

Agro-Pathology Bulletin

A Biannual Newsletter by the Department of Plant Pathology; University of the Punjab

Volume 02 Issue 01
January - June 2023



Message from the Chairperson DPP

On behalf of all of my colleagues in the Department of Plant Pathology, I am delighted to present next edition of our department newsletter. This edition captures the events between January to June 2023. It features stories about our new faculty, updates on faculty activities, research and alumni. Whether you have been away for a long time or just a few years, we hope that these stories connect you back to your DPP friends.

After restructuring of faculties in Punjab University and becoming a part of the Faculty of Agricultural Sciences, this year brought many challenges for us. It was a new start and we gathered our resources, used old experiences and tried to open new horizons for our students and faculty.



We are so very proud of our students, faculty and staff for their courage, creativity and perseverance as they found new ways to keep the department humming in this challenging year. We are especially thankful to the Vice Chancellor, University of the Punjab and Dean, Faculty of Agricultural Sciences for their consistent support to the Department of Plant Pathology in this time. Hope going through this issue will be enjoyable for you..

Prof. Dr. Tehmina Anjum

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DPP students at Expo 2023

Students from the Department of Plant Pathology under Dr. Waheed Akram, Assistant Professor DPP participated in a two-day international “Pakistan Horti Expo 2023” organized under the auspices of the Agriculture Department from January 28 to 29 at Expo Center.



More than 100 stalls were set up this year and experts, exporters and other stakeholders from Saudi Arabia, Tajikistan, Uzbekistan, Belarus, Kazakhstan, Dubai, Qatar, Bahrain, Sri Lanka, Indonesia, Malaysia and Turkey participated. Through this Expo, a platform was provided to the people associated with the agriculture sector and this also helped to introduce Pakistani produce to the whole world. Students visited various stalls where they had fruitful discussion with the researchers and agri-industrialist.



LMS training at DPP



On 1st February 2023, the Information Technology Centre, University of the Punjab held one-day training workshop regarding Online Learning Module LMS for the Faculty of the Department of Plant Pathology and Department of Agronomy in the Faculty of Agricultural Sciences, University of the Punjab. It was a brainstorming activity that provided basic hands-on training to the faculty for operating the LSM.





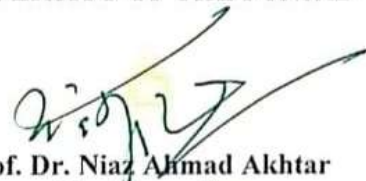



Challenges & Opportunities in Agriculture Sector - One day Seminar

Mr. Ahmed Umair, CEO Vital Agri-nutrients was invited by the Department of Plant Pathology on Monday, 6th February 2023 for a seminar on "Challenges & Opportunities in the Agriculture Sector of Pakistan". Mr. Ahmad emphasized on importance of soil health and water source in improving crop health and productivity. He said that academia-industry linkages are important for future research and development in the agriculture sector. Mr. Umair also offered paid internships for the B.Sc. Hons. students of the Department of Plant Pathology. He also interacted and answered questions from students.



Department of Plant Pathology Signed MOU with Haripur University

Memorandum of understanding was signed between the University of the Punjab, Lahore and the University of the Haripur, KPK on 22nd February 2023. Under this MOU both parties will collaborate in different research projects that will help students of both sides to excel in research.

	
(a) If to UoH:	Office of Registrar, The University of Haripur, Haripur, Khyber-Pakhtunkhwa, Pakistan
Attention:	Registrar
Phone No.:	0092-995-920602 Email: registrar@uoh.edu.pk
(b) If to PU :	Directorate of External Linkages, University of the Punjab Qauic-e-Azam Campus, Lahore
Attention:	Director
Phone No.:	+92-42-99231820 Email: director@pu.edu.pk
Focal Persons:	
For UoH:	Dr. Waseem Ahmed, Additional Director, Undergraduate studies
For PU:	Prof. Dr. Tehmina Anjum, Department of Plant Pathology
IN WITNESS THEREOF, the Parties have caused this MoU to be executed by their duly authorized representatives.	
by for and on behalf of the UNIVERSITY OF THE PUNJAB	by for and on behalf of the THE UNIVERSITY OF HARIPUR
 Prof. Dr. Niaz Ahmad Akhtar Vice Chancellor	 Prof. Dr. Shafiq ur Rahman Vice Chancellor
Witnesses	
Directorate of External Linkages	Registrar Office
 Prof. Dr. Sobia Khurram Director	 Mr. Riaz Muhammad Registrar

On behalf of the University of the Punjab, Vice chancellor of the University, Prof. Dr. Niaz Ahmad Akhtar (SI) and Director External Linkages Prof. Dr. Sobia Khurram; whereas from the University of the Haripur, Vice Chancellor of the University Prof. Dr. Shafiq-ur Rehman and Registrar Mr. Riaz Muhammad signed the MOU. Focal person for Punjab University was Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum, whereas, Dr. Waseem Ahmad, Additional Director Undergraduate Studies represented as focal person from University of the Haripur.

