



SARDAR SHAFIQ TAREEN KHAN, THE HONORABLE CHAIRMAN OF STANDING COMMITTEE FOR SCIENCE & TECHNOLOGY AND SENATE VISITED PCSIR LABS. COMPLEX, LAHORE

Sardar Shafiq Tareen Khan, the Honorable Chairman of Standing Committee for Science & Technology and Senate visited PCSIR Laboratories Complex, Lahore on December 17th, 2023 and had a meeting with Dr. Quratulain Syed, Director General PCSIR Laboratories Complex Lahore in Director General Office.

During this meeting, the recent performance of the laboratories and future actions were discussed. Apart from this, the problems faced by the scientist during research work were also considered.



MR. MUHAMMAD SHOAIB, GM-SUPARCO AND DR. ARIFA, DIRECTOR ENVIRONMENT, SUPARCO HAD A MEETING WITH DR. QURRATULAIN, DG-LLC



Mr. Muhammad Shoaib, General Manager, SUPARCO and Dr. Arifa, Director Environment, SUPARCO had a meeting with Dr. Quratulain Syed, Director General PCSIR Laboratories Complex, Lahore on November 23rd, 2023. Meeting held at office Director General Office regarding discussion on Smog Tower. Meeting was chaired by Dr. Quratulain Syed, Director General-LLC along with Engr. Dr. Muahmmad Irfan, Head of Industrial Liaison Office (ILO) and Engr. Ali Imran, Head UMW Lahore Labs Complex (LLC).

KLC PROVIDED TECHNICAL ASSISTANCE TO ENGRO FERTILIZERS

KLC Provided Technical Assistance to Engro Fertilizers in the field of Microbial Biotechnologies. This is the leading Fertilizer manufacturer of Pakistan, their Product SBAC for rhizobial growth promotion and Zabardast Urea (BNFF) is next generation fertilizer which was formulated

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with 1% bio active zinc and 42% urea nitrogen. This product is beneficial for all crops especially in zinc deficient soils. Likewise, sulphur fortified urea is also tested. The Microbiology lab of Biochemistry Biotechnology Section of Pharmaceutical Research Center provided consultancy to determine Zn and sulphur mobilizing efficiency, count and growth promotion effect of these brands.

MIAN KHALID MISBAH UR REHMAN, CHAIRMAN PAKISTAN PHARMACEUTICAL MANUFACTURERS ASSOCIATION (PPMA) VISITED PCSIR LABS COMPLEX LAHORE

Mian Khalid Misbah ur Rehman, Chairman Pakistan Pharmaceutical Manufacturers Association (PPMA) visited PCSIR Labs Complex, Lahore with his delegation on November 22nd, 2023. A meeting was arranged in committee room of DG Office. Dr. Syed Hussain Abidi, Chairman PCSIR, Dr. Quratulain Syed, Director General PCSIR Labs Complex, Lahore, Dr. Rubina Nelofer, Dr. Yasar Saleem, Dr. Sania Mazhar and others officials of LLC attended a meeting with delegates of PPMA for joint venture and transfer of technology.



AN MoU SIGNED BETWEEN GIKI AND PCSIR

The GIK Institute and the Pakistan Council of Scientific and Industrial Research (PCSIR) signed a memorandum of understanding (MoU) on January 23, 2024, to collaborate in the fields of scientific and industrial research. The MoU was signed by Prof. Dr. Fazal Khalid, (SI), Rector of the GIK Institute and Dr. Sarwat Ismail, Member of Science of PCSIR. The MoU aims to foster cooperation and exchange of expertise between the two institutions in various domains, such as academic exchange, research and development, technology transfer and innovation. The MoU also supports joint research projects, faculty and student exchanges, workshops, seminars and conferences.



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The MoU is a significant step towards enhancing the scientific and industrial research capacity and quality of both institutions. The GIK Institute and PCSIR expressed their enthusiasm for this partnership and their commitment to achieving their shared goals.



PCSIR INK MoU WITH SIMAP SIALKOT

PCSIR has signed an MoU with Surgical Instruments Manufacturing Association of Pakistan (SIMAP) Sialkot regarding contract renewal of Common Facility Centre(CFC) SIMAP Sialkot. The Common Facility Centre (CFC) was established in March, 2016. This MoU has been signed by PCSIR Member Science on 7th November 2023 for further 05 years.



