

Department of Biochemical Engineering and Biotechnology

**Minutes of the meeting of
Departmental Research Committee (DRC)
(DRC-05/2013-2014)**

May 12, 2014

The fifth meeting of *Departmental Research Committee* (DRC) for the academic session 2013-2014 was held on **Thursday, May 08, 2014** at **10 AM** in the Committee Room (I-230) of the Department.

The following members were present:

Prof. Prashant Mishra (*Chairman*)
Prof. T.R. Sreekrishnan
Prof. V.S. Bisaria
Prof. Saroj Mishra
Prof. A.K. Srivastava
Dr. Shilpi Sharma
Dr. Ritu Kulshreshtha
Dr. D. Sundar (*Convener*)

Item No. 1 - To confirm the minutes of the 4th meeting of the DRC for the session 2013-2014 (DRC-04/2013-2014) held on April 07, 2014.

The Minutes of the DRC meeting No. 4/2013-2014 were confirmed as circulated.

Item No. 2 - Matters arising out of the minutes of DRC-04/2013-2014.

The position in respect of the following matters was noted with observations/decisions as indicated against each:

(i). PhD project floated by Dr. Preeti Srivastava jointly with IOC R&D.

It was informed that the PhD project entitled "Biocatalytic viscosity reduction of heavy crude oil" floated by Dr. Preeti Srivastava along with Dr. Manoj Upreti of IOC R&D, Faridabad has been formally approved by Dean (Academics).

(ii). PhD written Comprehensive Exam.

It was decided to conduct the Ph.D Written Comprehensive Examination in August 1st week. The candidates, who were unsuccessful in clearing the Exam in January 2014, would be given one more chance to re-appear in this Exam. Prof. A.K. Srivastava and Dr. Preeti Srivastava will coordinate the setting of question papers and conduct the examination.

(iii). Conduct of entrance test/interview for admission to PhD/MSR Program (2014-2015, 1st Semester).

The Chairman DRC informed the Committee that the applications received for PhD and MSR programs were processed and the call letters have been sent out for the shortlisted candidates for appearing in the written admission test to be conducted on May 15, 2014. Since the shortlisted candidates for MSR program was large in number, it was decided to further shortlist candidates for the interview, based on their performance in a written admission test. It was informed that Prof. VS Bisaria and Dr. Ziauddin Shaikh have formulated the syllabus for the MSR written test as well as revised the syllabus for the PhD written test in consultation with the DRC members and other departmental faculty. For those candidates, who have been shortlisted to appear in the written test for both the PhD and MSR programs, it was decided that such candidates would be asked to appear first in the PhD written test and then subsequently appear in the MSR written test, to be conducted exclusively for these candidates.

The schedule for the written tests and the interview were finalized as given below:

	Day	Time	Activity
1	May 15, 2014 (Thursday)	8:30 AM	All the candidates (for both the PhD and MSR programs) will report to Block V – LT1
2		9:00 – 10:00 AM	Written tests for PhD and MSR programs
3		10:30 – 11:00 AM	Written test for MSR program <ul style="list-style-type: none">• Only for those candidates who had applied for both the PhD and MSR programs and have already appeared in the PhD admission test conducted from 9-10 AM.• These candidates will appear <u>only</u> for <u>Section 2</u> of the MSR question paper (since Section 1 is common for both PhD and MSR question papers)
4		< 1 PM	Announcement of list of qualified candidates for the interview (for both PhD and MSR programs)
5		1:00 PM onwards	Verification of original documents of the candidates who have been shortlisted for the interview (for both PhD and MSR programs)
6		1:30 PM onwards	Interview for candidates who have qualified in the PhD written admission test
7		May 16, 2014 (Friday)	9:00 AM onwards
8	AN		Announcement of provisional list of selected candidates (for both PhD and MSR programs)

Item No. 3 - Synopsis of the thesis titled 'Bioprocess studies on recombinant *E.coli*, expressing proteins with GroEL-GroES assisted folding' submitted by Ms. R. Gayathri (2007BEZ8175).

The Committee decided to seek a fresh panel of Examiners from the Research Supervisors of Ms. R. Gayathri (2007BEZ8175), before considering the synopsis for forwarding to Dean (Academics).

(Action: Profs. T.K. Chaudhuri / James Gomes, KSBS)

Item No. 4 - Finalization of list of examiners for evaluation of M.Tech projects.

