

REPORT -2
Department of Biotechnology

**Progress report by Bhaskaracharya College of Applied Sciences supported under
Star College Scheme (2011-2012)**

1. **Name of the College :** Bhaskaracharya College of Applied Sciences
University of Delhi
Sector – 2, Phase – I
Dwarka, New Delhi 110075
2. **Name of Departments supported :** Biomedical Science,
Microbiology
Biochemistry
Food Technology

Name of Coordinator, designation, address, phone & fax nos., email

Dr. Shalini Sehgal
Associate Professor
Department of Food Technology
Bhaskaracharya College of Applied Sciences
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3. No. of regular faculty with Ph.D. in each participating department:

Biochemistry: 01

S. No.	Name of the faculty	Designation	Department	Qualifications	Specialization
1.	Dr Anita Sodhi	Associate Professor	Biochemistry	M. Sc Ph. D.	Biochemistry

Food Technology: 05

S. No.	Name of the faculty	Designation	Department	Qualifications	Specialization
1.	Dr. Rizwana	Associate Professor	Food Technology	MSc. ,Ph.D , Jamia Hamdrad	Food processing
2.	Dr. Vandita Gupta	Associate Professor	Food Technology	M.Sc., Ph. D. (DU)	Food and Nutrition
3.	Dr. Shalini Sehgal	Associate Professor	Food Technology	M.Sc., Ph. D. (NDRI)	Food Microbiology

4.	Dr. Eram S. Rao*	Associate Professor	Food Technology	M.Sc., Ph. D. (DU)	Food Science
5.	Dr. Meenakshi Garg	Assistant Professor	Food Technology	M.Sc., Ph. D. (HAU)	Food processing

*on child care leave

Biomedical Science: 03

S. No.	Name of the faculty	Designation	Department	Qualifications	Specialization
1.	Dr. Uma Chaudhry	Assistant Professor	Biomedical Science	M.Sc, Ph.D (D.U.)	Medical Biotechnology
2.	Dr. Shivani G. Varmani	Assistant Professor	Biomedical Science	M.Sc, Ph. D (AIIMS)	Medical Biochemistry
3.	Dr. Uma Dhawan	Assistant Professor	Biomedical Science	M.Sc, Ph.D (D.U.)	Human genetics

Microbiology: 04

S. No.	Name of the faculty	Designation	Department	Qualifications	Specialization
1.	Dr. Purnima Anand	Assistant Professor	Microbiology	M.Sc, Ph.D (D.U.)	Environmental Microbiology
2.	Dr. Ruchi Gulati Marwah#	Assistant Professor	Microbiology	M.Sc, Ph.D (D.U.)	Industrial Microbiology
3.	Dr. N. Vijaya Kumar	Assistant Professor	Microbiology	M.Sc, M.Phil, Ph.D (J.N.U)	Molecular Microbiology
4.	Dr. Pawas Goswami	Assistant Professor	Microbiology	M.Sc, Ph.D (NDRI, Karnal)	Dairy Microbiology

on maternity leave

4. List of courses (B.Sc./M.Sc./PG Diploma, certificate etc) run by different participating departments:

Name of the Participating Department	Courses run by the said Department
Department of Biochemistry	Biochemistry as a subject in participating departments.
Department of Food Technology	B.Sc. (Hons) Food Technology
Department of Biomedical Science	B. Sc. (Hons) Biomedical Science
Department of Microbiology	B. Sc. (Hons) Microbiology

5. Admission in different courses in participating departments in 2011-12 academic session:

S.No.	Cut off % for admission	No. of students	% of result	Position in university	No. of drop out students
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		admitted			
Department of Food Technology					
1	1 st Cut off – 78% PCB (GEN) 2 nd Cut off – 76% PCB (GEN) 3 rd Cut off – 68% PCB (GEN) 4 th Cut off – 67% PCB (GEN)	54	I Semester result declared & Result awaited for II Semester	Saachi Sethi secured I position and Monika Kakkad secured II position in college in the I Semester	03 overall dropouts
Department of Biomedical Science					
2	1 st Cut off – 90% PCB (GEN) 2 nd Cut off – 85% PCB (GEN) 3 rd Cut off – 80% PCB (GEN) 4 th Cut off – 77% PCB (GEN)	40	I Semester result declared & Result awaited for II Semester	M S Sravanthi secured Ist position and Ankita II position in the college in I Semester	03 overall dropouts
Department of Microbiology					
3	1 st Cut off – 88% PCB (GEN) 2 nd Cut off – 84% PCB (GEN) 3 rd Cut off – 81% PCB (GEN) 4 th Cut off – 80.66% PCB (GEN)	31	I Semester result declared & Result awaited for II Semester	Debanjana Dutta secured I position and Babbal secured II position in college in the I Semester	01 overall dropouts

6. Activities carried out during the year (department wise):

A) Student activities

Department of Food Technology

i. Workshop with Interscience, France

A workshop on the functioning of latest equipments in Microbiological Analysis such as Bagmixer, Automatic Colony Counter and Gravimetric Dilutor was conducted by Mr.