Faculty training for preparation of Self Assessment Report

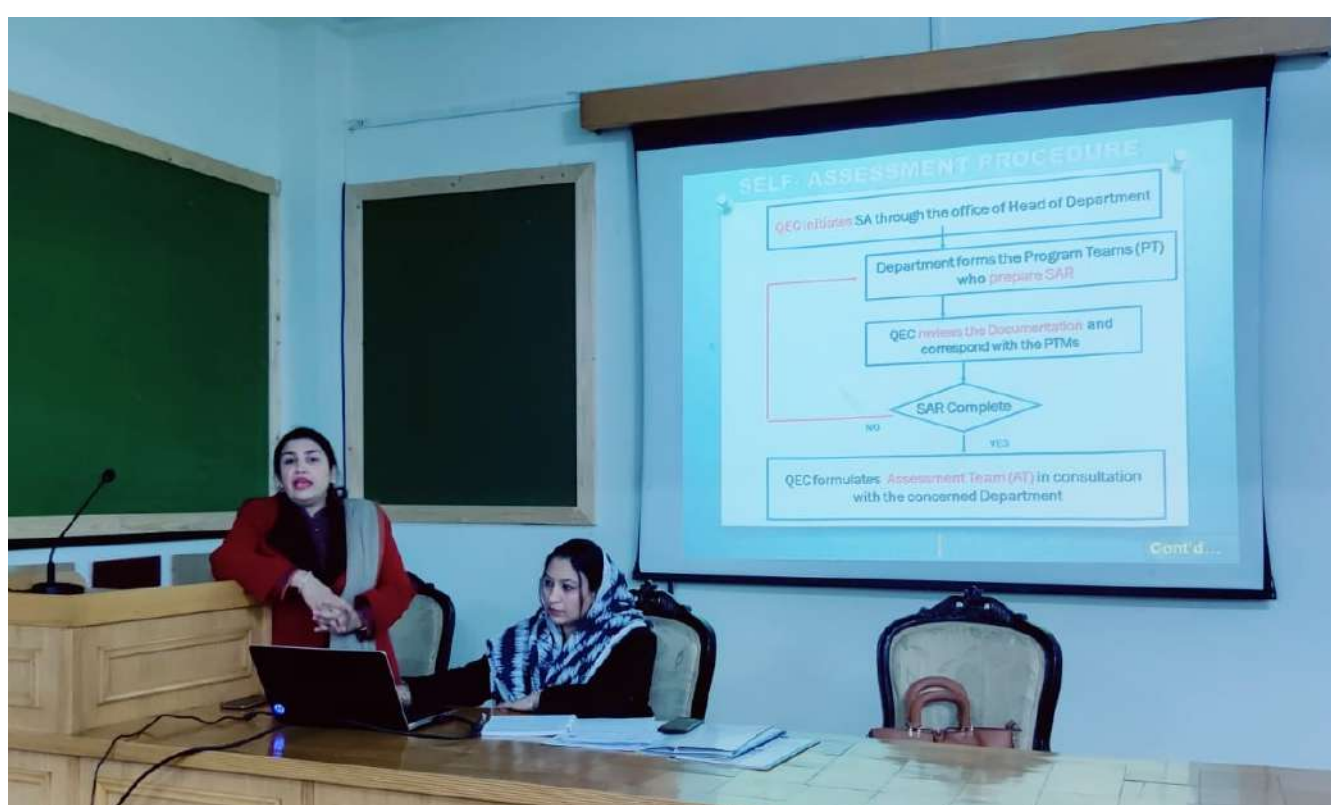
A team from Quality Enhancement Cell (QEC) Punjab University visited Faculty of Agricultural Sciences, PU on 26th January 2023 for faculty wise training on "How to prepare Self-Assessment Report (SAR)". Director QEC, Dr. Saima Siddiqui shared details of SAR proformas and guided how to prepare this for evaluation.

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Dr. Saima thanked Dean, Faculty of Agricultural Sciences, University of the Punjab, Prof. Dr. M. Saleem Haider and Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum for cooperating with QEC in arranging this seminar. While highlighting the importance of SAR in evaluation of Universities by the Higher Education Commission (HEC), Dr. Saima said that Punjab University needs to submit SAR at least by 75% of the departments. However, this percentage is too low because most of the departments are facing difficulties in preparing SAR.



Seminar on Generic Medicines



A seminar on awareness about the Generic Based Medicines was held on 1st March 2023 in the Faculty of Agricultural Sciences, University of the Punjab. Chief Medical Officer, Dr. Muhammad Akram and Principal, College of Pharmacy, Prof. Dr. Sayed Atif Raza were the resource persons. Faculty members from various departments of the Faculty of Agricultural Sciences participated in the seminar. Dr. Atif talked about the differences between generic and brand named medicines, especially with reference to their prices and affectivity. The session was followed by a scorching question answer session depicting interest of listeners in the topic.

Second Annual Function & Alumni Reunion

Department of Plant Pathology and the Department of Entomology organized their annual function and alumni reunion for the year 2023 on Friday, 03rd March 2023 at Faculty of Agricultural Sciences. Director General, Punjab Agricultural Marketing Regulatory Authority, Mr. Tariq Mehmood graced the occasion as Chief Guest. Dean Faculty of Agricultural Sciences; Prof. Dr. M. Saleem Haider also graced the occasion. Student performances made the event quite enjoyable.

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Chief Guest, Director General, Punjab Agricultural Marketing Regulatory Authority, Mr. Tariq Mehmood was received by Chairman Department of Entomology and Chairperson Department of Plant Pathology.



Dean faculty of Agricultural Sciences; Prof. Dr. M. Saleem Haider, addressing students, Alumni and faculty on annual dinner and alumni reunion 2023.



Chief Guest, Director General, Punjab Agricultural Marketing Regulatory Authority, Mr. Tariq Mehmood addressing audience on Annual function and alumni reunion 2023.