It was decided to conduct the final project presentations for the M.Tech theses in the last week of June 2014. However, those students who may complete their project work and wish to defend their thesis earlier, will be required to submit their thesis to the M.Tech Coordinator, duly approved by their Supervisors, for early scheduling of external evaluation and viva-voce. The Chairman was authorized to identify the examiners from the panel of experts suggested by the DRC and contact them for evaluation.

Item No. 5 – Discussion on new M.Tech projects offered by Departmental Faculty

The chairman informed that 29 projects have so far been received from the faculty members for the M.Tech students. All the projects were discussed and approved for floating to the students as given in **Annexure 1**. It was decided to request the faculty members to float additional projects if the total number of projects was insufficient. The Chairman was authorized to allot the projects based on the student choices and their CGPA.

Item No. 6 – Discussion on broad areas of M.S (Research) projects for allotment to 2014-2015 Sem 1 entry students.

The Committee discussed and approved the broad areas of research to be floated for the 2014-2015 Semester 1 entry MS (Research) students (**Annexure 2**).

Item No. 7 – Discussion on new PhD projects offered by Departmental Faculty.

The Committee discussed all the projects and approved the following 10 new PhD projects submitted by the Departmental Faculty.

#	PhD Project Title	Supervisor 1	Supervisor 2
1	Improved production of malic acid by redirection of cellular metabolism in a suitable bacterial host	Bisaria VS	Preeti Srivastava
2	A computational study to investigate protein aggregation	Sundar D	-
3	Continuous production of Biopolymers (PHB and its derivatives) from by-product of biodiesel industry (glycerol) using high cell density cell culture.	Srivastava AK	Sreekrishnan TR
4	To study and establish optimum recovery protocol for PHB/Copolymers	Srivastava AK	Sreekrishnan TR
5	Production of poly (3-hydroxybutyrate) PHB & its derivatives in different novel airlift bio-reactor configurations	Sreekrishnan TR	Srivastava AK
6	Scale up of PHB production using <i>Azohydromonas australica</i>	Srivastava AK	Sreekrishnan TR
7	Study on antibiotic resistance transmission and proliferation in Delhi and development of possible mitigation strategy	Ziauddin A Shaikh	
8	Finding the link between metal pollution and antibiotic resistance	Ziauddin A Shaikh	
9	AD Doctor- development of process monitoring strategy for operating anaerobic digesters	Ziauddin A Shaikh	
10	Evaluating therapeutic and prognostic potential of miR-191 in breast cancer	Ritu Kulshreshtha	

Further, on the request of Prof. VS. Bisaria, his previously approved PhD project entitled “Production of bioactive compounds by plant cell cultures of *Tinospora cordifolia*” has now been removed from the list of PhD projects. An updated list of DRC approved Ph.D. projects, available for allotment, as on date, is appended to the end of the minutes (**Annexure 3**).

Item No. 8 - Discussion on the norms for allotment of PhD students to a faculty member.

The Committee decided that each faculty member shall supervise up to four Ph.D. students (independent or joint), if he/she depends solely on the departmental funds (mainly for consumables). However, the allotment of more than four (up to a maximum of six) Ph.D. students to a faculty, will depend on the availability of consumable funds in the sponsored projects, of which he/she is either PI or Co-PI.

The allocation of the Supervisor for a selected PhD student shall be decided by the DRC, depending on the number of students already working with a faculty member and the research interest of the student, as indicated during the admission interview.

Item No. 9 - Discussion on the norms for allotment of MSR students to a faculty member.

It was decided that the broad research areas of the faculty members would be made available to the candidates who have qualified the MSR written admission test and the candidates would be asked to indicate the research area of interest during the admission interview. The allocation of the Supervisor for a selected MSR student shall be decided by the DRC based on the candidate choices and their performance.

Item No. 10 - Any other item with the permission of the Chair.

- a) *Application received from a Foreign National Mr. Mehrab Valizadeh Derakhshan, a candidate from Iran for the PhD Program under the Self Financing Scheme.*

On scrutiny of the application, the Committee found *Mr. Mehrab Valizadeh Derakhshan* to be a potential candidate. Since the candidate appeared to have a varied interest and diverse background, it was decided to get in touch with him to find out his specific research interests, before any decision can be made by the DRC on his candidature.


