** (2013) Mechanism of *in vivo* anticoagulant and haemolytic activity by a neutral phospholipase A_2 purified from *Daboia russelii russelii* venom:

Correlation with clinical manifestations in Russell's Viper envenomed patients. **Toxicon** 76, 291-300.

- **Mukherjee, A. K.,** Mackessy, S. P. (2013) Biochemical and pharmacological properties of a new thrombin-like serine protease (Russelobin) from the venom of Russell's Viper (*Daboia russelii russelii*) and assessment of its therapeutic potential. **Bichimica et Biophysica Acta –General Subjects** 1830, 3476-3488.
- Saikia, D., Bordoloi, N. K., Chattopadhyay, P., Chocklingam, S., Ghosh, S. S., **Mukherjee, A. K.** (2012) Differential mode of attack on membrane phospholipids by an acidic phospholipase A₂ (RVVA-PLA₂-I) from *Daboia russelii* venom. **Bichemica et Biophysica Acta –Biomembrane** 12, 3149-3157.
- **Mukherjee, A. K.,** Mackessy, S. P. (2012) Russelobin, a non-toxic thrombin-like serine protease from the venom of Russell's viper (*Daboia russelii russelii*): Possible applications in cardiovascular drug development. **Toxicon** 60, 109-110.
- **Mukherjee, A. K.** (2012) Green medicine as a harmonizing tool to antivenom therapy for the clinical management of snakebite: the road ahead. **Indian Journal of Medical Research** 136, 10-12.
- **26. Saikia D., Thakur, R., Mukherjee, A. K.** (2011) An acidic phospholipase A₂ (RVVA-PLA₂-I) purified from *Daboia russelii* venom exerts its anticoagulant activity by enzymatic hydrolysis of plasma phospholipids and by non-enzymatic inhibition of factor Xa in a phospholipids/Ca²⁺ independent manner. **Toxicon** 57, 841-850.
- **Mukherjee, A. K.,** Saikia, D., Thakur, R. (2011) Medical and diagnostic application of snake venom proteomes. **J. Proteins and Proteomics** 2(1), 31-40.
- **Mukherjee, A. K.** (2010) Non-covalent interaction of phospholipase A₂ (PLA₂) and kaouthiotoxin (KTX) from venom of *Naja kaouthia* exhibits marked synergism to potentiate their cytotoxicity on target cells. **Journal of Venom Research** 1, 37-42.
- **Mukherjee, A. K.,** Doley, R., Saikia, D. (2008) Isolation of a snake venoms phospholipase A₂ (PLA₂) inhibitor (AIPLAI) from leaves of *Azadirachta indica* (Neem): mechanism of PLA₂ inhibition by AIPLAI *in vitro* condition. **Toxicon** 51, 1548-1553.
- **Mukherjee, A. K.** (2008) Phospholipase A₂-interacting weak neurotoxins from venom of monocled cobra *Naja kaouthia* display cell specific cytotoxicity. **Toxicon** 51, 1538-1543.
- **Mukherjee, A. K.** (2008) Characterization of a novel pro-coagulant metalloprotease (RVBCMP) possessing α-fibrinogenase and tissue hemorrhagic activity from venom of *Daboia russelii russelii* (Russell's Viper): evidence of distinct coagulant and hemorrhagic sites in RVBCMP. **Toxicon** 51, 923-933.
- **Mukherjee, A. K.** (2007) Correlation between the phospholipids domains of the target cell membrane and the extent of *Naja kaouthia* PLA₂ -induced membrane damage: Evidence of

distinct catalytic and cytotoxic sites in PLA₂ molecules. **Biochemica et Biophysica Acta** 1770, 187-195.