Jules Jalenques, International Sales, Interscience, France on 23rd January, 2012 in the college under the scheme.

ii. International Interaction Programme

A delegation from Kagawa University, Japan headed by Dr. Hirotoishi Tamura, Professor of Food Chemistry visited the Department of Food Technology in August, 2011 and interacted with the faculty and students regarding the academic exchange programme for both students and faculty in the field of Food Safety.

iii. Industrial visit

An educational trip for FT 2nd year students was organized to Skygourmet Catering Services Pvt. Ltd., Delhi. Food production and packaging technology for airline industries in terms of quality, cost, service and safety parameters was explained to students by their Manager, Quality Assurance. Information about innovative procedures to enhance the quality of the food served onboard had also been given to the students during visit.

iv. List of project taken by students

BSC.(H) FOOD TECHNOLOGY 2ND YEAR			
S.No	Name	Company	Area
1.	Alka Chauhan	Intertek India Pvt. Ltd, Udhyog Vihar, Gurgaon	Lab-Analysis Of Food, Water, Beverages
2.	Ankita Batra	Skygourmet Catering Unit Pvt. Ltd	Quality Assurance Department
3.	Anshu Mehra	Skygourmet Catering Unit Pvt. Ltd	Quality Assurance Department
4.	Ayush Kumar Jha	Avon Agro Food Testing Lab	Food Quality Department
5.	Chandni Panvanda	Nestle India, Moga, Punjab	Nestle Quality Assurance Centre
6.	Deepika Arora	Delhi Milk Scheme, West Patel Nagar, Delhi	Quality Control Lab, Production, Processing, Packaging, Distribution.
7.	Deepika Sharma	Britannia	Quality Assurance Department
8.	Jyoti Bohra	Ambassoder Skychef	Quality Assurance Department
9.	Manjiri Singh	Jumbo International, Okhla Industrial Area	Lab-Analysis Of Food And Vegetables Products.
10.	Megha Negi	Hindustan Vegetable Oil, Kirti Nagar	Quality Assurance Department
11.	Nishtha Khansili	Aes Lab, Noida Phase -Ii	Lab-Analysis Of Food
12.	Om Prakash	Avon Agro Food Testing Lab, Lawrence Road	Food Quality Department
13.	Parvinder Singh	Intertek Food India Pvt. Ltd, Udhyog Vihar, Gurgaon	Chemical-Microbial Analysis Of Food.
14.	Prashant Kumar	Avon Agro Food Testing Lab	Instrumentation,

			Chemical Analysis Of Food.
15.	Prashant Kumar Gautam	Nirulas Corner House Pvt. Ltd Sector-2 Noida	Quality Assurance- Microbial Analysis Of Food.
16.	Puneet Kumar	Delhi Milk Scheme, Patel Nagar	Quality Control Lab, Production, Processing, Packaging, Distribution.
17.	Rahul Vashishth	Delhi Milk Scheme, Patel Nagar	Quality Control Lab, Production, Processing, Packaging, Distribution
18.	Rajeev Kumar	Nirulas Corner House Pvt. Ltd Sector-2 Noida	Quality Assurance- Microbial Analysis Of Food
19.	Saloni Parashar	Britannia	Quality Assurance Department
20.	Seema Bari	Jumbo International , Okhla Industrial Area	Analysis Of Food And Vegetables Products.
21.	Shikha	The Tajmahal Hotel, Man Singh Road	Microbiological Testing Methods
22.	Surbhi	AES Lab	Chemical Analysis Of Food
23.	Vaishali Sharma	Jaipur Dairy , Jaipur	Production And Lab
24.	Vijaylaxmi	Delhi Milk Scheme, Patel Nagar	Quality Control Lab, Production, Processing, Packaging, Distribution
25.	Vikas Lakra	Avon Agro Food Lab, Lawrence Road	Instrumentation , Chemical And Microbiological Analysis Of Food.
26.	Vikas Malla	The Tajmahal Hotel, Man Singh Road	Micribiology Lab

Bsc.(H) Food Technology 3rd Year

S.No	Name	Company	Project
1.	Suvansha Nigam	Intertek Food India Pvt. Ltd , Udhog Vihar, Gurgaon	Spike recovery studies of pesticides residues, antibiotics and mineral elements in different food samples
2.	Seema Bahrti	Safal, Mongol puri	Packaging Of Frozen Peas
3.	Jyoti Nishad	Safal, Mongol puri	Effluent Treatment Plant
4.	Pooja Ratkali	Safal ,Mongol puri	Packaging Of Peas
5.	Neelam Basera	Delhi Milk Scheme, Patel Nagar	Analysis of ghee and water
6.	Niharika Sachdev	Rajdhani Mills	Packaging and quality control of cereal foods
7.	Shibhani Panighari	Delhi Milk Scheme, Patel Nagar	Analysis of milk and milk products
8.	Ankita Kapoor	Hindustan Vegetable Oil	Inspection of initial and final quality of cereal foods
9.	Neha Negi	Hindustan Vegetable Oil	Processing Of Cornflakes