KLC SIGNED MOU WITH NATIONAL CENTRE OF EXCELLENCE IN ANALYTICAL CHEMISTRY, UNIVERSITY OF SINDH, JAMSHORO

KLC signed Memorandum of Understanding National Centre of Excellence in Analytical Chemistry, University of Sindh, Jamshoro, for mutual cooperation and collaboration in R&D activities and development of human resources. PCSIR always promote basic and applied research in Universities and this MoU will facilitate young researchers of the university to get benefitted from available resources of PCSIR. The signing ceremony was held on 1st December, 2023.

COLLABORATION OF PCSIR LABS COMPLEX LAHORE WITH SPD

Focus group meeting was arranged with officials from SPD regarding collaboration of SPD with PCSIR, LLC on October 26th, 2023. This meeting was attended by team of SPD and experts from PCSIR, LLC. The meeting was started with the recitation of Holy Quran. Afterwards,

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Dr. Qurat-ul-Ain Syed (DG, PCSIR, LLC) welcomed the SPD team in PCSIR, LLC. Later on, Dr. Shaheed Khan (Advisor, NCA R&D Board, SPD) gave briefing on the previous visits and meetings conducted between PCSIR and SPD on different occasions. In briefing, he further highlighted the key areas of collaboration of SPD with PCSIR, LLC which may be quite breedful in future for our country. After briefing, the mutual discussion was conducted between the experts of SPD and PCSIR in their related areas of research. At the end, the management on both sides assured their full cooperation and support to take up these initiatives on priority basis. The SPD team members visited different centers related to their areas of research.



ONE DAY SEMINAR ON ADOPTION OF INNOVATIVE TECHNIQUES FOR AGRO-FOOD PRODUCTION AND VALUE ADDITION

An interactive and Awareness raising Seminar on “Adoption of Innovative Techniques for Agro-Food Production and Value Addition” was organized at PCSIR Laboratories Complex Peshawar on December 28th 2023. Under PSDP project Titled “Research Development & Innovation (RD&I) in Pakistan Council of Scientific & Industrial Research (PCSIR)”.

The experts and the speakers from various departments of PCSIR emphasized the necessity of adopting innovative techniques, particularly vertical agriculture farming, to enhance food production in the country. Agricultural land is reducing due to the high population bulge in the country and vertical farming was the best option to achieve autarky in food. Utilization of indigenous resources is vital for the development and promotion of industrial and agriculture sectors besides export enhancement adding the demand-driven science and technology research and skilled human resources development through specialized training largely contribute to industrialization and socio-economic growth of the country. Pakistan is blessed with all resources including, manpower, hydel, water, sea, rivers, mines and minerals if properly utilized can bring huge economic laurels. The seminar was attended by participants from academia, government organizations, industries and farmer’s community. Dr. Muhammad Tahseen PSO/Director, Mrs. Razia kulsoom SSO & Fozia Hussain SSO from PCSIR Labs Islamabad has also participated in one-day seminar at PCSIR Labs. Complex Peshawar on 29th December, 2023.



NATIONAL WORKSHOP & EXHIBITION (7TH -8TH DECEMBER, 2023)



On the theme of Pakistan Water Week 2023, PCSIR Laboratories Islamabad has participated in the National workshop and Technology show-casing exhibition regarding “Transformative Pathways for Water and Food System in a Climate Resilient Pakistan at Pak-China Friendship Center”, Islamabad organized by PCRWR in collaboration with IWMI, UNICEF and partners. PCSIR Laboratories Islamabad has presented its achievements in the field of water and wastewater quality and treatment. The participants have taken keen interest in PCSIR research activities. The stakeholders from Academia intend to initiate many collaborative projects in this field. Dr. Muhammad Tahseen Aslam (Director PCSIR Labs Islamabad) has delivered a keynote speech on “Water Scarcity in Pakistan and Possible Solutions”.



PROF. DR. MUHAMMAD ASGHAR BAJWA 5TH GOLD MEDAL

Dr. Muhammad Khalid Saeed of Food & Biotechnology Research Centre (FBRC), PCSIR Laboratories Complex, Lahore received “Prof. Dr. Muhammad Asghar Bajwa 5th Gold Medal” in recognition of his academic and scientific achievement in the field of biochemistry during the 6th International Conference on Applied Zoology under the theme of “Tackling the Global Challenges through Applied Zoological Science” concluded at Government College University Faisalabad on 18-19 December, 2023.