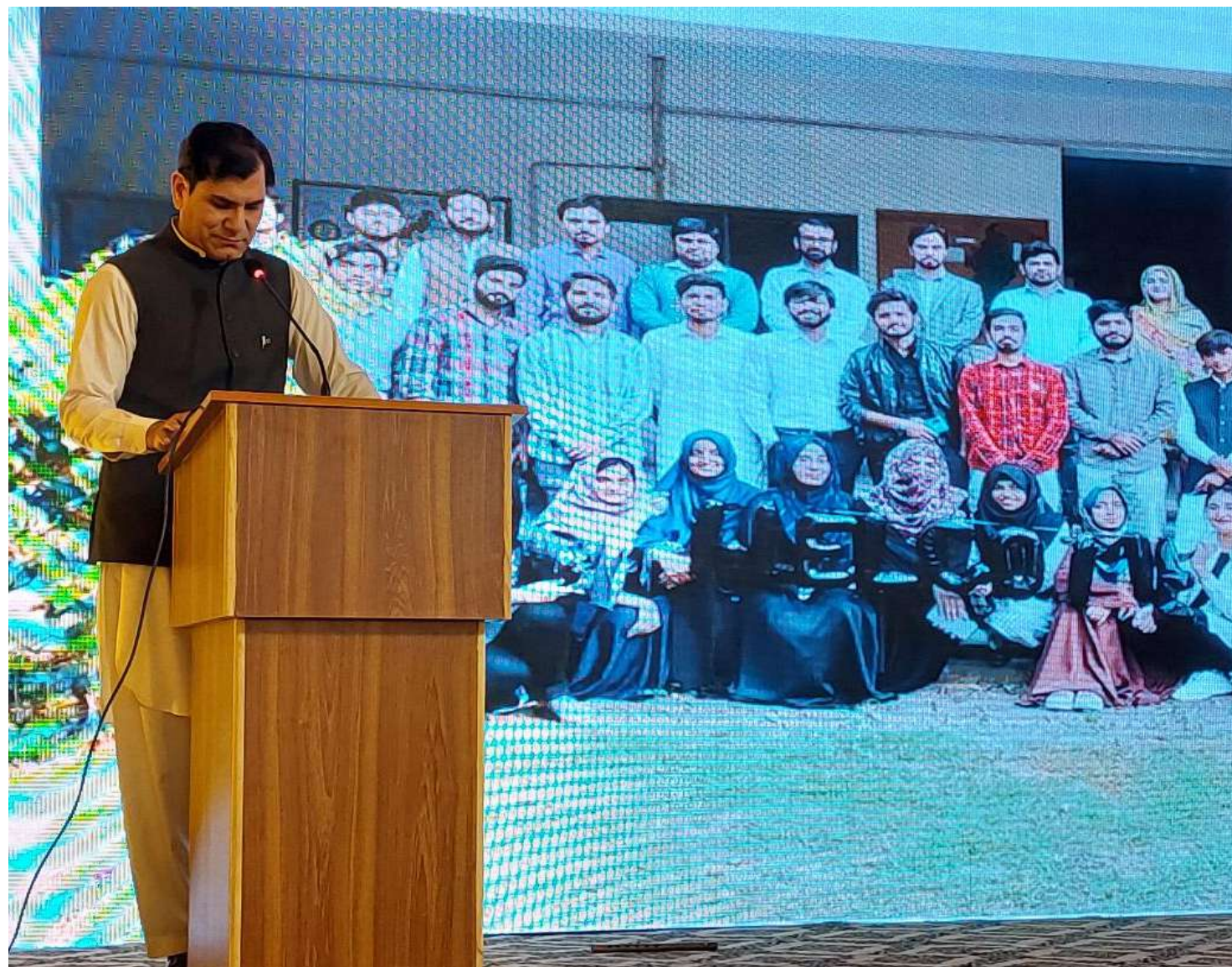
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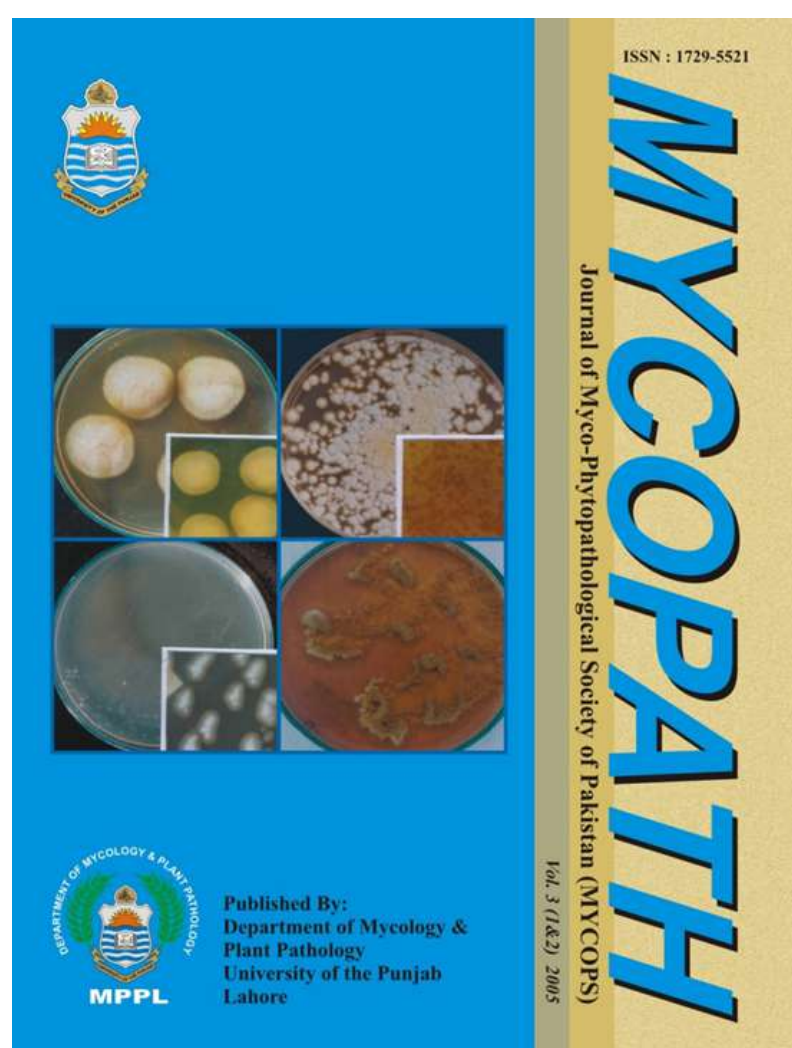
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MYCOPATH - a biannual journal completed it's 20 volumes

