Annual Report for the Period of

1st July 2009 – 30th June 2010
BRIEF

The National Center of Excellence in Analytical Chemistry, University of Sindh, especially during last 11 years has emerged as a strong institution of higher learning at par with other prestigious R & D institution of the country. Some of the significant achievements are production of skilled manpower i.e. M.Phil and Ph.D’s, international research publications, several national / international conferences / seminars, internationally funded research projects, presentation of Plenary Lectures in conferences at home / abroad and providing continuous services to the local industry. There are two ongoing internationally funded projects beside four HEC funded projects. Under faculty development program, 2 Assistant Professors of this Center have returned after completion of one year HEC sponsored post-doctoral studies in World class universities. Previously 4 Ph.D. scholars have availed 6 months training under IRS program of HEC in similar foreign universities. This Center has developed academic linkages with Middle East Technical University, Turkey, Selcuk University, Konya, Turkey, Wake Forest University, USA, Monash University, Melbourne, Australia, and University of Dhaka and Chittagong, Bangladesh. As a result of all these efforts this Center is now being recognized internationally.

The comments of the HEC on the performance of this Center for the period 2005-2009 are also attached as Annexure –AR-I. This annual report reflects the quality and quantity of high class research work and other academic activities being carried out here. These stand as milestones in its journey towards achieving excellence.

FACULTY STRENGTH:

Prof. Dr. M. Iqbal Bhanger, Ph.D. (U.K.) Postdoc. USA
Aezaz-e-Fazeelat, Pride of Performance, (Director)

Prof. Dr. Tasneem G. Kazi, Ph.D. (SU), Postdoc. USA
Aezaz-e-Fazeelat

Prof Dr. Shafi Muhammad Nizamani, Ph.D. (USA) ---- (Contract faculty)

Associate Prof. Dr. Shahabuddin Memon, Ph.D. (Turkey), Postdoc. (USA)
Associate Prof. Dr. Sirajuddin, Ph.D. (Pesh. Univ.) Postdoc. (Australia)
Associate Prof. Dr. Tufail Hussain Sheerazi, Ph.D. (SU), Postdoc. Canada

Associate Prof. Dr. Shareefuddin Sheikh, Ph.D. (SU) ---- (Contract faculty)

Assistant Prof. Dr. Mrs. Najma Memon, Ph.D. (SU), Postdoc. USA
Assistant Prof Dr. Amber Rehana Solangi, Ph.D. (SU), Postdoc. Australia
Assistant Prof Dr. Farah Naz Talpur, Ph.D. (SU), Postdoc. Turkey

Dr. Hassan Imran Afreedi, Ph.D. (SU), Lecturer
Mr. Sarfaraz Ahmed Mahesar, M.Sc., Lecturer,
Miss Huma Ishaque Sheikh, M.Sc. Lecturer,
Mrs. Aamna Baloch, Ph.D. (SU) Lecturer
Faculty Development Program

- **POST DOCTORAL FELLOWSHIP**

  **Dr. Amber R. Solangi, Assistant Professor** was awarded Post Doctoral Fellowship fully funded by HEC. She has joined back the Center on 13th January 2010 after completing her study at the University of Monash, Melbourne, **Australia** for one year.

  **Dr. Farah N. Talpur, Assistant Professor** was awarded Post Doctoral Fellowship fully funded by HEC. She has joined back the Center on 19th April 2010 after completing her study at the Middle East Technical University, Ankara, **Turkey** for one year.

  **Dr. Hassan I. Afreedi, Lecturer** has left for post doctoral fellowship sponsored by HEC at the Dublin City University, **Ireland** on **28th May 2010** for a period of 9 months.

- Following faculty members are completing their Ph.D. research studies in this Center:

- Mr. Sarfaraz A. Mahesar, Lecturer and Miss Huma Ishaque, Lecturer

- **INTERNATIONAL RESEARCH SUPPORT INITIATIVE PROGRAM**

  During the current period the following Ph.D. Research Fellows of this Center availed scholarship under HEC International Research Support Initiative Program (**IRSIP**) for **six** months:

<table>
<thead>
<tr>
<th>Name of Research Fellow</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Sarfaraz Ahmed Mahesar</td>
<td>Dipartimento Scienze degli Alimenti, Università di Bologna, <strong>Italy</strong>, during <strong>May 2009</strong> till <strong>Nov. 2009</strong></td>
</tr>
<tr>
<td>Mr. Abdul Niaz</td>
<td>UNESCO Analytical Chemistry Department St. Charles University, Prague, <strong>Czech Republic</strong>, under guidance of Prof. Jiri Barek during <strong>Feb. 2009</strong> – <strong>August 2009</strong></td>
</tr>
<tr>
<td>Mr. Munawar Saeed A. Qureshi</td>
<td>Same as above : during <strong>Feb. 2009</strong> <strong>August 2009</strong></td>
</tr>
<tr>
<td>Mr. A. Rauf Khaskhelli</td>
<td>Same as above : from <strong>1st April 2010</strong></td>
</tr>
<tr>
<td>Mr. Ayaz A. Memon</td>
<td>United States Department of Agriculture, Maryland, <strong>USA</strong> from <strong>29th My 2010</strong></td>
</tr>
</tbody>
</table>

- **TRAINING COURSE** BY Organization of Prohibition of Chemical Weapons (OPCW)

  **Dr. Najma Memon, Assistant Professor** was invited to participate in three weeks in **July 2009** Analytical Skills Development **2009** programme on GC-MS hosted by VERIFIN, University of Helsinki, **Finland**. The course was fully sponsored by (OPCW) Hague, Netherlands OPCW selected one representative from each country and Dr. Najma Memon was selected to represent Pakistan.

- **ENROLLED M.PHIL / Ph.D. RESEARCH FELLOWS**

  There are **51** research fellows who are continuing their research in this Center out of which **24** are M.Phil research fellows and **27** are Ph.D. The batch of **09** M.Phil Research Fellows 2009 – 2010 has
successfully completed Course work. Their synopsis have been submitted to the Board of Advanced Studies for approval.

COURSES M.PHIL / Ph.D.

During the year 2009 – 2010 the following courses for M.Phil 2 semester were offered:

- **DETAILS OF COURSES TAUGHT IN FIRST & SECOND SEMESTER OF M.PHIL COURSE WORKS IN YEAR 2009-2010**

**First Semester: July 2009 - Dec 2009**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course No.</th>
<th>Course Title/ Credit Hours</th>
<th>Name of teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CH-755</td>
<td><em>Environmental Analytical Chemistry-I</em> (1 CH)</td>
<td>Prof. Muhammad Iqbal Bhanger Prof. Shafi Muhammad Nizamani</td>
</tr>
<tr>
<td>2.</td>
<td>CH-750</td>
<td><em>Molecular Spectroscopy</em> (2 CH)</td>
<td>Dr. Najma Memon Dr. Hassan Imran Afridi</td>
</tr>
<tr>
<td>3.</td>
<td>CH-751</td>
<td><em>Atomic Absorption Spectroscopy</em> (2 CH)</td>
<td>Prof. Tasneem G. Kazi</td>
</tr>
<tr>
<td>4.</td>
<td>CH-760</td>
<td><em>Mass Spectroscopy &amp; NMR</em> (3 CH)</td>
<td>Dr. Shahabuddin Memon Dr. Syed Tufail Hussain Shirazi</td>
</tr>
<tr>
<td>5.</td>
<td>CH-756</td>
<td><em>Electro analytical Techniques</em> (2 CH)</td>
<td>Dr. Sirajuddin</td>
</tr>
<tr>
<td>6.</td>
<td>CH-753</td>
<td><em>Mathematics &amp; Statistics-I</em> (1 CH)</td>
<td>Dr. Sharief Sheikh Dr. Aijaz Ahmed Khohro</td>
</tr>
<tr>
<td>7.</td>
<td>CH-757</td>
<td><em>Computer Applications-I</em> (1 CH)</td>
<td>Mairaj. A. Noorani</td>
</tr>
</tbody>
</table>