(Action: Convener DRC)

- b) *Presentation by 2012-entry MSR students before the Students' Research Committee (SRC).*

It was decided by the Committee that the progress made by the 2012-entry MSR students should be monitored by the SRC based on a written report and presentation before the end of this semester. It was informed that those students who desire to submit the synopsis would be required to give a pre-synopsis seminar, before the DRC can forward the synopsis for evaluation.

(Action: SRC members [GPA, RK, ZAS] and Respective Supervisors)

The meeting ended with thanks to all the members.


D. SUNDAR
DRC Convener

Distribution

All DRC members and other DBEB Faculty (by email)
Cc: DRC File

Projects being floated for M.Tech Major Project (MTP)

	Project Title	Supervisor 1	Supervisor 2
1	Mapping the conditions for bistability of the lac operon on lactose	Atul Narang	
2	Studies on stochastic gene expression	Atul Narang	
3	Study of Magneto-taxis of Magnetotactic bacteria	Prashant Mishra	
4	Enzymatic sialylation of erythropoietin	Prashant Mishra	
5	Study of amidase substrate specificity of bacterial isolates	Prashant Mishra	
6	Preparation and study of silver nanoparticle coating	Prashant Mishra	
7	Localization of replication proteins in <i>Rhodococcus erythropolis</i>	Preeti Srivastava	
8	Localization of partitioning proteins ParB and ParA in <i>Rhodococcus erythropolis</i>	Preeti Srivastava	
9	Microbial biotransformation of asphaltene	Preeti Srivastava	Manoj Upreti IOCL Faridabad
10	Printing antibodies with inkjet printers for protein micro-array	Ravikrishnan E	
11	Torque calibration of 4 pole magnetic tweezer	Ravikrishnan E	
12	Preparation of single head myosin for IVMA	Ravikrishnan E	
13	Ultrasensitive detection of biomarker using immuno-magnetic capture	Ravikrishnan E	
14	Using RNAi technology to improve CHO cell growth	Ritu Kulshreshtha	
15	Understanding RNA binding protein and miRNA networks	Ritu Kulshreshtha	
16	Expression of E48D RNase mutant <i>E.coli</i> and comparison with MD predictions for ALS	Roychoudhury PK	James Gomes KSBS
17	Expression of V75I RNase mutant <i>E.coli</i> and modeling PPI interaction model in ALS	Roychoudhury PK	James Gomes KSBS
18	Whole cell biocatalysis for synthesis of fructooligosaccharides	Saroj Mishra	Subhash Chand
19	Characterization of high-redox laccase of <i>Cyathus bulleri</i>	Saroj Mishra	
20	Tracking of bioinoculants in the rhizosphere of <i>Cajanus cajan</i>	Shilpi Sharma	Bisaria VS
21	Effects of probiotics and prebiotics on human gut microflora	Shilpi Sharma	Subhash Chand
22	Studies on newer reactor designs for cultivation of Plant cells on inert solid support	Srivastava AK	
23	Studies on newer reactor designs for cultivation of hairy root cultures on inert solid supports	Srivastava AK	
24	Studies on newer reactor designs for production of derivatives of PHB	Srivastava AK	
25	Comparative genome analysis	Sundar D	
26	Study the mechanical and biological properties of anaerobic bio-granules	Ziauddin A Shaikh	Deepak Kumar ITMMEC
27	Study the treatment efficacy of sponge reactor for treating coke oven effluent	Ziauddin A Shaikh	
28	Development of energy efficient reactor system for treating conventional and emerging pollutants	Ziauddin A Shaikh	
29	Performance comparison of sponge reactors treating domestic effluent with two influent flow patterns [up flow (influent from bottom) and down flow (influent from top)]	Ziauddin A Shaikh	

Broad research areas for allotment to 2014-entry MSR students

	Broad research area	Faculty Member / Supervisor
1	Membrane-based separation	Agarwal GP
2	Metabolic engineering, Bacterial gene regulation	Atul Narang
3	Enzyme stabilization	Bisaria VS
4	Protein Engineering and Bionanotechnology	Prashant Mishra
5	Plasmids from heavy metal contaminated sites	Preeti Srivastava
6	Molecular motors, Fluorescence microscopy	Ravikrishnan E
7	Generation of 3D tumor models and its applications	Ritu Kulshreshtha
8	Heterologous gene expression in <i>Pichia pastoris</i>	Saroj Mishra
9	Environmental Genomics	Shilpi Sharma
10	Environmental Engineering, Biopolymer production	Sreekrishnan TR
11	Biopolymer production	Srivastava AK
12	Bioinformatics and Functional Genomics	Sundar D
13	Environmental Engineering	Ziauddin A Shaikh