10.	Sukanya	Mother Dairy	Milk Processing
11.	Sakshi	Hindustan Vegetable Oil	Inspection Of Oatflakes
12.	Kanika Walia	Delhi Milk Scheme	Analysis Of Quality Of Treated Effluent Water
13.	Parul	Mother Dairy	Milk Processing
14.	Rashmi	Mother Dairy	Processing Of Food
15.	Saumya Tewari	Haldirams	Estimation of moisture content and oil content in samples of namkeen
16.	Priyanka Sinha	Haldirams	Estimation of peroxide value and FFA content of oil
17.	Anu Sethi	Intertek Food India Pvt. Ltd , Udhyog Vihar, Gurgaon	Spike recovery studies of pesticide residues, antibiotics and mineral elements in different food samples
18.	Usha	Hindustan Vegetable Oil	Processing Of Oat Flakes

v. Others if any

- Story Board for a virtual lab is under construction for the students of B. Sc. (Hons) Food Technology on the topic of Detection of Food Borne Pathogens.
- Ms. Megha Negi of FT3rd year was awarded the ‘Italian Technical Services ‘ scholarship in food safety by the All India Food Processors Association for her academic performance.

Department of Biomedical Science

i. Workshops Organised

- Department of Biomedical Science had organized a workshop entitled “Basic Techniques of Molecular Biology” under the scheme for BMS students from 12th to 16th December, 2011. During the workshop lectures were delivered by Dr. Jan Wildenhain from University of Edinburgh, United Kingdom on the topic entitled “A Hitchhiker's Guide to Cheminformatics and Drug Discovery” and by Dr. Madhu Chopra, from Dr. B R Ambedkar Center for Biomedical Research, University of Delhi on “Application of Fluorescence Spectroscopy in Biomedical Science”.
- **The department also** organized demonstrations for Molecular Biology Techniques by inviting various Industry personnel including LabIndia for B. Sc. (Hons) Biomedical Science III year students and impart hands-on-training in the field of Biotechnology.

ii. Seminar attended by students and faculty

Students of B.Sc (Hons) Biomedical Sciences Part III attended a Seminar entitled ‘Prospects of Diagnostics, Therapeutic Proteins & Human Vaccine Industry’ in phd chamber of commerce and industry, PHD House, 4/2 Siri Institutional Area on 11th July 2011.

iii. List of project taken by students

S. No	Name of the Students	Name of the Mentor / Place of Work	Topic of Dissertation
1	Prashant Pradhan	Dr Vibha Tandon	Design and synthesise two new analouge of Anti cancer drug hoescht
2	Kailash Singh	Dr VibhaTandon	Cloning and expression of integrase gene if HIV in <i>E coli</i>
3	Ravi Jain	Prof Daman Saluja	Cloning of gene that encodes for CT357 (<i>Chlamydia trachomatis</i>) protein, it’s expression; And to carry out In-Silico work of hypothetical proteins of <i>Neisseria gonorrhoeae</i> .
4	Deepak	Prof Daman Saluja	Cloning of gene that encodes for CT357 (<i>Chlamydia trachomatis</i>) protein, its expression; and to carry out In-Silico work of hypothetical proteins of <i>Neisseria gonorrhoeae</i> .
5	Praveen K Tripathy	Dr D S Arya	To study Cardioprotective mechanism of seabuckthorn oil on Ischemia Reperfusion modal of Rat Heart.
6	Mudasser	Prof M M Chaturvedi	Studies of Chromatin Organization in Murine Septic Liver.
7	Preeti Goel	Prof M M Chaturvedi	To study chromatin changes in regenerated liver

iv. Excursion

Students of B.Sc (Hons) Biomedical Sciences Semester-2, Part-I and Faculty of the Department of Biomedical sciences organized an educational trip to Dr. B. R. Ambedkar Center for Biomedical Research, University of Delhi. The purpose of the visit was to learn various techniques of animal handling such as Tubectomy, Hysterectomy and Orchidectomy on laboratory animals such as Wistar rats, which was a part of the course curriculum. Thereafter, the students were also shown various scientific laboratories of the esteemed institute and the concerned faculty explained their respective research work. Overall it was very educative and exhilarating trip for students and faculty members of the Department.

v. Others if any

A virtual lab is under construction for the students of B. Sc. (Hons) Biomedical Science on the topic of AMES test.

