

Department of Biochemical Engineering & Biotechnology
Minutes of DRC Meeting No 03/2012-13

20th June, 2013

The **Third meeting** of the Departmental Research Committee (DRC) for the session 2012-2013 was held on April 30, 2013 at 4 pm in the Committee Room of the Department. The following members were present:

Prof. Prashant Mishra (Chairperson)
Prof. V. S. Bisaria
Prof. A.K. Srivastava
Prof. T. R. Sreekrishnan
Dr. D. Sundar
Dr. Ritu Kulshreshtha
Dr. Shilpi Sharma
Dr. Atul Narang (Convener)

Agenda Items:

Item 1: Confirmation of minutes of DRC meeting No 2/2012-13.

The minutes of Meeting No. 12/2012-2013 held on February 26, 2013, were confirmed as circulated

Item 2: Matters arising out of the minutes.

There were no matters arising out of the above minutes.

Item 3: Allotment of Ph.D. & MSR project

The Chairman informed that the Ph.D and M.S R projects of eligible faculty members were floated as per **Annexure 1A & B** and based on the choices given by students PhD and MSR projects were allotted as **(Annexure 2 A & B)**.

Item 4: Finalization of a list of examiners for evaluation of M.Tech. Projects

The committee discussed and approved a tentative list of examiners for evaluating M. Tech. theses. The chairman was authorized to finalize the list of examiners based on their availability.

Item 5: Discussion on short listing Criteria, date and mode of conduct of test/ interview for Ph.D. admissions.

The Committee decided to conduct the Ph.D. and M.S.(R) interviews on June 4th and 5th 2013, respectively. The committee authorized the chairman to finalize the short-listing criteria for Ph.D. and M.S.(R) candidates. It was decided that based on the number of shortlisted candidates the written exam may be conducted. A committee consisting of Dr. Atul Narang, Dr. D. Sundar, Dr. Ritu Kulshreshtha, Dr Shilpi Sharma

and Dr Ravi Elangovan and Dr. Praveen Kaul was constituted to conduct the examination and evaluate the paper.

Item 6: To discuss new M.Tech projects offered by faculty

The chairman informed that 30 projects were submitted by faculty members for M.Tech. All the projects were discussed and projects were approved as (Annexure 3). The chairman was authorized to allot the projects based on the choice of students/ faculty and CGPA of students. The M. Tech. projects were allocated as detailed in (Annexure 3)

Item 7: Project proposal titled 'Development of Indigenous, Highly Sensitive, Rapid, Noninvasive Quantum Dot Based Immunosensor for Early Detection of Breast Cancer using HER2 as a Biomarker' submitted by Dr Ritu Kulshrestha as a co-PI for funding from DBT.

The committee discussed the project some suggestions were made. The committee approved the project proposal 'Development of Indigenous, Highly Sensitive, Rapid, Noninvasive Quantum Dot Based Immunosensor for Early Detection of Breast Cancer using HER2 as a Biomarker' submitted by Dr Ritu Kulshrestha as a co-PI after modifications. The chairman was authorized to forward the proposal to Dean IRD after appropriate modifications.

Item 8: A note received from Ms. Dhara Thakore for continuation of her registration and Scholarship from July 2013 for six months.

The committee recommended the continuation of registration and scholarship of Ms. Dhara Thakore for another six months with effect from July 2013.

Item 9: A note received from DR (PGS&R) for a new list of panel of examiners for Ms. Swati Ojha.

The committee approved a new panel of foreign examiners for Ms. Swati Ojha and authorized the Chairman to forward the list of foreign examiners to Dean Academics.

Item 10: A note received from DR (PGS& R) for a new list of panel of examiners for Ms. Kankana Kundu

The committee approved a new panel of foreign examiners for Ms. Kankana Kundu and authorized the Chairman to forward the list of foreign examiners to Dean Academics.

Item 11: A note received from Ms. Nivedita Patra for grant of partial financial assistance for presenting her paper in International conference.

The committee recommended partial financial assistance to Ms. Nivedita Patra for presenting her paper in an international conference.

Item 12: A note received from Ms. Dhara Thakore for grant of partial financial assistance for presenting her paper in International conference.

The committee recommended partial financial assistance to Ms. Dhara Thakore for presenting her paper in an international conference.

Item 13: *note received from Ms. Rashi Gupta for grant of partial financial assistance for presenting her paper in International conference*

The committee recommended partial financial assistance to Ms. Rashi Gupta for presenting her paper in an international conference.

Item 14: *A note received from DR (PGS & R) regarding wavier for students from centrally funded Technical Institutions.*

The committee was informed of a new regulation that students from centrally funded technical institutions do not require GATE qualification.

Item 15: *Application of Ms. Afsha Kausar and Ms. Nupur Jain for Ph.D. admission.*

The committee discussed and decided that the applications of Ms. Afsha Kausar and Ms. Nupur Jain should be considered for short listing along with the other applications being considered for summer recruitment of Ph.D.s.

Item 16: *Constitution of SRC for Mr. Sunil Kumar.*

Since list of suggested SRC members were not mentioned in the application, the committee deferred this item.