PhD projects approved by DRC (as on May 08, 2014)

Supervisor 1		Project Title	Supervisor 2
GP Agarwal	1	Protein transmission investigations through ultrafiltration for moderately high-pressure range (> 100 Kpa).	
	2	Production and purification of lipase using MF and UF membrane	Prashant Mishra
VS Bisaria	1	Improved production of malic acid by redirection of cellular metabolism in a suitable bacterial host	Preeti Srivastava
AK Srivastava	1	Mass production of bio/copolymer using <i>Azohydromonas australica</i> & <i>A. eutropha</i> in novel reactor configurations.	
	2	Mass Production of biodegradable Co-polymers from renewable resources	
	3	Continuous production of Biopolymers (PHB and its derivatives) from by-product of biodiesel industry (glycerol) using high cell density cell culture.	TR Sreekrishnan
	4	To study and establish optimum recovery protocol for PHB/Copolymers	TR Sreekrishnan
	5	Scale up of PHB production using <i>Azohydromonas australica</i>	TR Sreekrishnan
TR Sreekrishnan	1	Production of Biopolymers (PHB and its derivatives) from molasses using <i>A. latus</i>	AK Srivastava
	2	Production of Biopolymers (PHB and its derivatives) from sulfite waste water	AK Srivastava
	3	Production of poly (3-hydroxybutyrate) PHB & its derivatives in different novel airlift bio-reactor configurations	AK Srivastava
Sunil Nath	1	Measurement of oxygen exchange by mass spectrometry for probing the mechanism of ATP synthesis by ATP synthase: A splendid molecular machine.	Praveen Kaul
	2	Probing the mechanism of ATP synthesis	Praveen Kaul
PK Roychoudhary	1	Process optimization for bioconversion of rice straw to ethanol	Prashant Mishra
Prashant Mishra	1	Silver nanoparticles: Preparation, Assembly and conjugation with proteins for antimicrobial and analytical applications	
Shilpi Sharma	1	Microbial production of chitosanase for generation of biologically active chitosan-oligosaccharides	Subhash Chand
	2	Effect of application of bioinoculants and "bioirrigation" for sustainable mixed cropping of pigeon pea and finger millet on rhizospheric community	VS Bisaria
	3	Evaluation of microbial community structure and function in pesticide contaminated soil using molecular markers	
	4	Analysis of diversities of bacterial communities in the rhizospheres of economically important legumes using molecular microbiology	
Sundar D	1	A computational study to investigate protein aggregation	

PhD projects approved by DRC (as on May 08, 2014)

Contd.....

Supervisor 1		Project Title	Supervisor 2
Ritu Kulshreshtha	1	MicroRNA and AU rich element (ARE) deciphering the regulatory loop	
	2	Investigating modulation of miRNA expression in the hypoxic stem cell niche	
	3	Evaluating therapeutic and prognostic potential of miR-191 in breast cancer	
Preeti Srivastava	1	Engineering of <i>Dibenzothiophene monooxygenase</i> (DszC) for enhanced substrate range and improved activity	
	2	Chromosome Segregation in <i>Rhodococcus erythropolis</i> PR4	
	3	Biocatalytic viscosity reduction of heavy crude oil	Manoj Upreti, IOC R&D, Faridabad
Ravikrishnan Elangovan	1	Direct detection of Enteric Fever in Blood	Shalini Gupta (Chemical) Vivek Perumal (SBS)
	2	Study of Torque versus load in Bacterial flagellar Motor	Sunil Nath
	3	Study of switching in Bacterial Flagellar Motor under varying proton motive force	Sunil Nath
	4	High precision localization of elongated fluorescent objects	
	5	Study of intra-head interaction in myosin II molecule in ensemble	
Ziauddin Ahammad	1	Mapping of ARGs distribution in the river Yamuna (in Delhi) and upstream of river Ganges (Rishikesh-Haridwar) and development of possible mitigation strategy.	
	2	Efficiency comparison of conventional wastewater treatment systems in removing emerging pollutants	
	3	Study on antibiotic resistance transmission and proliferation in Delhi and development of possible mitigation strategy	
	4	Finding the link between metal pollution and antibiotic resistance	
	5	AD Doctor- development of process monitoring strategy for operating anaerobic digesters	