MYCOPATH (ISSN: 1729-5521), the biannual journal of the Myco-phytopathological Society of Pakistan completed its 20 volumes this year. We are now accepting papers for the upcoming Vol. 21, No.1 2023. MYCOPATH is a peer reviewed, open access, biannual, page free journal being published by the Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab Lahore, Pakistan. It publishes original research, review and brief articles in the discipline of Mycology and Plant Pathology. Researchers from Algeria, Italy, France, Burkina Faso, and Nigeria contributed to the last volume of the Journal. MYCOPATH is being abstracted in Biological Abstracts and Biosis Previews. For more details visit:

http://journals.pu.edu.pk/journals/index.php/my_copath/index



Ground breaking ceremony of DPP

Department of Plant Pathology; Faculty of Agricultural Sciences, especially thanks Ex-Vice Chancellor, University of the Punjab; Prof. Dr. Niaz Ahmad Akhtar (SI) for allocating a piece of land for a separate academic block of the department. A small ground breaking ceremony was held on Thursday, 9th March 2023.



Chief guest Prof. Dr. Niaz Ahmad Akhtar valued contribution of the faculty of Agricultural Sciences in research and said that he has high hopes from this department. Dean Faculty of Agricultural Sciences, University of the Punjab, Prof. Dr. M. Saleem Haider also thanked the chief guest for the trust he has shown on the Department of Plant Pathology. Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum, welcomed the guests and shared a short journey of the department from its beginning in 2001. She said that a new academic block is need of the time for the faculty of the Department of Plant Pathology who is ready to bear the challenges of the future. However, presently shortage of space is a major bottleneck.



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Few moments with Dean Faculty of Agricultural Sciences; Prof. Dr. M. Saleem Haider

Sir, you have dedicated many years of your life to education and research in Agriculture. Please briefly tell us about your achievements.

I am Doctorate from Imperial College, University of London (ranked 8th worldwide by QS Ranking 2021); Post doctorate from University of Toronto, Canada; Served in many national organizations including: Centre for Excellence in Molecular Biology (CEMB), Central Cotton Research Institute (CCRI), Directorate of Pest Warning and Quality Control of Pesticides, School of Biological Sciences; Director, Institute of Agricultural Sciences, University of the Punjab, Lahore in the field of research, academia and currently serving as Dean, Faculty of Agricultural Sciences. I published more than 200 research articles. Additionally, 08 Books/Chapters were also published with renowned international publishing groups. I completed 15 National/International research projects successfully. Further, I Published First Pakistani US based international patent; Received 02 Gold Medals as recognition of services from different organizations; Won 09 publication incentive and 04 performance awards; organized approximately 50 Conferences/Seminars/Symposia and participated in 52 national/international conferences. I mentored 20 PhDs and 50 plus M. Phil students in the field of Agricultural Sciences so far in the field of Begomoviruses; RNAi; Biocontrol, Plant Virology; Transgenic Cotton; Invertebrate Pathology and Insect Pest Management. I also served as President of Pakistan Phytopathological Society (PPS) from 2016 to 2020. Now serving as Dean, Faculty of Agricultural Sciences since 2021.

What is the importance of initiation of the Agriculture department in Punjab University?

In each province of Pakistan the department of agriculture comprised of research and extension wings which conduct research and deliver outcomes to the farmers. Under each category, thousands of agricultural graduates are working in BPS 17 and above. Besides there are a number of private companies dealing in the production and/or sale of fertilizers, pesticides, farm machinery and food processing etc. which also offer employment to agricultural graduates. Keeping in view the bright future of agriculture in Pakistan, particularly in relation to job opportunities, University of the Punjab decided to play its role in the most important sector of the country.



In 2011 the university upgraded Department of Mycology and Plant Pathology to Institute of Agricultural Sciences. In 2021, Institute was offering degree only in the discipline of Plant Pathology but gradually it start offering degrees in other disciplines after accreditation from Higher Education commission. Now, FAS is offering B.Sc. (Hons), M.Sc. (Hons) and Ph.D programs in different disciplines including Plant Pathology, Soil Science, Plant Breeding and Genetics, Food Sciences, Entomology, Agronomy and Horticulture. We are also planning to offer some diplomas in kitchen gardening, Mushroom Productions and Agri-Business management in future.

Agriculture is an important sector for Pakistan as its economy is agri-based. How is the Faculty of Agricultural Sciences working to uplift agriculture in Pakistan?

Pakistan's agriculture sector plays a central role in the economy as it contributes 18.9 percent to GDP and absorbs 42.3 percent of labor force. Faculty of Agricultural Sciences (FAS) faculty members are highly qualified from national and international well reputed universities and fully involved in academic research projects. The vision of Faculty of Agricultural Sciences is to develop the modern technologies for the facilitation and up-gradation of agriculture sector to attain self-sufficiency in quality food products.

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Moreover, efforts are on the line to take our farming community towards climate smart agriculture to enhance the utilization of local resources to protect the environment for our future generations.

What is the market demand of an agri graduate? And what are the key skills an agri-graduate must develop to compete in the market?