POSTING OF DR. NAHEED KAUSAR, CSO AS DIRECTOR, PCSIR LABORATORIES HYDERABAD



Dr. Naheed Kausar, Chief Scientific Officer (BS-20)/Director Fuel Research Centre, Karachi took up additional charge of the post of Director, PCSIR Laboratories Hyderabad on December 19, 2023 that charge was assigned to her by consequent upon the concurrence of the Ministry of Science & Technology for the period of three months or till posting of regular Incumbent. (Office Order Ref. No. 512/374/2000/5843, dated: Dec. 15, 2023.

SEMINAR ON PHYTOCHEMICAL & BIOLOGICAL EVALUATION OF SELECTED PLANTS AND THEIR USE IN SILVER NANOPARTICLES SYNTHESIS & CHARACTERIZATION

A seminar was delivered by Dr. Kishwar Sultana, (SSO) in project establishment of National Center for Herbal Medicine (NCHM) at committee room PLC on 4th of October, 2023. The title of her presentation was “Phytochemical & Biological Evaluation of Selected Plants and Their Use in Silver Nanoparticles Synthesis & Characterization”. Scientists from Medicinal Botanic Center (MBC), Materials Science Center (MSC) and Food Technology Centre (FTC) attended the seminar.

The research investigation proved the diverse folkloric medicinal properties of *Bistorta affinis* and *Malcomia cabulica* used for therapeutic purposes may be helpful for many herbal products on commercial scale and the synthesized silver nanoparticles from both plants may help in formulation of nanomedicines and helps in the field of microbiology and biotechnology for diagnosis.



SEMINAR ON ROLE OF ADDITIVE MANUFACTURING IN TRANSFORMING TRADITIONAL MANUFACTURING PROCESSES

Engr. Noor Faraz Khan, Junior Engineer, PCSIR Labs. Complex Peshawar delivered a presentation on the role of Additive Manufacturing in transforming traditional manufacturing processes. He highlighted the potential of additive techniques due to its effectiveness for small-scale production or prototyping, as it eliminates the need for molds or tooling that traditional manufacturing methods. The presenter said that 3D printing is an additive process, creating objects layer by layer that minimizes material waste and 3D printing allows for intricate and complex designs that might be challenging or impossible with traditional manufacturing methods. The event was conducted on the 6th of Nov, 2023.



KLC CONDUCTED ONE DAY WORKSHOP ON APPLICATION OF HPLC IN PHARMACOGNOSY AND PHARMACOLOGICAL STUDIES

One-day workshop on Application of HPLC in Pharmacognosy and Pharmacological Studies was conducted on 11th October 2023. This workshop provided “Real Time Practical Demonstration of *In-vivo* Experiments on Rats”. The participants were also given training on HPLC.



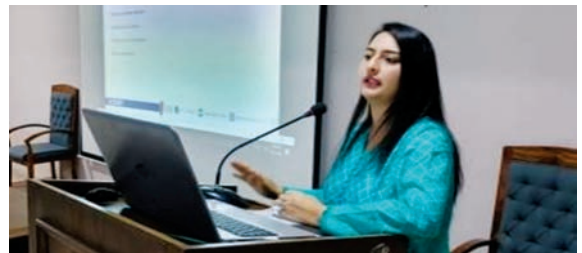
JALSA E SEERAT UN NABI ﷺ

PCSIR Laboratories Complex Karachi commemorate “Jalsa e Seerat un Nabi ﷺ” on 25th October, 2023. This pious congregation was attended by all employees of PCSIR Laboratories Complex Karachi. Well known Naat khawan recited Naat e Rasool e Maqbool ﷺ, renowned religious scholar Allama Mufti Ali Asghat Attari sahib addressed the attendees. He emphasized on the need to make national strategy for economic stability in the light of Seerat un Nabi ﷺ. He emphasized on the need of working with same harmony and enthusiasm to excel in the world again. On the occasion Fateha khawani was also done for the employees of PCSIR Labs Complex Karachi and their loved ones who left this world during the year.



ORDINANCE ENGINEERING SYSTEM MANAGEMENT AND APPLICATION COURSE (OESMAC)

A group of seven (7) officials from Ordinance Training School, Weapons and Ammunition Group at PNDP were visited to PCSIR Laboratories Complex Karachi. They were given briefing of its role and functions and organizational setup of PCSIR. The quality management system was explained by Syed Zainul Ibad (PSO/Quality Management Representative). This group visited to the key departments of PCSIR Laboratories Complex Karachi on 4th December, 2023.