Item 17: *Any other items with the permission of the Chair*

- *Note from Prof. V. S. Bisaria regarding project titled 'Utilization of the microflora inhabiting termite gut for hydrolytic enzymes and their application in biofuel production.'*

The committee discussed the project and approved its transfer to IITD.

- *Synopsis titled 'Studies on the bioconversion of renewable feedstock to 1,3-propane diol' submitted by Ms. Guneet Kaur (2008BEZ8285).*

The committee discussed and approved the foregoing synopsis as well as the panel of Examiners. The Chairman was authorized to forward the same to Dean (Academics).

The meeting ended with a vote of thanks to the chair

Atul Narang.

Atul Narang
Convener, DRC

Projects for Ph.D. Students

Prof. S. Mishra

- Investigating the functional expression of laccase by metal ion replacements.

Prof. Prashant Mishra

- Engineering of azurin protein for the development of anticancer agent.

Prof. P.K.Roychoudhury

- Production of ethanol from agricultural wastes by integrating solid state cultivation and vacuum cycling fermentation with intermittent substrate feeding.
- Process optimization for bioconversion of rice straw to ethanol (*Jointly with Dr.Prashant Mishra*)

Dr. Praveen Kaul

- Engineering of racemases for enhancing their catalytic potential (Jointly with Prof. Prashant Mishra)

Prof. Sunil Nath

- Measurement of oxygen exchange by mass spectrometry for probing the mechanism of ATP synthesis by ATP synthase: A splendid molecular machine. (Jointly with Dr. P.Kaul)
- Experimental Investigation of ATP synthesis by chloroplast thylakoids and reconstituted systems (*jointly with Dr. Ravikrishnan Elangovan*)
- Probing the mechanism of ATP synthesis (jointly with Dr. Praveen Kaul)

Dr. Shilpi Sharma

- Diversity of ACC deaminase positive bacteria in stressed agricultural environments. (Jointly with Prof.V.S. Bisaria)
- Evaluation of microbial community structure and function in pesticide contaminated soil using molecular markers

Dr. E. Ravikrishnan Elangovan

- Direct detection of Enteric Fever in Blood (jointly with Dr. Shalini Gupta Chem Engg and Dr. Vivekanand P (SBS)
- Study of Torque versus load in Bacterial flagellar Motor (jointly with Prof. Sunil Nath)
- High precision localization of elongated fluorescent objects

Dr. Ritu Kulshreshtha

- MicroRNA and AU rich element (ARE) deciphering the regulatory loop

Prof. V.S. Bisaria

- Production of bioactive compounds by plant cell cultures of *Tinospora cordifolia* (jointly with Dr. D. Sundar)
- Biosynthesis of aleuritic acid in Indian lac insect, *Kerria lacca* and its *in vitro* production. (jointly with Dr. Preeti Srivastava)

Prof. G. P. Agarwal

- Protein transmission investigations through ultrafiltration for moderately high-pressure range (> 100 Kpa).
- The development and evaluation of UF/MF Membranes for separation of low molecular weight organic molecules (e.g. polyols, acids etc) from fermented broth.
- Production and purification of lipase using MF and UF membrane (jointly with Prof. Prashant Mishra)

Projects for M.S. (R) Students

Prof. A.K.Srivastava

- Production of Biopolymers (PHB and its derivatives) from glycerol
- Scale up of PHB production using *Azohydromonas australica*
- Production of bio/co polymers using cheese whey.

Prof. S. Mishra

- Synthesis of glyco-conjugates using engineered beta-glucosidase I of *Pichia etchellsii*.

Prof. Prashant Mishra

- Silver nanoparticles: Preparation, assembly and conjugation with proteins for anti-microbial and analytical applications

Dr. Shilpi Sharma

- Diversity of ACC deaminase positive bacteria in stressed agricultural environments. (Jointly with Prof.V.S. Bisaria)
- Evaluation of microbial community structure and function in pesticide contaminated soil using molecular markers

Dr. E. Ravikrishnan Elangovan

- Preparation of synthetic thick filament from chicken skeletal muscle
- High precision localization of elongated fluorescent objects

Dr. Ritu Kulshreshtha

- Identification of micro RNAs involved in Chikungunya pathogenesis (jointly with Dr. Pratima Ray, AIIMS)

Dr. D. Sundar

- Studies on isoprenoid biosynthesis in *Escherichia coli* jointly with Prof. V.S. Bisaria

Dr. Preeti Srivastava

- Engineering of Dibenzothiophene monooxygenase (DszC) for enhanced substrate range and improved activity

Prof. G. P. Agarwal

- Protein transmission investigations through ultrafiltration for moderately high-pressure range (> 100 Kpa).
- The development and evaluation of UF/MF Membranes for separation of low molecular weight organic molecules (e.g. polyols, acids etc) from fermented broth.
- Production and purification of lipase using MF and UF membrane (*jointly with Prof. Prashant Mishra*)