- **Mukherjee, A. K.**, Sollod, B. L., Wikel, S. K., King, G. F. (2006) Orally active acaricidal peptide toxins from the venom of the Australian funnel-web spider. **Toxicon** 47, 182-187.
- Doley, R., King, G. F., **Mukherjee, A. K.** (2004) Differential hydrolysis of erythrocytes and mitochondrial membrane phospholipids by two phospholipase A₂ isoenzymes (NK-PLA₂-I and NK-PLA₂-II) from the venom of the Indian monocled cobra *Naja kaouthia*. **Archives of Biochemistry and Biophysics** 425, 1-13.
- Doley, R., **Mukherjee, A. K.** (2003) Purification and characterization of an anticoagulant phospholipase A₂ from Indian monocled cobra (*Naja kaouthia*) venom. **Toxicon** 41, 81-91.
- **Mukherjee, A. K.**, Maity, C.R. (2002) Biochemical composition, lethality and pathophysiology of venom from two cobras-*Naja naja* and *N. kaouthia*. **Comparative Biochemistry and Physiology** 131 (B), 125-132.
- Mahanta, M., **Mukherjee, A. K.** (2001) Neutralization of lethality, myotoxicity and toxic enzymes of *Naja kaouthia* venom by *Mimosa pudica* root extracts. **Journal of Ethnopharmacology** 75, 55-60.
- **Mukherjee, A. K.**, Ghosal, S. K., Maity, C. R. (2000) Some biochemical properties of Russell's viper (*Daboia russelli*) venom from eastern India: correlation with clinico-pathological manifestation in Russell's viper bite. **Toxicon** 38, 163.
- **Mukherjee, A. K.**, Ghosal, S. K., Maity, C.R. (1998) Effect of dietary supplementation of vitamin E in partial inhibition of Russell's viper venom phospholipase A₂ induced hepatocellular and microsomal membrane damage. **Acta Physiologica Hungarica** 85, 367-374.
Mukherjee, A. K., Ghosal, S.K., Maity, C.R. (1998) Effect of oral supplementation of vitamin E on the hemolysis and erythrocyte phospholipids splitting action of cobra and viper venoms. **Toxicon** 36, 657-664.
- **Mukherjee, A. K.**, Maity, C. R. (1998) The composition of *Naja naja* venom samples from three districts of West Bengal, eastern India. **Comparative Biochemistry and Physiology** 119A, 621-627.
- **Mukherjee, A. K.**, Ghosal, S. K. and Maity, C. R. (1997) Lysosomal membrane stabilization by alpha -tocopherol against the damaging action of *Vipera russelli* venom phospholipase A₂. **Cellular and Molecular Life Sciences** 53, 152-155.
- **Mukherjee, A. K.**, Maity, C. R. (1998). Some biochemical properties of *Naja naja* venom from Burdwan district of West Bengal, and its biological effects on different organs of rats. **Indian Journal of Medical Biochemistry** 2, 4-18.

Research Publications in Environmental Biotechnology and Industrial Microbiology:

- Biswas, K., Roy, J. K., Doley, R., Mohanta, D., **Mukherjee, A. K.** (2014) Imaging bactericidal effect of faceted Ag nanostructures (FAGN) on Gram negative, Coli Form *Escherichia coli* bacteria. **Journal of Bionanoscience** 8, 248-254.
- Majumdar, S., Sarmah, B., Gogoi, D., Banerjee, S., Ghosh, S. S., Banerjee, S., Chattopadhyay, P., **Mukherjee, A. K.** (2014) Characterization, mechanism of anticoagulant action, and assessment of therapeutic potential of a fibrinolytic serine protease (Brevithrombolase) purified from *Brevibacillus brevis* strain FF02B. **Biochimie** 103, 50-60.
- Bordoloi, N. K., Rai, S. K., Chaudhuri, M. K., **Mukherjee, A. K.** (2014) Deep-desulfurization of dibenzothiophene and its derivatives present in diesel oil by a newly isolated bacterium *Achromobacter* sp. to reduce the environmental pollution from fossil fuel combustion. **Fuel Processing Technology** 119, 236-244.
- Roy, J. K., **Mukherjee, A. K.** (2013) Applications of a high maltose forming, thermo-stable α -amylase from an extremely alkalophilic *Bacillus licheniformis* strain AS08E in food and Laundry detergent industries. **Biochemical Engineering Journal** 77, 220-230.
- Roy, J. K., Borah, A., Mahanta, C. L., **Mukherjee, A. K.** (2013) Cloning and overexpression of raw starch digesting α -amylase gene from *Bacillus subtilis* strain AS01a in *Escherichia coli* and application of the purified recombinant α -amylase (AmyBS-I) in raw starch digestion and baking industry. **J. Molecular. Catalysis B: Enzymatic** 97, 118-129.
- Nair, R. G., Roy, J. K., Samdarshi, S. K. **Mukherjee, A. K.** (2012) Mixed phase V doped titania shows high photoactivity for disinfection of *Escherichia coli* and detoxification of phenol. **Solar Energy Materials and Solar Cells** 105, 103-108.
- **Mukherjee, A. K.**, Bordoloi, N. K. (2012) Biodegradation of benzene, toluene and xylene (BTX) in liquid culture and in soil by *Bacillus subtilis* and *Pseudomonas aeruginosa* strains and a formulated bacterial consortium. **J Environmental Science and Pollution Research** 19, 3380–3388.
- **Mukherjee, A. K.**, Rai, S. K., Thakur, R., Chattopadhyay, P., Kar, S. K. (2012) Bafibrinase: A non-toxic, non-hemorrhagic, direct-acting fibrinolytic serine protease from *Bacillus* sp. strain AS-S20-I exhibits *in vivo* anticoagulant activity and thrombolytic potency. **Biochimie** 94, 1300-1308.
- Das, G., Bordoloi, N. K., Rai, S. K., **Mukherjee, A. K.**, Karak, N. (2012) Biodegradable and biocompatible epoxidized vegetable oil modified thermostable poly(vinyl chloride): Thermal and performance characteristics post biodegradation with *Pseudomonas aeruginosa* and *Achromobacter* sp. **Journal of Hazardous Materials** 209-210, 434-442.