Our graduates are serving in different national and international organizations including Pest Control and Quality Control of Pesticides, Agriculture Extension Department, Punjab Seed Corporation, Punjab Food Authority, Pakistan tobacco Company, PARC and in different national and international agriculture related companies. According to the rough estimation of last five years, FAS graduates have secured 40 % of relevant jobs offered through Punjab Public Service Commission. FAS graduates are winning international scholarships from all over the world to higher studies. It seems that labor market demands workers that possess generic skills, who can think creatively and critically, solve problems and are flexible enough to work in ever changing conditions. Soft skills, such as interpersonal communication, ability to collaborate and work in teams are gaining value and importance in the new economy.



Urbanization is increasing and this has badly affected agriculture. How you see modification in agriculture along with urbanization in coming times?

It is very sad to witness that fertile land being converted into industrial and residential colonies. Government should categorize the areas on the basis of their use and should implement strict laws so that our fertile land should not be converted into residential colonies. Urban expansion into agricultural lands has caused many problems for the agriculture sector; however, no laws are present to stop this practice. If measures are not taken to secure the agriculture sector's future, Pakistan faces a threat of food security and a massive decline in exports.

Food security and sustainable agriculture are buzz words these days. Which one is more important in your point of view and how can this be achieved?

As the world population continues to grow, much more effort and innovation will be urgently needed in order to sustainably increase agricultural production, improve the global supply chain, decrease food losses and waste, and ensure that all who are suffering from hunger and malnutrition have access to nutritious food. Extreme poverty and hunger are predominantly rural, with smallholder farmers and their families making up a very significant proportion of the poor and hungry. Thus, eradicating poverty and hunger are integrally linked to boosting food production, agricultural productivity and rural incomes. Agriculture systems worldwide must become more productive and less wasteful.

Sustainable agricultural practices and food systems, including both production and consumption, must be pursued from a holistic and integrated perspective. Land, healthy soils, water and plant genetic resources are key inputs into food production, and their growing scarcity in many parts of the world makes it imperative to use and manage them sustainably. Boosting yields on existing agricultural lands, including restoration of degraded lands, through sustainable agricultural practices would also relieve pressure to clear forests for agricultural production. Wise management of scarce water through improved irrigation and storage technologies, combined with development of new drought-resistant crop varieties, can contribute to sustaining productivity.

What is the bottle neck in carrying research in Agriculture at university level?

Funds and facilities are indeed important. However, they are not the only reasons for our failure to carry out good research. Lack of funding has become a convenient generalisation. Another challenge for conducting quality research in Pakistan is lack of critical mass of researchers. In addition to that incentives such as promotion to the next rank, more facilities and time for research, recognition at the institutional, national and international levels and invitations to international scientific meetings are considered to be more important in encouraging the researchers to be more productive and passionate about conducting high impact research.

What steps is your faculty taking to educate Pakistani farmers for modern agriculture?

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Along with academia and research, Faculty of agricultural sciences (FAS) is also providing services to the community like Climate change centre is providing awareness to the farmer community; Horticulturists are providing seasonal vegetables seeds and technical expertise to promote kitchen gardening. Business incubation center is providing opportunities to link agriculture Industry with Academia. Farmer meetings are arranged to guide farming community regarding adaptation of latest technologies. FAS is also providing soil, water and food testing services and also playing an important role in tree plantation. First Fungal Culture Bank of Pakistan, a sub department of FAS affiliated with World Culture Collection Centre is involved in disease diagnostic services and provides diverse fungal and bacterial strains to the scientific community all over the world.

Sir, you have vast research experience on cotton. What are the major factors for the decline of cotton production in Pakistan since 2010 and how can it be controlled?

Major factors responsible for the declining cotton production in Pakistan are slow approval of cotton varieties, less availability of quality seed, low germination percentage, lack of system for exact estimation of demand and supply of Cotton Seeds, and high pest population (Pink bollworm, Red cotton bug, Dusky cotton bug, and White fly). There is a need of public-private collaboration, development of Climate-resilient varieties and technologies mandatory for ensuring increase in cotton production. In this regard Ministry of Climate Change should also devise a plan for speedy approval of varieties. Govt. of Pakistan should take a clear stance on GMO induction in Pakistan, Pak EPA / National Biosafety Committee should be Strengthened, Commercialization of varieties by breeders under stringent regulatory framework on the professed / claimed traits, Strengthening linkages of local and foreign institutions, capacity building of all the cotton stakeholders.

What is your biggest professional challenge at present?

The food we eat connects us to a vast global web of farmers, traders, food manufacturers, retailers and many other people involved in getting food from farm to fork. Most of us probably don't pause to think about it while biting into a piece of fruit or a slice of bread, but this global food system is central to some of the biggest challenges facing humanity. Agriculture occupies nearly 40% of the earth's surface, far more than any other human activity.

In addition, irrigation of agricultural crops comprises 70% of global water use, and agriculture directly contributes to around 11% of global greenhouse gas emissions (mostly through cattle). Expanding agricultural land can also lead to deforestation, additional GHG emissions, and a loss of biodiversity. I think there are three main challenges – feeding a growing population, providing a livelihood for farmers, and protecting the environment – our profession is facing and must be tackled together if we are to make sustainable progress in any of them. But making progress on this “triple challenge” is difficult, as initiatives in one domain can have unintended consequences in another. Given the scale and complexity of these challenges, policy makers may need to experiment with new recipes to cook up a set of policy solutions that are to everyone's taste.



At last, sir, do you have any advice for agri students?

My advice to the agri students will be – Use technology to drive the agricultural industry forward, embrace science, be innovative and never stop learning.



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Visit of National Agricultural Education Accreditation Council (NAEAC)

On 17th March, 2023 a team from National Agricultural Education Accreditation Council (NAEAC), HEC visited the Department of Plant Pathology; Faculty of Agricultural Sciences; University of the Punjab for evaluation of running degree programs.