Department of Microbiology

i. Inter college fest

Department of Microbiology had organized annual inter-college festival, **MICROQUEST-2012**. An array of Student activities such as Quiz Moz, Poster Presentation, Online Power Point Presentation, Graffiti, Dumb Charade and Micro Burst were arranged which attracted throngs of Students and saw a high level of participation.

ii. Industrial visit

Students of B.Sc (Hons) Microbiology Part III attended a Seminar entitled 'Prospects of Diagnostics, Therapeutic Proteins & Human Vaccine Industry' in Ph.D Chamber Of Commerce And Industry, PHD House, 4/2 Siri Institutional Area on 11th July **2011**.

iii. List of project taken by students

S.No.	Name of the Student	Place of Work	Project Title
1.	Mr. Aashish Jain	Hash Biotech Labs Pvt. Ltd, Punjab	Comparative studies on the Polysaccharide Production from <i>Bacillus subtilis</i> and <i>E. coli</i>
2.	Miss Preeti	Sir Ganga Ram Hospital, New Delhi	Lab. Diagnosis of Bacterial, Fungal and Viral diseases
3.	Miss Varsha	Sir Ganga Ram Hospital, New Delhi	Lab. Diagnosis of Bacterial, Fungal and Viral diseases
4.	Mr Prateek	Sir Ganga Ram Hospital, New Delhi	Lab. Diagnosis of Bacterial, Fungal and Viral diseases
5.	Miss Sanjana	IGIB, Delhi	Investigation of Polyketide Synthesis. tyrosinases and related proteins in <i>Trychophyton rubrum</i>
6	Miss Neha	Janak puri Super Speciality Hospital, New Delhi	Microbiological Staining
7	Miss Aditi	Special Centre for Molecular Medicine (JNU) New Delhi	Molecular Techniques
8	Mr Yash Pal	B. L Kapoor Memorial Hospital, New Delhi	Microbiological Staining

iv. Excursion

An educational trip of students of B.Sc (Hons) Microbiology Part-III was organized to Technology Based Incubator and Plant Molecular Biology Department, South Campus, University of Delhi and they had an extensive tour of their fermentation, Tissue Culture and Green House facilities.

v. **Others if any**

Story Board for a virtual lab is under construction for the students of B. Sc. (Hons) Microbiology on the topic of Antimicrobial Resistance Test.

B) TEACHERS ACTIVITY

Teachers activity : (i) Workshop, seminar conducted / attended

Dr Shalini Sehgal (Department of Food Technology)

- **Best Teacher Award for the year 2010-2011** by the Directorate Of Higher Education, Government of Delhi.
- Selected to attend the US Food and Drug Administration (FDA) one week Container Integrity Testing Class in Alameda, California, USA from 2-6 April, 2012.
- Course Coordinator and trainer of the first international “Better Process Control School for Manufacturers of Low Acid Foods” in Negombo, Sri Lanka in collaboration with US Food and Drug Administration, India Office from 21-23 November, 2011.
- Coordinator of the ongoing project ‘Star College Scheme for strengthening of life science and biotechnology education and training at undergraduate level’ sanctioned by the Department of Biotechnology(DBT), Ministry of Science and Technology, Govt. of India.
- Attended two-day National Workshop on ‘Development of Educational framework for Human Resources in Food Safety Sector’ on 03-4 November, 2011 at FSSAI, New Delhi.

Dr. Meenakshi Garg(Department of Food Technology)

- Attended training workshop on Green Chemistry:Chemistry for Tomorrow’s World organized by GCNC, Deptt. Of Chemistry,University of Delhi on 26th Dec.2011
- Participated in UGC sponsored Refresher Course in Research Methodology from Dec.12,2011 to Dec. 31,2011
- Attended All India Food Safety Summit 2011 sponsored by MOFPI on 16th Dec.2011 New Delhi

Dr Purnima Anand (Department of Microbiology)

- Attended a Seminar entitled ‘Prospects of Diagnostics, Therapeutic Proteins & Human Vaccine Industry’ in PHD CHAMBER OF COMMERCE AND INDUSTRY, PHD House, 4/2 Siri Institutional Area on 11th July 2011.
- Participated and Successfully completed the Orientation Programme for Teachers conducted by Jamia Milia Islamia.

Dr. Pawas Goswami(Department of Microbiology)

- Attended a symposium on Building Knowledge Networks through USP held at University of Sao Paulo, Brazil from 17th October to 20th October 2011.

Dr. Vijaya Kumar Nalla (Department of Microbiology)

- Attended a conference on "Emerging Trends on Molecular Genomics of Breast Cancer" held at National Institute of Immunology (NII) (New Delhi), on 12th September 2011.