- Roy, J. K., Rai, S. K., **Mukherjee, A. K.** (2012) Characterization and application of a detergent-stable α -amylase from *Bacillus subtilis* AS-S01a. **International Journal of Biological Macromolecules** 50, 219-229.
- **Mukherjee, A. K.**, Rai, S. K., Bordoloi, N. K. (2011) Biodegradation of waste chicken-feathers by an alkaline β -keratinase (Mukartinase) purified from a mutant *Brevibacillus* sp. strain AS-S10-II. **International Biodeterioration and Biodegradation** 65, 1229-1237.
- Das, G., Roy, J., **Mukherjee, A. K.**, Karak, N. (2012) *Mesua ferrea* L. seed oil modified sulfone epoxy resin and multi-walled carbon nanotube nanocomposites and their biomedical and mechanical properties. **Advanced Science Letters** 4, 1-9.
- Rai, S. K., **Mukherjee, A. K.** (2011) Optimization of production of an oxidant and detergent-stable alkaline β -keratinase from *Brevibacillus* sp. strain AS-S10-II: application of enzyme in laundry detergent formulations and in leather industry. **Biochemical Engineering Journal** 54, 47-56.
- Nair, R. G., Roy, J. K., Samdarshi, S. K., **Mukherjee, A. K.** (2011) Enhanced visible light photocatalytic disinfection of gram negative, pathogenic *Escherichia coli* bacteria with Ag / TiO₂ nanoparticle. **Colloids and Surface B: Biointerfaces** 86, 7-13.
- **Mukherjee, A. K.**, Rai, S. K. (2011) A Statistical approach for the enhanced production of alkaline protease showing fibrinolytic activity from a newly isolated Gram-negative *Bacillus* sp. strain AS-S20-I. **New Biotechnology** 28, 182-189.
- **Mukherjee, A. K.**, Bordoloi, N. K. (2011) Bioremediation and reclamation of soil contaminated with petroleum - oil hydrocarbons by exogenously seeded bacterial consortium: a pilot scale study. **Journal of Environmental Science and Pollution Research** 18, 471-478.
- **Mukherjee, A. K.**, Das, K. (2010). Microbial surfactants and their potential applications: an overview. **Adv Exp Med Biol.** 672, 54-64.
- **Mukherjee, A. K.**, Kumar, T. S., Rai S. K., Roy, J. K. (2010) Statistical optimization of *Bacillus alcalophilus* α -amylase immobilization onto iron-oxide (Fe₃O₄) magnetic nanoparticles. **Biotechnology and Bioprocess Engineering** 15, 984-992.
- Rai, S. K., **Mukherjee, A. K.** (2010) Statistical optimization of production, purification and industrial application of a laundry detergent and organic solvent-stable subtilisin like serine protease (Alzwinprase) from *Bacillus subtilis* DM-04. **Biochemical Engineering Journal** 48, 173-8
- Rai, S. K., Roy, J. K., **Mukherjee, A. K.** (2010) Characterization of a detergent-stable alkaline protease from a novel thermophilic strain *Paenibacillus tezipurensis* sp. nov. AS-S24-II. **Applied Microbiology and Biotechnology** 85, 1437-1450.