The team included Prof. Dr. Ishtiaq A. Rajwana, MNS University of Agriculture, Multan and Prof. Dr. Shahbaz Talib Sahi, Department of Plant Pathology, University of Agriculture Faisalabad. Dean Faculty of Agricultural Sciences, University of



the Punjab, Prof. Dr. M. Saleem Haider presented the overall performance of the Faculty. His presentation was followed by a detailed presentation from Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum, who presented the progress of the department in the last three years. She also answered questions from the AIC team. Later AIC team visited classrooms, laboratories and offices and interacted with the students and faculty.



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A hands on training workshop on Data Science

A hands-on training workshop on Data Science with MS-Excel was held on 20th March, 2023. Students and faculty members from various universities including Lahore College for Women University Lahore, Minhaj University Lahore, and Kinnaird College Lahore participated in the event.



Prof. Dr. Amna Shoaib; Department of Plant Pathology took the technical session in which she provided training on understanding and making sense of graphs, data arrangement, mean, standard deviation and standard error and its application. All participants were provided certificates after this training.



Students celebrated World Health Day at Governor's House



Students from the faculty of Agricultural Sciences , Punjab University, met Governor Punjab, Muhammad Baligh Ur Rehman on World Health Day, April 7th, 2023. The group was led by the Dean Faculty of Agricultural Sciences, Prof. Dr. M. Saleem Haider. On this occasion in Governor House, Lahore, a shield as a token of remembrance was also presented by Honourable Governor Punjab. Few faculty members were also present at the occasion. Governor Punjab met with students and had a discussion on their interests, studies, research and future endeavours.



International Conference on Recent Approaches in Plant Sciences (RAPS-2023)

Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum was invited as keynote speaker in 2nd International Conference on Recent Approaches in Plant Sciences (RAPS-2023). The conference was organized by the Department of Botany, University of Education Lahore Pakistan on May 4-5, 2023. Dr. Anjum talked about the green synthesis of nanoparticles and their potential for controlling or reducing the disease incidence of soil borne plant pathogens.



Viva-Voce examination and Public Defence of Mr. Muhammad Asif



The Viva-Voce examination and Public Defence of Mr. Muhammad Asif, Reg. # 2009-UPP-17 for the award of PhD degree in Agricultural Sciences (Plant Pathology) was held on Tuesday, 9th May 2023. The candidate defended his thesis entitled “Antifungal proteins from Ganoderma lucidum for the management of early blight of tomato” before Prof. Dr. Asma Maqbool, Formans Christian College Lahore and Dr. Safdar Ali Mirza, Govt. College University Lahore. Mr. Asif completed his PhD work under the supervision of Prof. Dr. Ahmad Ali Shahid and Dr. Nasir Ahmad. We congratulate Mr. Asif for successfully defending his thesis and wish him best of luck for his future endeavors.

MOU signed between CEMB & FAS

A memorandum of understanding (MoU) signed between Centre of Excellence in Molecular Biology (CEMB) and Faculty of Agricultural Sciences (FAS), University of the Punjab, Lahore to develop insect pest and disease resistant cotton transgenic lines using modern day technologies to strengthen cotton R&D. Both institutes are already working on various projects on cotton with special reference to its viral diseases.

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Director CEMB Prof. Dr. Kausar Malik and Dean FAS, Prof. Dr. Muhammad Saleem Haider mutually agreed to strengthen collaboration in the field of agriculture. Other faculty members including Prof. Dr. Abdul Qayyum Rao and Dr. Waheed Anwar were also present at the occasion.



Dean faculty of Agricultural Sciences calls on Punjab Governor

Prof. Dr. Muhammad Saleem Haider, Dean Faculty of Agricultural Sciences, had a meeting with Honorable Governor Punjab at Governor House Lahore on 11th May 2023. Prof. Dr. M. Saleem Haider presented an overall picture of the Faculty of Agricultural Sciences, University of the Punjab. They also discussed various aspects of Agricultural Education and Research in Pakistan. Dr. M. Saleem Haider said that faculty is being encouraged to emphasize more on practical research through winning research projects.



FCBP is providing services for identification of pure fungal cultures and diseased specimens



FCBP (First Fungal Culture Bank of Pakistan) working under the Department of Plant Pathology, University of Punjab is now accepting diseased fungal plant specimens as well as pure fungal cultures for their identification on molecular basis.