Dr Uma Chaudhry (Department of Biomedical Science)

- Participated and presented a paper on “Characterization of putative Immunodominant Proteins of *Chlamydia trachomatis* to be positionally conserved and secreted using a Bioinformatic Approach” in the 12th IUSTI World Congress held in New Delhi from 2nd to 5th November, 2011.
- Participated in a Workshop on “Bioinformatics and molecular modeling in drug design” held at Dr B R Ambedkar Center for Biomedical Research, University of Delhi from 18th to 20th January, 2012.
- She has become Life Member of Society of Biological Chemists and International Union of Sexually Transmitted Infections

Dr Shivani G Varmani (Department of Biomedical Science)

- Attended a Seminar entitled ‘Prospects of Diagnostics, Therapeutic Proteins & Human Vaccine Industry’ in PHD CHAMBER OF COMMERCE AND INDUSTRY, PHD House, 4/2 Siri Institutional Area on 11th July 2011.
- Attended a workshop on *Bioinformatics for College Teachers* from 27th to 30th July, 2011 at Sri Venkateshwara College, University of Delhi.

Dr Uma Dhawan (Department of Biomedical Science)

Attended three workshops :

- Managing Bibliography with EndNote organized by School of Biological Sciences, University of Edinburgh, UK, April 22, 2011
- Biomolecular interactions using label-free techniques, organized by School of Biological Sciences, University of Edinburgh, UK, March 17, 2011

- Project Planning organized by School of Biological Sciences, University of Edinburgh, UK, Feb. 11, 2011.

Teachers activity : (ii) Training course conducted / attended

Dr. Rizwana

- Delivered lectures on 'HACCP' and 'Hygiene, Microbiological Quality and Safety Issues Associated with Processing of Meat, Poultry and Marine Products in the Short Term Training Programme on 'Upgradation of Food Processing Skills in Small and Medium Enterprises' organized by National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Kundli 19-21 September, 2011.
- Co-coordinator of the first international "Better Process Control School for Manufacturers of Low Acid Foods" in Negombo, Sri Lanka in collaboration with US Food and Drug Administration, India Office from 21st to 23rd November, 2011 .

Dr Shalini Sehgal

- Resource person on 'Emerging Food Processing Technologies' for the India Africa Forum Summit (IAFS-II) held at Shri Ram Institute for Industrial Research from March 1st to 15th, 2012.
- Co-guide for MSc. Dissertation on "Assessment Of Hygiene, Sanitation and Microbiological Quality of Food and Water Served at Various Pre-Schools of East and Central Delhi" undertaken at the Department of Food and Nutrition, Lady Irwin College, University of Delhi.
- Developed the course content of "Appreciation programme on Food Safety for Housewives/Young Girls" and contributed two chapters on 'Food Safety and Water Quality' for the School of Agriculture, IGNOU.
- Resource person for the FSSAI trainings for the Designated Officers on Food Processing and Food Safety held at NIB, Noida from 5-9th September, 2011.
- Resource person for the training of PBOR on "Food Quality" and "Testing and Evaluation" at Indian Society of Agribusiness Professionals (ISAP), Delhi in August, 2011.

Dr. Meenakshi Garg

- Supervised two M.Sc. Students of School of Continuing Education, IGNOU New Delhi
- UGC sanctioned a major project on Effects of religious fasting on weight loss in Indian overweight and obese adult as PI for three years
- Garg,M and Kaur B.Effect of temperature on drying characteristics of corn seeds in NanoSciTech 2012,International Conferenace on Feb.16-18,2012 at Chandigarh,India

Dr Uma Chaudhry's first student Mr. Mahaveer Chand Golechha was awarded with his Ph. D. degree in the Convocation of University of Delhi held on 24th March 2012. Board of Research Studies for Science, University of Delhi has appointed her as a supervisor for another Ph. D. student, Ms Renu Pandey, to work in our college and ACBR under direct supervision. She has three publications to her credit :

- Naringin Protects against Kainic Acid-Induced Status Epilepticus in Rats: Evidence for an antioxidant, Anti-Inflammatory and Neuro protective Intervention. *Biol. Pharm. Bull.* **34(3)** 360-365 (2011).
- Sesamol protects kainic acid induced Status epilepticus in rats: evidence for an Antioxidant, antiapoptotic, and neuroprotective Intervention. *Epilepsia*, 52 (Suppl. 6):23–263, 2011
- An insight into the drug resistance profile & mechanism of drug resistance in *Neisseria gonorrhoeae*. *Indian J Med Res* 134, October 2011, pp 419-431

Moreover, she has been involved in the placement of B. Sc. (Hons) Biomedical Science students for conducting summer research projects in the various institutes and universities, such as Institute of Genomics and Integrative Biology, Jawahar Lal Nehru University, Indian Institute of Technology Delhi, All India Institute of Medical Sciences., Indian Institute of Science, Bangalore. She has also examined and worked closely with the students in their preparation for various competitive fellowships such as JNCASR, IAS fellowship, NCBS, Science quest etc.