- **Mukherjee, A. K.**, Kalita P., Unni, B. G., Wann, S. B., Saikia, D., Mukhopadhyay, P. K. (2010) Fatty acid composition of four potential aquatic weeds and their possible use as fish-feed neutraceuticals. **Food Chemistry** 123, 1252-1254.
- **Mukherjee, A. K.**, Bordoloi, N. (2009) Microbial biodegradation of petroleum hydrocarbons: towards a safer and cleaner environment. In: **proceedings of the International Symposium on Environmental Pollution, Ecology and Human Health**, (ISEPEHH-2009), Department of Zoology, S.V. University, India, pp:31-34.
- Rai, S. K., Konwarh, R., **Mukherjee, A. K.** (2009) Purification, Characterization and biotechnological application of an alkaline β -keratinase produced by *Bacillus subtilis* RM-01 in solid state fermentation using chicken-feather as substrate. **Biochemical Engineering Journal** 45, 218-225.
- Konwarh, R., Karak, N., Rai, S. K., **Mukherjee, A. K.** (2009) Polymer assisted iron oxide magnetic nanoparticles immobilized keratinase **Nanotechnology Journal**, 20, 225107.
- Rai, S. K., **Mukherjee, A. K.** (2009) Ecological significance and some biotechnological application of an organic solvent stable alkaline serine protease from *Bacillus subtilis* strain DM-04. **Bioresource Technology** 100, 2642-2645.
- **Mukherjee, A. K.**, Bora, M., Rai, S. K. (2009) A statistical analysis to study the influence of different components of substrates on induction of extracellular α -amylase synthesis by *Bacillus subtilis* DM-03 in solid state fermentation: application of α -amylase in laundry detergent formulations. **Biochemical Engineering Journal** 43,149-156.
- **Mukherjee, A. K.**, Adhikary, H., Rai, S. K. (2008) Production of alkaline protease by a thermophilic *Bacillus subtilis* under solid state fermentation (SSF) condition using *Imperata cylindrica* grass and potato peel as low cost medium: Characterization and application of enzyme in detergent formulation. **Biochemical Engineering Journal** 39, 353-361.
- Kalita, P., Mukhopadhyay, P.K., **Mukherjee, A.K.** (2008) Supplementation of four non-conventional aquatic weeds to the basal diet of *Catlacatla* (Ham.) and *Cirrhinusmrigala* (Ham.) fingerlings: Effect on growth, protein utilization and body composition of fish. **Acta Ichthyologica et Piscatoria** 38, 21-27.
- Das, K., **Mukherjee, A.K.** (2007) Comparison of lipopeptide biosurfactants production by *Bacillus subtilis* strains in submerged and solid state fermentation systems using a cheap carbon source: some industrial application of biosurfactants. **Process Biochemistry** 42, 1191-1199.
- **Mukherjee, A. K.** (2007) Potential application of cyclic lipopeptide (CLP) biosurfactants produced by *Bacillus subtilis* strains in laundry detergent formulations. **Letters in Applied Microbiology** 45, 330-335.

- Das, K., **Mukherjee, A. K.** (2007) Differential utilization of pyrene as sole source of carbon by *Bacillus subtilis* and *Pseudomonas aeruginosa* strains: Role of biosurfactants in enhancing the bioavailability. **Journal of Applied Microbiology** 102, 195-203.
- Kalita, P., Mukhopadhyay, P. K., **Mukherjee, A. K.** (2007) Evaluation of the nutritional quality of four unexplored aquatic weeds from North East India for the formulation of cost-effective fish feeds. **Food Chemistry** 103, 204-209.
- Das, K., **Mukherjee, A. K.** (2007) Crude petroleum-oil biodegradation efficiency of *Bacillus subtilis* and *Pseudomonas aeruginosa* strains isolated from petroleum oil contaminated soil from North-East India. **Bioresource Technology** 98, 1339-1345.
- Das, K., **Mukherjee, A. K.** (2006) Assessment of mosquito larvicidal potency of cyclic lipopeptides produced by *Bacillus subtilis* strains. **Acta Tropica** 97, 168-173.
- Das, K., **Mukherjee, A. K.** (2005) Characterization of biochemical properties and biological activities of biosurfactants produced by *Pseudomonas aeruginosa* mucoid and non-mucoid strains. **Journal of Applied Microbiology and Biotechnology** 69, 192-195.
- **Mukherjee, A. K.**, Das, K. (2005) Correlation between diverse cyclic lipopeptides production and regulation of growth and substrate utilization by *Bacillus subtilis* strains in a particular habitat. **FEMS Microbiology Ecology** 54, 479-489.
- Das, K., Doley, R., **Mukherjee, A. K.** (2004) Purification and biochemical characterization of a thermostable, alkaliphilic, extracellular α -amylase from *Bacillus subtilis* DM-03, isolated from the traditional fermented food of India. **Journal of Biotechnology and Applied Biochemistry** 40, 291-298.