**Second Semester: Jan 2010 – Jun 2010**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course No.</th>
<th>Course Title/ Credit Hours</th>
<th>Name of teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CH-755</td>
<td><em>Environmental Analytical Chemistry-II</em> (1 CH)</td>
<td>Prof. Shafi Muhammad Nizamani</td>
</tr>
<tr>
<td>2.</td>
<td>CH-759</td>
<td><em>Polymer Chemistry</em> (2 CH)</td>
<td>Dr. Shahabuddin Memon</td>
</tr>
<tr>
<td>3.</td>
<td>CH-758</td>
<td><em>Nanotechnology/ Biosensors</em> (2 CH)</td>
<td>Dr. Sirajuddin</td>
</tr>
<tr>
<td>4.</td>
<td>CH-761</td>
<td><em>Thermal Methods</em> (1 CH)</td>
<td>Prof. Tasneem G. Kazi</td>
</tr>
<tr>
<td>5.</td>
<td>CH-752</td>
<td><em>Chromatographic Techniques</em> (2 CH)</td>
<td>Prof. Muhammad Iqbal Bhanger Dr. Najma Memon Ms. Huma Ishaque (Lab)</td>
</tr>
<tr>
<td>6.</td>
<td>CH-753</td>
<td><em>Mathematics &amp; Statistics-II</em> (2 CH)</td>
<td>Dr. Sharief Sheikh Dr. Aijaz Ahmed Khohro</td>
</tr>
<tr>
<td>7.</td>
<td>CH-754</td>
<td><em>Electronics</em> (1 CH)</td>
<td>Mr. Muhammad Yousuf Soomro</td>
</tr>
<tr>
<td>8.</td>
<td>CH-757</td>
<td><em>Computer Applications-II</em> (1 CH)</td>
<td>Mairaj. A. Noorani</td>
</tr>
</tbody>
</table>
### SCHOLARS AWARDED DEGREE OF DOCTOR OF PHILOSOPHY DURING 2009 -2010

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Scholar</th>
<th>Title of Thesis</th>
<th>Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Mr. Raja Adil Sarfraz</td>
<td>Synthesis and Characterization of Various Amino Acids Complexes by Different Analytical Techniques.</td>
<td></td>
</tr>
<tr>
<td>02.</td>
<td>Mr. Jamil-ur-Rahman Memon</td>
<td>Solid Phase Extraction of Selected Heavy Metals</td>
<td>Dr. M. I. Bhanger Dr. M. Y. Khuhawar</td>
</tr>
<tr>
<td>03.</td>
<td>Mr. Tahir Rafiq Arain</td>
<td>Occurrence, Distribution and Origin of Fluoride-Rich Groundwater in the Thar Desert: Pakistan</td>
<td></td>
</tr>
<tr>
<td>04.</td>
<td>Mr. Abdul Niaz</td>
<td>Electro-analytical Determination of Some Organic Polymeric Discharges</td>
<td>Dr. Sirajuddin</td>
</tr>
<tr>
<td>05.</td>
<td>Mr. M. Bilal Arain</td>
<td>Physico-chemical Analysis of Manchar Lake Water, Sediment and Its Effects on Fish and Residents</td>
<td></td>
</tr>
<tr>
<td>06.</td>
<td>Miss Nusrat Julbani</td>
<td>Determination of Toxic Metals (Al, Cd, Pb &amp; Ni) in Different Food Stuff and Biological Samples of Human Beings in Different Physiological Disorders.</td>
<td></td>
</tr>
<tr>
<td>07.</td>
<td>Miss. Ghulam Zuhra</td>
<td>Solid Phase Extraction of Selected Pesticides from Water Using Agricultural Waste Material</td>
<td></td>
</tr>
<tr>
<td>08.</td>
<td>Miss. Kulsoom Abbasi</td>
<td>Gas Chromatographic determination of Pharmaceutical compounds by derivatization.</td>
<td>Dr. M.Y. Khuhawar Dr. M.Iqbal Bhanger</td>
</tr>
</tbody>
</table>

### ONGOING FUNDED RESEARCH PROJECTS

- **DeLPHE PROJECT FUNDED BY BRITISH COUNCIL**
  Research Project on “UWDM Greywater Recycling” in collaboration with MUET, Jamshoro and the University of Exeter, UK internationally funded by British Council is ongoing since December 2007. **P.I. Prof. Dr. M.I. Bhanger.**

- Research Project on “Synthesis and Application of Novel Calix[4]arene Based Receptors for the Extraction of Toxic Ions, Especially Fluoride Ions from Drinking water of Thar Desert”; is funded by Higher Education Commission, Islamabad. **P.I. Dr. Shahabuddin Memon, Associate Professor and Prof. M.I. Bhanger**

- Research Project on “Synthesis of Novel Calixarene Derivatives and the Development of Analytical Methods / Techniques for the Removal of Toxic Metals Especially Arsenic from...
Water”; is funded by Ministry of Science & Technology Islamabad. It’s a Collaborative Project between Technical Research Council of Turkey (TUBITAK) and Ministry of Science and Technology Islamabad-Pakistan. The total amount of funding is Rs. 4.00 Million and P.I. is Dr. Shahabuddin Memon.