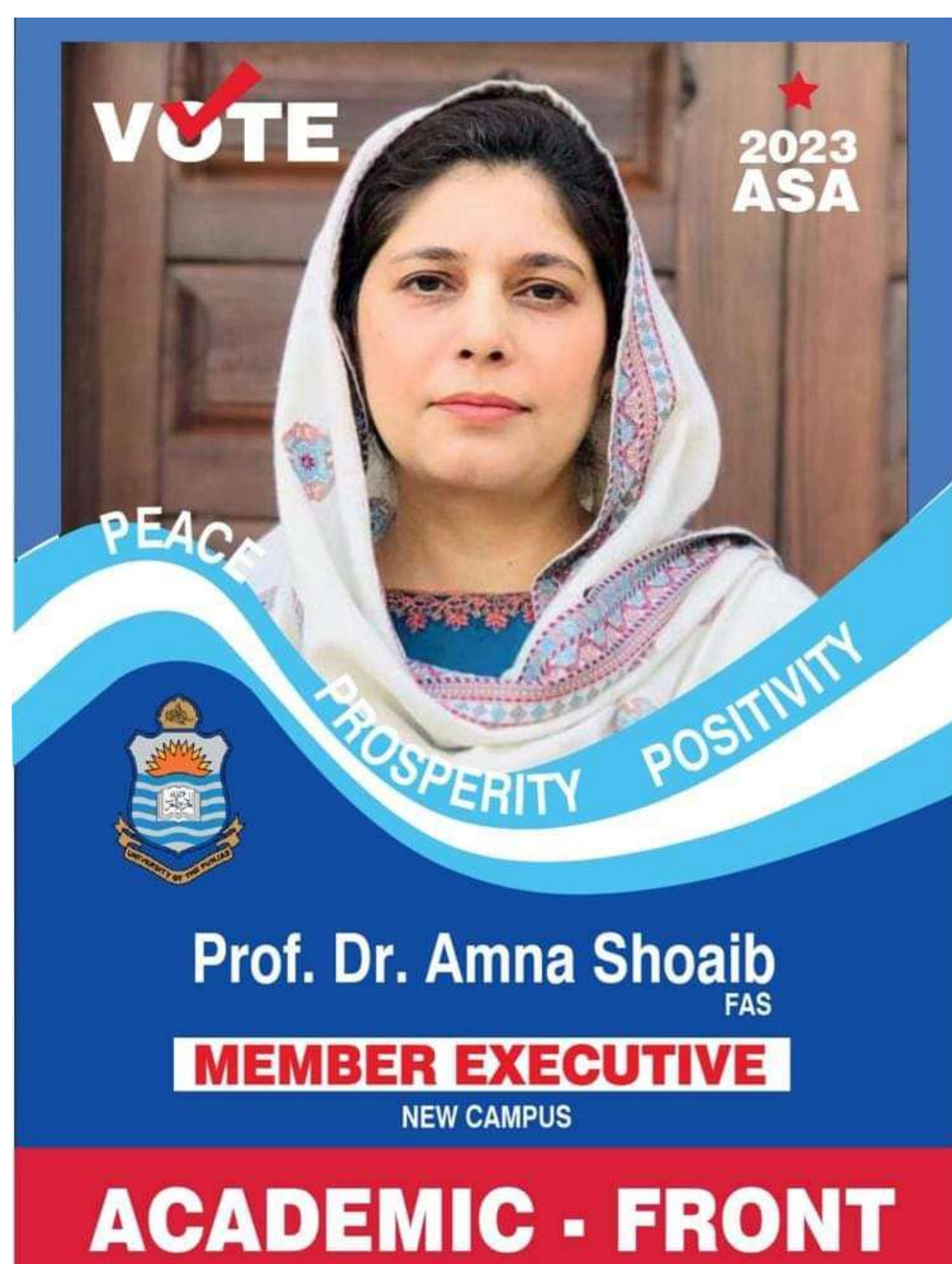
Recently few peach cultures were received from the University of Agriculture Faisalabad. After microscopic examination and ITS sequencing, *Lasiodiplodia pseudotheobromae* and *Pseudofusicoccum adansoniae* were found associated with the received specimen. The cultures are available from FCBP for further research.



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DPP actively participated in 2023 elections of the Academic Staff Association - PU



Department of Plant Pathology, Congratulates Prof. Dr. Amna Shoaib on winning as a member executive in 2023 Academic Staff Association elections of Punjab University. She contested through the platform of Academic Front. We are hopeful that Dr. Amna will be a good addition in young team of ASA, Punjab University and will also prove her skills in this field.

Academic front won 12 out of 14 seats. Academic Front's Dr. Azhar Naeem got 490 votes against his opponent, Dr. Asghar Iqbal, who secured 353 votes for the president's seat. Dr. Abdul Majid Nadeem was elected vice president (arts), and Munawar Iqbal was elected vice president (science). DPP congratulates to all winners.

Energizing colour spectrum was seen during sports week at FAS



Faculty of Agricultural Sciences celebrated sports week from 21 to 23 February 2023. All departments of FAS including the Department of Plant Pathology participated in various events during this time. Dean Faculty of Agricultural Sciences, addressed students in the opening ceremony of the event. He expressed his gratitude towards the organizing committee members for arranging such lively sports activities quite in a professional manner that are requisite to refresh the body, polish skills, and enliven minds. He said that sports are important along with studies as it make us learn to accept both victories and defeats with smiles and elegance. Faculty members also participated in various events. trophies were given to the winners.



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PhD student, Ms. Ayesha Nisar joined Department of Plant Protection, Karachi



Ms. Ayesha Nisar, our PhD student joined Department of Plant Protection, Karachi on April, 2023. Department of Plant Protection establishes rules and regulations for plant quarantine and pesticides registration under the light of FAO and WHO.

Ms. Ayesha is working on ordinance for registration of bio-pesticides to minimize chemical pesticides usage and their hazardous effect on environment as well as human beings. Ms. Ayesha has completed her research work related to her PhD under the supervision of Prof. Dr. Tehmina Anjum, Chairperson, Department of Plant Pathology, University of the Punjab and is now at writing stage of her thesis. During her PhD she has worked on a project on green synthesis of antimicrobial nanoparticles while exploiting their potential against phytopathogens. We wish her all the success in future.

Mr. M. Sohail, fresh graduate of DPP joined The Punjab Provincial Cooperative Bank

Mr. Muhammad Sohail, after completing M.Sc. Hons in Plant Pathology in 2022 from Department of Plant Pathology, University of the Punjab, joined The Punjab Provincial Cooperative Bank as Agriculture Credits and Recovery Officer ACRO. Currently he is working in Bhowana Branch, District Chiniot. His primary duties are loan disbursement to the farmers and loan recoveries.