VISIT OF OFFICIALS FROM PCSIR HEAD OFFICE

• MEMBER TECHNOLOGY VISITED LRC

Engineer Sohail Ameer Marwat, along with Mr. Asif Qayyum from PCSIR Head Office, Islamabad, visited the Leather Research Center (LRC), PCSIR. A meeting chaired by Engineer Sohail Ameer Marwat was held with scientists and technologists, focusing on enhancing LRC's testing facilities and revenue generation strategies. Essential guidelines were provided to align LRC's capabilities with industry standards for improved research and testing services. A tour of LRC laboratories followed the meeting, where Engineer Sohail Ameer Marwat praised the existing facilities and personnel's dedication. The visit aimed to offer guidance and support for upgrading testing facilities and increasing revenue generation, concluding with positive feedback and encouragement for further improvement.



• MEMBER SCIENCE VISITED KLC

Dr. Sarwat Ismail, a member of the Science & Engineering Division and Zafar Shahzad, Principal Engineer, both from the PCSIR Head Office in Islamabad, undertook a visit to PCSIR Labs. Complex, Karachi on December 13th and 14th, 2023. During their visit, they convened a meeting with Dr. Razia Sultana, the Director General of KLC, along with Dr. Rashid Ali Khan, the Coordinator of EIP-KLC, to discuss the progress update on EIP-related activities and assess the proposed initiatives. The team from the head office also toured the ink pilot plant, expressing appreciation for the work being carried out at PCSIR KLC.



• SECRETARY PCSIR VISITED ISLAMABAD LABORATORIES

The Secretary PCSIR Nasir Baloch has visited PCSIR Laboratories, Islamabad on 22nd November, 2023 to review the progress and initiatives taken by PCSIR Laboratories, Islamabad to make it more sustainable. The Director Dr. Muhammad Tahseen Aslam has given detailed presentation in which highlighting the achievements of the unit in short span of time. The Secretary PCSIR has appreciated the efforts of Dr. Muhammad Tehseen and his team. He also interacted with the labs. staff. He has visited the laboratories to have a detailed insight of the activities of the Unit.



• ISO/IEC 17025:2017 ACTIVITIES

1st surveillance assessment: a team comprising Dr. Nighat Afza, team leader, and Mr. Syed Jabran Ahmed, Technical Assessor from the Pakistan National Accreditation Council (PNAC), visited PCSIR Leather Research Centre (LRC) on the 18th and 19th December, 2023 for the 1st surveillance assessment of the laboratory's quality management system. This team to align with the International Standard ISO/IEC 17025:2017. PNAC Assessors which has recommended Leather Research Centre (LRC) for continuation of Accreditation status and extension for one test.



VISITS/MEETINGS

- A group of Engineers/officials from Chashma Nuclear Power Plant Unit-1 (C-1 MCR) visited PITMAEM, PCSIR, LLC on October 23rd, 2023. Purpose of visit was to enhance technical knowledge of MCR engineers to introduce the hi-tech testing facilities. The visitors were introduced the current R&D activities and existing testing facilities for advanced engineering materials being provided to local industry. After detailed visit, the visitors appreciated to see such type of facilities under one roof.
- A meeting was held with Dr. Ismat Nawaz, Tenured Associate Professor of Bio Science, Dr. Syed Ali Musstjab



Akber Shah Eqani, Tenured Associate Professor of Bio Science with their students, COMSAT University, Islamabad on 29th December 2023. Campus at director office. The meeting was regarding technical cooperation on environmental testing between PLI and COMSAT. Dr. Tahseen Aslam (Director PLI) Dr. Uzma Rashid SSO & Dr. Fouzia Noreen SSO has attended this meeting.

- A team from M/s Silver Star enterprises visited PCSIR LLC for discussion with Dr. Shabana Kausar, FBRC related to pilot scale production of sodium bicarbonate, soda ash from saji khar and possibilities of process and technology to be leased out on December 21st, 2023.

- A group of Engineers/officials from Chashma Nuclear Power Plant Unit-4 (MCR) visited PITMAEM, PCSIR, LLC on November 27th, 2023. Purpose of visit was to enhance technical knowledge of MCR engineers to introduce the hi-tech testing facilities. The visitors were introduced the current R&D activities and existing testing facilities for advanced engineering materials being provided to local industry. After detailed visit, the visitors appreciated to see such type of facilities under one roof.



- The Environmental Protection Agency Officials (Dr. Irshad Kahn, Chief Chemist and Mr. Israr Khan, Chemist) visited Microbiology Research Laboratory of FTC on 25-10-2023. The purpose of the visit was to discuss the ISO-17025-2017 accreditation process, scope, capabilities and mutual cooperation of the two organization in future.