- Research Project on “Synthesis and characterization of drug-derived gold nanoparticles and their applications in sensors”; has been funded by Higher Education Commission, Islamabad. The total amount of funding is Rs. 5.14 Million and the P.I. is Dr. Sirajuddin, Associate Professor.

- Research project on “Evaluation of status of Arsenic in surface and groundwater of Sindh province evaluated some indigenous material for its removal from water” has been funded by Higher Education Commission, Islamabad. The total amount is Rs. 1.17 Million and the P.I. is Prof. Dr. Tasneem Gul Kazi.

- **ONGOING HEC INDIGENOUS Ph.D. FELLOWSHIPS**

The following two HEC indigenous 5000 Fellowships fully funded by HEC are ongoing since 2007 in this Center;

1. Ms. Fouzia Tabassum Minhas working on “Development of novel polymeric materials and their applications in analytical sciences “

2. Mr. Imdadullah working on “Synthesis of novel calixarenes derivatives and their application in removal of toxic metals especially arsenic compounds”

- **FACULTY SEMINARS OF RESEARCH FELLOWS DURING JULY 2009 TO JUNE 2010.**

A total of 8 M. Phil seminars and 7 Ph.D. seminars of the Research scholars of this Center were held during this period.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Student Date of Seminar</th>
<th>Title of Seminar</th>
<th>Name of Supervisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Miss. Nida Fatima Kolachi. (M. Phil Seminar) Saturday 11th July, 2009</td>
<td>Determination of Selenium in Medicinal Plants</td>
<td>Prof. Dr. Tasneem Gul Kazi</td>
</tr>
<tr>
<td>2.</td>
<td>Mr. Aijaz Ahmed Bhutto. (M. Phil Seminar) 17th September, 2009</td>
<td>Evaluation of the Antioxidant Potential of Citrus Fruits Grown in Pakistan.</td>
<td>Dr. S. Tufail Sheerazi Prof. Dr. M.I. Bhanger</td>
</tr>
<tr>
<td>3.</td>
<td>Miss. Saba Naz (M. Phil Seminar) 17th September, 2009</td>
<td>Analytical Characterization of Waste Products Obtained During Oil Refining.</td>
<td>Dr. Syed Tufail Hussain Sheerazi Dr. Farah Naz Talpur</td>
</tr>
<tr>
<td>4.</td>
<td>Miss. Rizwana Soomro (M. Phil Seminar) Thursday 15th October, 2009</td>
<td>Identification and Characterization of Waxes Present in Oil Seeds</td>
<td>Dr. Syed Tufail Hussain Sheerazi Prof. Dr. Saghir Ahmed Shaikh</td>
</tr>
<tr>
<td>5.</td>
<td>Miss. Sumaira Khan (M. Phil Seminar) Friday 24th July, 2009</td>
<td>Cloud Point and Solid Phase Extraction of Aluminium and Vanadium in Environmental and Pharmaceutical Samples</td>
<td>Prof. Dr. Tasneem Gul Kazi</td>
</tr>
<tr>
<td>6.</td>
<td>Mr. Sham Kumar Wadhwa (M. Phil Seminar) 7th August, 2009</td>
<td>Determination of Essential traces (Fe,Cu) and Toxic Element (As) in Biological Sample (Blood) of Cancer Patients in Comparison With Normal Donors</td>
<td>Prof. Dr. Tasneem Gul Kazi</td>
</tr>
<tr>
<td>7.</td>
<td>Mr. Ghulam Abbas Kandhro. (Ph. D 2nd Seminar) Saturday</td>
<td>Determination of Essential &amp; Toxic Metals in Biological Samples of Human Subjects</td>
<td>Prof. Dr. Tasneem Gul Kazi</td>
</tr>
<tr>
<td>Date</td>
<td>Presentation Title</td>
<td>Details</td>
<td>Presenter(s)</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>11&lt;sup&gt;th&lt;/sup&gt; July, 2009</td>
<td>Having Thyroid Disorders, By Different Analytical Techniques.</td>
<td></td>
<td>Prof. Dr. Tasneem Gul Kazi</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt; August, 2009</td>