Dr Uma Dhawan has been awarded **with Universitas 21 Award to do Masters degree in Bioinformatics from University of Edinburgh, UK under University of Delhi Faculty Training Program.** She has also been awarded Master's degree in Bioinformatics with distinction from the School of Biological Sciences, College of Science and Engineering, University of Edinburgh, UK (November, 2011).

She is a Course Coordinator for the add-on course in Bioinformatics and *in-silico* Drug Discovery to be jointly organized by BCAS and ANDC from next semester (July, 2012). The proposal for the same is already submitted to Indian National Science Academy, New Delhi.

Dr. Purnima Anand was appointed **Jury Member** in National Level Exhibition and Project Competition organized under "Innovation in Science Pursuit for Inspired Research", by Department of Science & Technology Government of India.

Dr. Vijaya Kumar Nalla has published a research paper entitled, "Comparative genomics and genome wide analysis of bidirectional promoters in *Candida albicans*", was published in "European Molecular Biology Organization (EMBO)" conference series publications on "Comparative Genomics of Eukaryotic Microorganisms: Understanding the complexity of Diversity" on 15th October 2011.

Dr. Pawas Goswami

Kulkarni, A. and Goswami, P. (2012). Avian Fauna of Summer Hill, Shimla-Himachal Pradesh. Accepted for publication in Bioscan.

(iii) Guest lectures

Department of Biomedical Sciences organized lectures by Dr. Jan Wildenhain from University of Edinburgh, United Kingdom on the topic entitled "A Hitchhiker's Guide to

Cheminformatics and Drug Discovery" and by Dr. Madhu Chopra, from Dr. B R Ambedkar Center for Biomedical Research, University of Delhi on "Application of Fluorescence Spectroscopy in Biomedical Science".

Department of Microbiology organized two lectures, namely, (i) Professor J.S. Viridi, Head, Department of Microbiology, delivered a lecture on Emerging water-borne pathogens – The Indian Experience with *Yersinia enterocolitica*. (ii) Dr. A.K. Puniya, Principal Scientist, National Dairy Research Institute, Karnal Delivered a lecture on Functional foods for improved human health.

7. Advisory committee:

A) Constitution of advisory committee

a. Chairman

Dr. Jai Prakash

Principal

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b. DBT Representatives :

i. Technical Experts

Dr. Suman Govil

Adviser, HRD Division

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(Ministry of Science & Technology)

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Dr. Padma Singh, Scientist C

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ii. Financial Expert

Mr. Nand Kishore

c. External experts

Dr. Mukesh Kumar,

Deputy Director General,

International Health Division (IHD)

Indian Council Of Medical Research,

Department of Health Research

(Ministry of health and family welfare)

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d. Faculty members

Dr. Anita Sondhi,

Associate professor,
Department of Biochemistry
Bhaskaracharya College of Applied Sciences

Dr. Uma Chaudhary

Assistant Professor
Department of Biomedical Sciences
Bhaskaracharya College of Applied Sciences

Dr. Purnima Anand,

Assistant Professor,
Department of Microbiology
Bhaskaracharya College of Applied Sciences

e. Coordinator

Dr. Shalini Sehgal,

Associate professor,
Department of Food Technology
Bhaskaracharya College of Applied Sciences
Phone no.:9810586489

B) Advisory committee meeting conducted after implementation of scheme: if yes please give the dates and enclose the minutes. To be convened on 18-05-12

- 8. List of New Practicals/demonstrations introduced for UG students of each batch (Ist, IInd and IIIrd year) in different departments supported under Star College Scheme in last one year due to the introduction of semester system**

BIOCHEMISTRY

- Determination of Spectrum of different compounds using Spectrophotometry:
- Analysis of mixtures using Spectrophotometry
- To quantitate biomolecules given the values of Molar Extinction Coefficient and Specific Extinction Coefficient.
- To prepare standard solutions of different compounds.
- To prepare different types of Buffer solutions.

- To determine the pKa value of acid.
- To study the titration graphs of an acid.
- To estimate the pK, pI and buffering zones of different acids.