- A group of officials from NUST, Islamabad visited PITMAEM, PCSIR, LLC on December 18th, 2023. Purpose of visit was to discuss the current R&D activities and see the existing testing facilities being rendered to local industry in the field of engineering materials. After detailed visit, the visitors appreciated to see such type of facilities under one roof.
- Meeting was held at M/s Pakistan Railway's Director General Office, Walton Lahore on October 6th, 2023 for effective collaboration between Pakistan Railways and PCSIR. The participants were Salman Sadik Shaikh, DG, Railways, Madam Maryam Gilani, Chief Commercial Manager Railways, Qasim Mastoi, Joint Director

Mechanical Railways, Dr Kamran Jafri Joint Director Electrical Railways, Engr. Ali Imran, Head UMW PCSIR Labs Complex, Lahore, Khalid Javed, JOINT Director Civil Railways and Engr. Shahid Saleem, Civil Consultant PCSIR Lahore.

- PLC Engineer and Scientists Dr. Javid Ali, Engr. Muhammad Younas, PSO and Dr. Waheed Ur Rehman, SE visited on 08-11-2023 to Green Zari Engineering Works Mardan. The purpose of the visit was creating a liaison with the visited industry regarding pilot plant equipment, machinery, apparatus overhauling, repair and modification. At the end the two parties agreed to continue a close mutual professional relationship with each other in future.
- A representative of M/s Al Moiz Food Stuff Trading, producer of Smart Choice fruit based drink, visited Food Nutrition and Biochemistry section to discuss opportunity of chemical/Nutritional analysis of their sample to meet the requirement of food safety and export quality. Dr. Nabeela Dar, OIC FNBS and Dr. Abdul Wajid Khalil, SSO attended this meeting and shared their expert opinion with client for his better understanding for the product analysis. The client submitted four different flavor of drink for sugars analysis on 12.10.2023.
- PLC Engineer and Scientists Dr. Javid Ali, Engr. Muhammad Younas, PSO and Dr. Waheed Ur Rehman, SE visited on 08-11-2023 to Green Zari Engineering Works Mardan. The purpose of the visit was creating a liaison with the visited industry regarding pilot plant equipments, machinery, apparatus overhauling, repair and modification. At the end the two parties agreed to continue a close mutual professional relationship with each other in future.

CONFERENCES/ SEMINARS/WORKSHOPS/MEETINGS/EXHIBITIONS ATTENDED

- Dr. Quratulain Syed (DG LLC), Dr. Yasar Saleem and Kashif but attended a meeting with Sec MoST to discuss the current status of PSDP Project “Gene Editing” for PC-1 revision on 29-11-2023.

- Dr. Muhammad Tahseen Aslam (PSO/Director) PCSIR Laboratories Islamabad has attended 2nd International Conference on Emerging Trends in Science and Technology (ICETST, 2023) as a Chair of a Technical Session on 02.10.2023 at Fatima Jinnah Women University in Rawalpindi, Pakistan from October 02 – 06, 2023.



- Engr. Farooq Iftikhar (SE) and Engr. Ahmed Raza (JE), PITMAEM attended one-day workshop on “Technical Guidance and Introduction to Modern Foundry Technology” in PC Hotel, Lahore on December 11th, 2023. This was organized by Pakistan Foundry Association. In which the foreign and local experts shared their experiences on the subject topics. This was very useful and fruitful activity related to foundry technology.



- Dr. M. Khalid Saeed and Dr. Naseem Zahra attended International Conference on "Emerging Trends in Earth and Environmental Sciences (ETEES 2023) at College of Earth & Environmental Sciences, PU, Lahore, Pakistan on 04th–06th December 2023.

- **Online International Cappadocia Scientific Research Congress:** A Paper entitled “The Missing Piece of Evolutionary Puzzle: Interactivism” has been presented by Dr. Rajkumar Dewani, Senior Scientific Officer Online International Cappadocia Scientific Research Congress, on Nov 5-7, 2023, Cappadocia-Nevsehir, Turkey.

- Dr. Muhammad Tahseen, PSO/Director, PCSIR Laboratories Islamabad has participated in International Technical Training Course on Vacuum Application in Applied Surface Science (ITTC VAASS) from October 24 – 26, 2023 organized by Pakistan Vacuum Society, Islamabad at COMSTECH Auditorium and delivered a keynote speech.