<td>Chemical Analysis of Arsenic in Environmental and Biological Samples of Selected Areas of Sindh, Pakistan and Removal from water.</td>
<td></td>
<td>Mr. Jameel Ahmed Baig (Ph. D 2&lt;sup&gt;nd&lt;/sup&gt; Seminar)</td>
</tr>
<tr>
<td>15&lt;sup&gt;th&lt;/sup&gt; October, 2009</td>
<td>Electrochemical Assay of Various Polymer Products for Phthalate Contents.</td>
<td></td>
<td>Dr. Sirajuddin, Dr. S. T. H. Sheerazi</td>
</tr>
<tr>
<td>20&lt;sup&gt;th&lt;/sup&gt; January, 2010</td>
<td>Isolation and characterization of Bioactive Natural Products from Medicinal plants of Sindh, Using Chromatographic and Spectroscopic Method</td>
<td></td>
<td>Mr. Munawar Saeed (Ph. D 2&lt;sup&gt;nd&lt;/sup&gt; Seminar)</td>
</tr>
<tr>
<td>24&lt;sup&gt;th&lt;/sup&gt; July, 2009</td>
<td>Quantitative Speciation of Arsenic and Mercury in Fishes (Marine &amp; Fresh Water), Chicken Feed and Chicken Tissues by Different Analytical Methods</td>
<td></td>
<td>Mr. Abdul Qadir Shah (Ph. D 2&lt;sup&gt;nd&lt;/sup&gt; Seminar)</td>
</tr>
<tr>
<td>10&lt;sup&gt;th&lt;/sup&gt; March, 2010</td>
<td>Determination of Essential &amp; Toxic Metals in Biological Samples of Human Subjects Having Thyroid Disorders, By Different Analytical Techniques.</td>
<td></td>
<td>Mr. Ghulam Abbas Kandhro. (Ph. D Final Seminar)</td>
</tr>
<tr>
<td>22&lt;sup&gt;nd&lt;/sup&gt; April, 2010</td>
<td>Synthesis and Analytical Application of Novel Polymeric Calixarenes</td>
<td></td>
<td>Mr. Muhammad Afzal (Ph. D 2&lt;sup&gt;nd&lt;/sup&gt; Seminar)</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt; May, 2010</td>
<td>Development of Analytical Methodology for Determination of Phenolic Compounds in Plant Material</td>
<td></td>
<td>Mr. Ayaz Ali Memon (Ph. D 2&lt;sup&gt;nd&lt;/sup&gt; Seminar)</td>
</tr>
<tr>
<td>May 19&lt;sup&gt;th&lt;/sup&gt; 2010</td>
<td>Organic Contaminants from Urban wastewaters and Utilization of Molecularly Imprinted Materials for their Removal.</td>
<td></td>
<td>Miss Huma Sheikh, M.Phil First seminar</td>
</tr>
<tr>
<td>May 19&lt;sup&gt;th&lt;/sup&gt; 2010</td>
<td>A Simple and Rapid Spectrophotometric Determination of Trace Level Chromium bis(Salicylaldehyde)orthophenylenediamine in Nonionic Micellar Meida”</td>
<td></td>
<td>Miss Rubina Soomro, Ph.D. 2&lt;sup&gt;nd&lt;/sup&gt; Seminar</td>
</tr>
<tr>
<td>May 20&lt;sup&gt;th&lt;/sup&gt; 2010</td>
<td>Hospital wastewater screening for pharmaceutical compounds and removal of selected drugs by solid-phase extraction</td>
<td></td>
<td>Tahira Qureshi, 2&lt;sup&gt;nd&lt;/sup&gt; Seminar Ph.D.</td>
</tr>
<tr>
<td>May 20&lt;sup&gt;th&lt;/sup&gt; 2010</td>
<td>Preparation of Ion Selective Electrodes for the Determination of Metal Ions Based on Calix[4]arene Derivatives</td>
<td></td>
<td>Shafiq Qureshi, Ph.D. 2&lt;sup&gt;nd&lt;/sup&gt; Seminar</td>
</tr>
</tbody>
</table>
Seminars / conference / Workshops held

The following activities were organized during this period by this Center:

- 2nd Regional Workshop on Sustainable Water Management, **August 4-5, 2009**
- 2nd Pak-Turk International Seminar on Chemical Sciences, **February 11 – 13, 2010**

*The Seminar was organized in collaboration with University of Exeter U.K., Mehran University of Engineering and Technology and Sindh Agriculture University, Tandojam.*

*This interactive seminar was aimed at disseminating state-of-the art and knows-how on:*

- Water Resources Depletion
- Water Quality Deterioration
- Conjunctive Use of Drainage Effluent
- Water and Wastewater Treatment
- Wastewater Recycling