FOOD TECHNOLOGY

- Estimation of pH and acidity of products.
- Estimation of % brix: acidity ratio
- Estimation of ascorbic acid and effect of heat treatment on it.
- To study the steps of can making process.
- Preparation and evaluation of pectin products.
- Adulteration of spices.
- Dehydration of fruits and vegetables
- To detect the presence of various Adulterants in foods
- Microbiological Examination of different food samples
- Bacteriological Analysis of Water
- Biochemical tests for identification of bacteria
- Assessment of personal hygiene
- Study of different types of browning reactions.
- Study malting and germination of cereals and pulses.
- Study of fermentation and dextrinization.
- Identification of pigments and concept of post harvest changes in fruits and vegetables-climacteric, non climacteric and senescence
- Introduction to labeling of foods
- To study blanching and study the concept of Asepsis.
- To perform pasteurization and sterilization of foods.
- Standards of identity, standards of minimum quality and standards of fill of container.
- Identification of different types of packaging materials used in the food industry.
- Estimation of reducing sugar by Fehlings procedure
- Estimation of salt content in brine and butter
- Preparation of brix solution and checking by hand refractometer
- Estimation of protein content by formol titration
- Demonstration of the Soxhlet method for determination of fat content
- Determination of acidity of water
- Determination of alkalinity/ hardness of water
- Demonstration of the Kjeldahl's method for estimation of protein content
- New Product Development- Proximate Analysis of Food

MICROBIOLOGY

- Demonstration of the thermal death time and decimal reduction time of *E. coli*.
- Cytochemical staining of DNA-Feulgen.
- Cytochemical staining of DNA and RNA- Methyl Green Pyronin (MGP).
- Cytochemical staining of Polysaccharides-Periodic Acid Schiff's (PAS).
- Cytochemical staining of Total proteins- Bromophenol blue.
- Cytochemical staining of Histones -Fast Green
- Preparation of Polytene chromosome from *Chironomous larva/Drosophila larva*
- Demonstration of mammalian sex chromatin.
- Perform Southern Blot Hybridization (Restrict DNA for Southern Blot)

- electrophoresis, perform electrophoresis of restricted DNA, perform southern transfer, hybridization and detection of gene of interest)
- Perform DNA amplification by PCR.
- To demonstrate the presence of mitochondria in striated muscle cells/ cheek epithelial cell using vital stain Janus Green B.
- Study of polyploidy in Onion root tip by colchicine treatment
- To perform Ames test in *Salmonella* / *E.coli* to study mutagenicity
- Mendelian laws and gene interaction using *Drosophila* crosses.
- Chi-square and probability.
- Study of Linkage, recombination, gene mapping using marker based data from *Drosophila*.
- Study of Human and *Phlox/ Allium* Karyotype (normal and abnormal).
- Pedigree analysis of some human inherited traits.
- Study of Hardy-Weinberg Law using simulations (seeds).
- Preparation of Yogurt/Dahi.
- Alkaline phosphatase test to check the efficiency of pasteurization of milk.
- Ligation of DNA fragments.
- Restriction enzyme digestion (*EcoRI*) of genomic and plasmid DNA
- Estimation of size of a DNA fragment after electrophoresis using DNA markers.
- Construction of Restriction digestion maps from data provided.

BIOMEDICAL SCIENCE

- To study the cytochemical distribution of nucleic acids and mucopolysaccharides with in cells/tissues from permanent slides.
- Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.
- Estimation of oxalic acid by titrating it with KMnO_4 .
- Estimation of water of crystallization in Mohr's salt by titrating with KMnO_4 .
- Estimation of Fe(II) ions by titrating it with $\text{K}_2\text{Cr}_2\text{O}_7$ using internal indicator.
- Estimation of Cu(II) ions idometrically using Na_2SO_4 .
- Estimation of (i) Mg^{2+} or (ii) Zn^{2+} by complexometric titration using EDTA.
- Defined projects will be done by the students and evaluated by the instructor.
- Study of Simple Reflex arc.
- Study of Sensations of touch, smell and taste
- To make a temporary mount of a neuron.
- To study different human organs and their sections through permanent slides.
T.S. of brain, spinal cord, , liver, thymus, spleen, ovary, artery, vein, capillaries, different tissues, testis, pancreas, skeletal fibres, lungs, trachea, bronchioles, pituitary, heart.
- Permanent slide preparation:
 - Cytochemical staining of DNA Feulgen.
 - Cytochemical staining of DNA and RNA Methyl Green Pyronin (MGP).
 - Cytochemical staining of Polysaccharides □ Periodic Acid Schiff's (PAS).
 - Cytochemical staining of Total proteins Bromophenol blue.
 - Cytochemical staining of Histones Fast Green.
- Preparation of Polytene chromosome from Chironomous larva/*Drosophila* larva
- Demonstration of mammalian sex chromatin.
- Preparations of temporary mount and study the different stages of Mitosis
- Perform Southern Blot Hybridization (Restrict DNA for Southern Blot electrophoresis, perform electrophoresis of restricted DNA, perform southern transfer, hybridization and detection of gene of interest).