Annexure 2A

Allotment of Projects to Ph.D students

S.No.	Students	Title of the Project	Supervisor (s)
1	Arpita 2012BEZ 8188	Investigating the functional expression of laccase by metal ion replacements.	Prof. Saroj Mishra
2	Anees K 2012BEZ 8192	Biosynthesis of aleuritic acid in Indian lac insect, <i>Kerria lacca</i> and its <i>in vitro</i> production	Prof. V.S. Bisaria & Dr. Preeti Srivastava
3.	Himanshu Singh 2012 BEZ8189	The development and evaluation of UF/MF membrane for separation of low molecular weight organic molecules (e.g. polyols, acid etc.) from fermentation broth	Prof. G.P. Agarwal
4.	Ashwani Gautam (2011BEZ 8481) (PT)	Maximizing expression of GCSF in <i>Pichia pastoris</i> through an integrated gene dosage and media optimization strategy	Prof. Saroj Mishra

Annexure 2B

Allotment of Projects to M.S. (R) students

S.No.	Students	Title of the Project	Supervisor (s)
1	Anshul Sharma 2012 BEY 7515	Synthesis of glyco-conjugates using engineered beta-glucosidase I of <i>Pichia etchellsii</i> .	Prof. Saroj Mishra
2	Sunil Singh 2012BEY 7516	Evaluation of microbial community structure and function in pesticide contaminated soil using molecular markers	Dr. Shilpi Sharma
3	Augustine Cletus 2012BEY 7518	Preparation of synthetic thick filament from chicken skeletal muscle	Dr.Ravikrishnan Elangovan
4	Raju Kumar 2012 BEY 7519	Scale up of PHB production using <i>Azohydromonas australica</i>	Prof. A.K.Srivastava

List of approved MTP projects assigned to students

G. P. Agarwal

1. Study of low pressure limiting flux for high MW proteins: The causes and their effects on low MW protein transmission using experimental approach. (**Jasraj Singh Dhanju**)
2. Development of practical multi-stage ultrafiltration strategy for protein fraction to achieve high purity and high yield. (**Mayank Goel**)
3. Comparative study of ethanol fermentation using different wild type and recombinant strains (AN) (**Mayank Gupta**)
4. Study on remediation of Cr by SRBs in a batch Bioreactor (TRS). (**Devansh Durgaraj**)

V. S. Bisaria

1. In vitro examination of the different attributes of Granulocyte Colony Stimulating Factor (GCSF) on safety and efficacy of drug (with A. Rathore): (**Shachi Mittal**)

Saroj Mishra

1. Cloning and expression of α -glucosidase of a *Microbacterium* isolate in *Escherichia coli*. (**Abhishek Agarwal**)
2. Synthesis of oligosaccharides using glycosynthase variant of β -glucosidase of *Pichia etchellsii*. (**Shivkant Yadav**)

A. K. Srivastava

1. Studies on newer reactor designs for cultivation of Plant cells on inert solid support (**Ankita Vij**)
2. Studies on newer reactor designs for cultivation of hairy root cultures on inert solid supports (**Vaibhav Yadav**)
3. Studies on newer reactor designs for PHB production (**Ishita Goel**).

Prashant Mishra

1. Improvement of specificity of lipase using computational and biochemical approach. (**Saundarya Baghel**)
2. Purification and stabilization of recombinant human erythropoietin (**Lalit Kumar**)
3. Development of glucose/ HbA1C biosensor(s) using nanomaterials. (**Kanwarbir Singh Bajwa**)
4. Studies on biodegradability of magnets from Magnetotactic bacteria. (**Divyansh Raj**)

Atul Narang

1. The Role of Intergenic Spacing in Transcriptional Control of the *lac* Operon. (**Kanika Khanna**)
2. Expression of Lac Repressor as a Function of the Cell Cycle. (**Charu Mehta**)

3. Evaluation of Constitutive and Starvation Promoters for Protein Expression in *E. coli*. (**Shruti Singla**)
4. Studies on repressor-effector-operator interactions in *E. coli*. (**Rohit Sharma**)

Shilpi Sharma

1. Studies on the enrichment of selected probiotic population in continuous culture using prebiotic agents (with Prof Subhash Chand). (**Surabhi Yadav**)
2. Non-target effects of bioinoculants in rhizosphere (with Prof V. S. Bisaria). (**Sakshi Agarwal**)

Ravikrishnan Elangovan

1. In vitro motility assay using skeletal muscle myosin II (**Ashwin Srikumar**)
2. Development of amperometric biosensor (**Avinash**)
3. Study of bacterial flagellar filament compliance (**Vaibhav Morwal**)
4. Create PAT based process control scheme for *Pichia Pastoris* fermentation (with A. Rathore) (**Abhishek Persad**)

Preeti Srivastava

1. Isolation and characterization of microorganisms for biodegradation of asphaltene (jointly with Dr. M.P. Singh/Dr. Manoj Upreti, IOCL, Faridabad). (**Anurag Sinha**)
2. Studies on the dynamics of origin proximal loci of *Rhodococcus erythropolis* PR4 (**Sandesh Lokhande**)
3. Characterization of pSJ12, a new plasmid isolated from waste water metagenome (**Ramesh Jat**)

Praveen Kaul

1. Isolation of strains capable of hydrolyzing α -amino- ϵ -caprolactam to lysine. (**Nikita Gupta**)