SEMINARS/ CONFERENCES / WORKSHOPS ATTENDED BY FACULTY IN OTHER ORGANISATIONS / UNIVERSITIES

*Invited Lectures by Prof. Dr. Muhammad Iqbal Bhanger*


“Study visit – Technology Management” . Prof. M. Iqbal Bhanger in the capacity of Focal Person for IPO Pakistan lead a delegation for visit to Singapore & Malaysia’s Universities and Research Organizations. The visit was sponsored by World Intellectual Property Organization (WIPO), **Geneva** from November, 18th 25th, 2009. The report presented to WIPO Geneva is attached as Annexure AR–III

*Dr. Syed Tufail Hussain Sherazi*


*Dr. Shahabuddin Memon*


**Dr. Najma Memon**


**Dr. Aamna Balouch**

“Determination of Nickel (II) with Picolinaldehyde-4-phenyl-3-thiosemicarbazone used as chromogenic reagent in non-ionic micellar system and its applications in real environmental samples” presented at Dubai International Pharmaceutical and technologies Conference and Exhibition, Dubai, 15-17 March, 2010.

**International Collaborative Research Programme**

**NCEAC – Wake Forest University, U.S.A. Collaborative Research**

Dr. Shahabuddin Memon is offered to join the group of Prof. Abdessadek Lachgar at the Department of Chemistry, Wake Forest University, North Carolina, USA for a period of 6 weeks during September 2010. The visit involves joint research and lectures by Dr. Shahabuddin to their students and postdocs in the field of Supramolecular Chemistry. All the travel and Lodging / Boarding expenses will be borne by the host University in U.S.A.

**NCEAC-United Stated Department of Agriculture, Maryland USA**

Dr. Dave Luthria at USDA is an active collaborator with our research group on advanced techniques in extraction and identification of plant based polyphenolic compounds. We have joint research publication and currently he is hosting one of our students, Mr. Ayaz Memon under HEC sponsored IRS Program.

**UNIVERSITY – INDUSTRY INTERACTION 2009 -2010 Lectures**

**DEEP FRYING FAT: NEVER ENDING STORY, 31st July, 2009.**

Mr. Iftikhar Ahmed, a former General Manager, Malaysian Palm Oil Board Karachi, delivered lecture. During his lecture he discussed about oil quality parameters, reactions and physical changes occurring in oil during frying, oil quality monitoring and management, sensory analysis and selection of suitable frying oil in detail.

**EXPECTATIONS OF INDUSTRY FROM YOUNG CHEMISTRY GRADUATES, 24TH October, 2009.**

Mr. Khalid Latif, Plant Manager, Bayer Crop-Science (Pvt.) Ltd., Karachi delivered lecture. He spoke about skill advancement and development of professional attitude and their importance in the Industry.
CONSULTANCY AND ANALYTICAL SERVICES TO GLASS PRODUCTS DESIGN AND MANUFACTURING CENTER

The Center is recently providing technical consultancy services to Glass Product & Design Center, Ministry of Industries (Government of Pakistan) for the followings:

♦ Preparation of Lab manual for analysis of glass, glass-products and related materials.
♦ Establishment of Analytical Laboratory for Glass Analysis
♦ Services for establishing Lab set-up at GPD MC, Hyderabad.

JOURNALS PUBLISHED DURING 2009 – 2010

PAKISTAN JOURNAL OF ANALYTICAL & ENVIRONMENTAL CHEMISTRY Volume 10 No.1 & 2, 2009

Two issues of the Pakistan Journal of Analytical and Environmental Chemistry have been brought in time. The copies of the journal were issued to all Universities and R&D organizations in the country and few abroad. The journal has now been recognized by the Higher Education Commission.

Available online:

http://www.ceacsu.edu.pk/JOURNAL-1.htm
July 2009 – June 15th 2010

RESEARCH PAPERS PUBLISHED DURING THE CURRENT PERIOD


46. S. A. Mahesar, S. T. H. Sherazi, Abdul Niaz, M. I. Bhanger, Sirajuddin And Abdul Rauf., Simultaneous assessment of zinc, cadmium, lead and copper in poultry feeds by differential pulse anodic stripping voltammetry. *Food and Chemical Toxicology*, 2010- Accepted for publication–online available.


53. Farooq Anwar, Umer Rashid, Zahid Mahmood, S. T. H. Sherazi, Inter-Varietal Variation In The Composition Of Okra (Hibiscus Esulentus L.) Seed Oil From Pakistan, *Pakistan Journal Of Botany*-Accepted For Publication-2010


END OF THE DOCUMENT