- Demonstration of Southern Blotting.
- Demonstration of Northern Blotting.
- Demonstration of Western Blotting.
- Demonstration of PCR technique
- Isolation and quantitative estimation of salmon sperm / calf thymus DNA using colorimeter (Diphenylamine reagent) or spectrophotometer (A260 measurement).
- To perform Ames test in Salmonella/ E. Coli. To study mutagenicity.
- General experiments Handling of laboratory animals.
- Routes of drug administration (Oral, I.M.)
- Clinical Observation based experiments
- Effect of analgesic (Tail flick test)
- Anti anxiety effect of valium (Plus maze test)
- Experiments on isolated tissue preparations.
- Fixing of organ bath and kymograph
- To record CRC of acetylcholine using guinea pig ileum / rat intestine
- Determination of dose ratio.
- Study of competitive antagonism using acetylcholine and atropine.
- Determination of viscosity of a macromolecule (Protein/DNA)
- Effect of different solvents on UV absorption spectra of proteins.
- Study of structural changes of proteins at different pH using UV Spectrophotometry.
- Study of structural changes of proteins at different temperature using UV Spectrophotometry.
- Analysis, identification and comparison of various spectra (UV, NMR, MS, IR) of simple organic compounds.
- Differentiate single stranded DNA from double stranded DNA.

9. DBT grant utilization:

(A) NON RECURRING GRANT

BIOCHEMISTRY

S.No.	Equipment Name (Model no.)	Quantity	Cost (Rs)	Date of order placed	Purchase/install
1.	Automatic Titrator Make - Labindia Model – TITRA	01	275600.00	13/09/2011	13/12/2011
2.	UV-Visible Double Beam Spectrophotometer Make – Systronics Model – 2203	01	224438.00	23/09/2011	17/12/2011

MICROBIOLOGY

S.No.	Equipment Name (Model no.)	Quantity	Cost (Rs)	Date of order placed	Purchase/install
•	Trinocular Microscope with Camera	01	145755.00	14/10/2011	1/11/2011
•	Water Purification System	01	78750.00	20/12/2011	10/01/2012
•	Cooling Cabinet	01	64000.00	21/10/2011	08/11/2011
•	Orbital Shaker Incubator	01	176344.87	09/11/2011	19/12/2011
	VS02 Remi Voltage Stabilizer	01	10406.25	09/11/2011	18/01/2012

DEPARTMENT OF FOOD TECHNOLOGY

S.No.	Equipment Name (Model no.)	Quantity	Cost (Rs)	Date of order placed	Purchase/install
1.	Digital Refractometer Make – Atago Model Smartt -1	01	267750.00	17/08/2011	14/10/2011
2.	Gravimetric Dilutor including operational essential starter kit Make – Interscience	01	251256.00	21/12/2011	03/01/2012

DEPARTMENT OF BIOMEDICAL SCIENCES

S.No.	Equipment Name (Model no.)	Quantity	Cost	Date of order placed	Purchase /install
1	Gel Documentation System	01	Rs 2,98,000	26/08/2011	08/09/2011
2	-20°C Refrigerator	01	Rs 69,750	26/08/2011	12/09/2011
3	Western Blot Apparatus	01	Rs 95,400	22/12/2011	02/01/2012

(B) RECURRING GRANT(2010-2011)

Released in the second week of March directly into the college bank account without any information from DBT. We received the letter pertaining to the release of grant in the month of April 2012 hence the permission of carry forward was sought from DBT which has been granted. We will be seeking reimbursement of expenditure from 2010-2011 from the grant of Rs. 7,56,000/-.

Current Amount of recurring grant is Rs. 7,56,000/- is in the college account.

10. Qualitative improvements due to DBT support (please highlight 5 salient lines)

Teachers have graduated themselves to enquiry based teaching learning method and kept the following in mind while transacting this enquiry based curriculum:

- **Creativity:** Students are encouraged to think laterally and independently and express their ideas using their own experiences, knowledge and imagination, rather than being unit/text or teacher dependent.
- **Critical thinking:** There are many ways of looking at a problem or idea. There is no right or wrong answer, and pupils must be allowed to develop their own point of view after reading and listening to the variety of textual material and reflecting on the same.
- **Self-monitoring:** Self evaluation has been made an important component of learning and therefore, students are encouraged to monitor their own progress, and manage their own learning.
- **Assessment:** What we test in our curriculum is not just the students' ability to know the right answers, but their ability to ask the right questions. We assess their ability to think independently and construct meaning for themselves rather than expecting them to merely reproduce text.

11. Problems faced in implementation of the programme and utilization of DBT grant

Released in the second week of March directly into the college bank account without any information from DBT. We received the letter pertaining to the release of grant in the month of April 2012 hence the permission of carry forward was sought from DBT which has been granted. We will be seeking reimbursement of expenditure from 2010-2011 from the grant of Rs. 7,56,000/-. We would also request you to kindly release the grant for the financial year 2012-2013 as soon as we are able to utilize the said amount. This situation could have been avoided had we received an E-mail from DBT regarding the release of our Recurring grant. The college had planned a lot of activities which could not be held due to the paucity of recurring grant.

Dr. Jai Prakash

Principal

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