- Dr. Asma Saeed (Head FBRC) attended the conference Greening and scaling, sustainable solutions in Pakistan dairy sector at PC Lahore on 21st December, 2023.

TRAINING/ IMPARTED/ RECEIVED

- Training was given to personnel from M/s Cantonment Executive Officer Walton Cantt. Lahore about the quality testing of food and milk samples, halal meat standards and quality testing of meat & meat products and dairy products at FBRC on October 12th, 2023.
- Mr. Ehsan ul Haq, PSO & Dr. Rabia Nazir, PSO, ACRC imparted two days training to two employees of M/s Provincial Pesticide Reference Laboratory, Kala Shah Kaku, Sheikhpura, regarding Internal Audit, Management Review Meeting & Risk Assessment under ISO/IEC 17025:2017 at PCSIR Laboratories Complex, Lahore on October 25th -26th, 2023.
- One-day training has been imparted by Dr. Muhammad Naeem, SSO to two employees of M/s Brick Labs. Unani, 5-A Ahbab Colony, 12-Km Multan Road, Lahore on "Hyoscyamine for Hyoscyamus Nigar" at PCSIR Laboratories Complex, Lahore on December 21st, 2023.

- **Training on State-of-the-Art Analytical Equipment**

Training has been commenced on Atomic Absorption Spectrometer and Gas Chromatograph Mass Spectrometer equipments after their installation in Leather Research Centre lab facility. Training is being provided to Dr. Been Zehra, SSO and Dr. Rajkumar Dewani, SSO, Mr. Sikander Ali Soomro, JTO by Mr. Muhammad Hussain Rizvi from Rizvi & Company.



- **Two days hands-on Training on GCMS**

Two days Hands on Training on GCMS with Head-Space was conducted at KLC on 24th and 25th October 2023. The theory of Gas Chromatography Mass Spectrometry, Single/Triple Quadruple, Head Space, sample preparation, method building, data acquisition and quantification, general software and hardware system evaluation and application in different industries were explained in detail to the participants. There was an overwhelming response for this training from academia and industry. Participants were satisfied with training content and methodology.



- **Two Days Training on use Care & Maintenance of Hi-Tech Scientific Instruments**

Scientific and laboratory instruments play vital role in economic development of a country. These instruments are widely used in various industrial sectors such as Textile, Pharmaceutical, Chemical and Testing & Analysis Laboratories. These instruments are mainly imported which consumes huge foreign exchange. Another challenge is the use, care and maintenance which require skilled manpower. This issue is realized by PCSIR-KLC and taking as national interest. In this connection PCSIR-KLC organized and conducted a training program on "Use Care & Maintenance of Scientific & Laboratory Instruments" on 29th to 30th November 2023 at lecture hall of KLC. Around 20 participants from various fields of life attended the training program. The training covered HPLC, GC, Mass Spectrometer, Atomic Absorption Spectrometer, FTIR, High-Vacuum Technology, Good Laboratory Practice (GLP) and General Repair & Maintenance Techniques.

Mr. Faisal Ghazanfar, SSO, Dr Abid Karim, SSO, Mr. Arif karim, PSO and Dr. Sofia. Khaliq Alvi, CSO delivered lectures. The training focused on working principle of each instrument, hardware components used (instrumentation) and repair & maintenance techniques.



PATENTS OBTAINED

- **Title:** A process for the production of anti-acidity syrup through Milestone start-E-ATR-400 Microwave Extractor System
Inventors: Dr. Nighat Sultana, Mehmood-ul-Hasan, **Patent No.**144226, **Dated:** 12-12- 2023

BOOKS

- Perveen, I., Abbas, N., Mazhar, S., Saleem, Y., Nazir, S., Noor, T., Nawaz, S., Bukhari, B., Syed, Q., & Abidi, S. H, Association Between the Dietary Consumption of Heterocyclic Amines and The Development of Mutagenicity or Carcinogenicity in Humans: Assessment of Dietary Intake of Carcinogenic Heterocyclic amines, Publisher: Kindle Edition (2nd ed., Vol. 1). Kindle Direct Publishing eBook.
- Ishrat Perveen, Bakhtawar Bukhari, Naaz Abbas, Sania Mazhar, Yasar Saleem, Shaista Nawaz, Samia Nawab, Quratulain Syed, Syed Hussain Imam Abidi, Sana Riaz, Ramsha Essa, Abad Ali Nadeem, Muhammad Farooq, Fatima Akram and Saba Sabahat, Production and Formation of SARS-CoV-2 Variants, Publisher: Intech Open Ltd.