Mr. Sohail has also given an additional charge of Operations Branch Officer (OBO). We wish him every success in all future academic endeavors and professional opportunities

The International Conference on Advances in Biological Sciences (ICABS-2023) at SBS, PU

24-Epibrassinolide As Promising Conformer for Tomato Receptor-Like Kinases Lysm, An *In-Silico* Investigation of Binding Affinity by Molecular Docking And Molecular Dynamics Simulations

Waheed Akram, Tehmina Anjum
Department of Plant Pathology, Faculty of Agricultural Sciences,
University of the Punjab, Pakistan.

Abstract

Members of plant-specific families of receptor-like kinases LysMs are directly bound and/or to be involved in perception of signaling molecules produced by microorganisms. LysMs receptor kinases can be a significant biological target for the sustainable management of plant diseases due to their crucial role in symbiosis and the defense responses against invading pathogens. This study screened a library of phytochemicals including phenolics, flavonoids and phytohormones against tomato LysM receptor kinase "SILYK12" using molecular docking and molecular dynamics (MD) simulations. From molecular docking, 24-epibrassinolide had docking scores better than the rest of the compounds. MD analysis revealed that the 24-epibrassinolide bound strongly to tomato LysM receptor-like kinase. Hence, this study provides a strong basis for the exogenous use of the 24-epibrassinolide for an improved establishment of defense responses or root endosymbiosis in plants.

Introduction

An initial layer of induced plant defense against potential pathogens involves host perception of pathogen-associated molecular patterns (PAMPs), typically by plasma membrane-localized pattern recognition receptors (LysM) (1). LysM activate signaling pathways leading to PAMP-triggered immunity (PTI). To date, diverse PAMPs including flagellin, elongation factor Tu (EF-Tu), chitin, and peptidoglycan (PGN) are known to be recognized by plants.

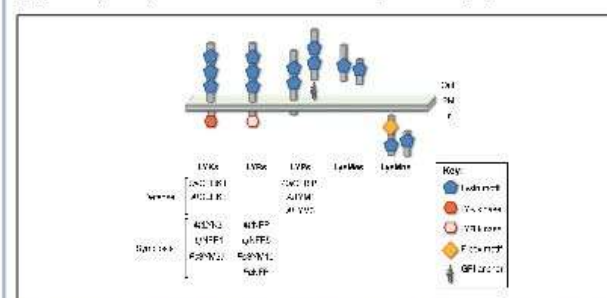
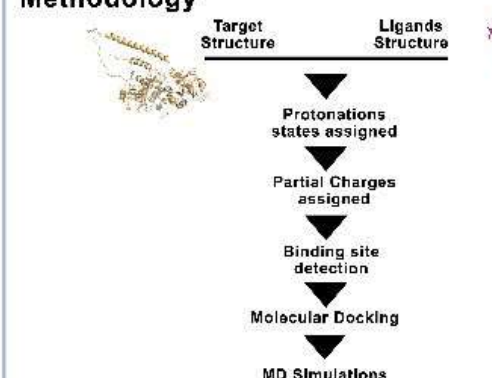


Figure 1: Schematic representation of functionally characterized plant lysin motif (LysM) proteins.

Methodology



Results

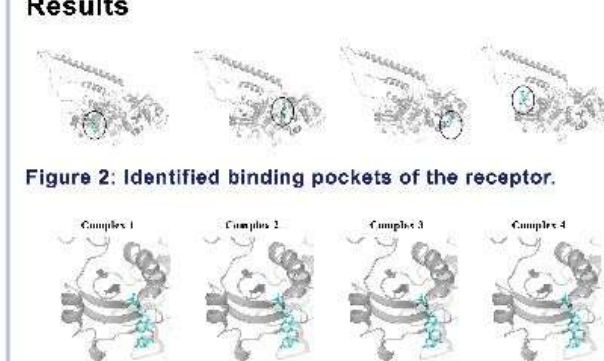


Figure 3: Representation of different 24-Epibrassinolide and receptor (LysM) complexes.

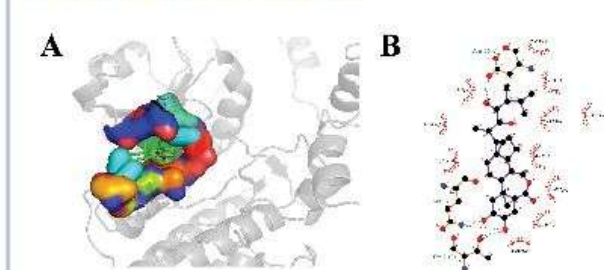


Figure 4: A. Stereoview of 24-Epibrassinolide docked in to binding region of LysM receptor. B. Interaction of the LysM and 24-Epibrassinolide.

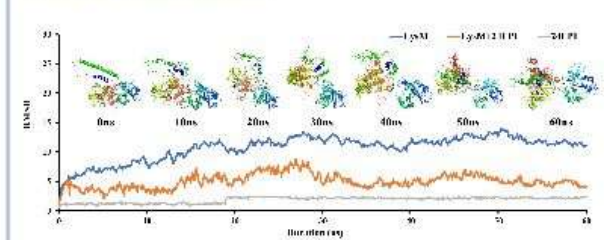


Figure 5: The time dependence analysis of RMSDs during the 60 ns MD simulations.

Outlook

This study would facilitate the identification of natural compounds as agonists of LysM receptors to increase plant resistance against diseases. Potential ligands of LysM receptor can be verified experimentally. High affinity binders can be obtained by performing iterative steps of modeling, lead optimization, and experimental validation.

References

Barndsen et al. Trends in Plant Science. 2012. 17, 8.
Zipfel et al. Cell. 2005. 125, 749–760.

Faculty from the Department of Plant Pathology participated in the International Conference on Advances in Biological Sciences (ICABS-2023) held during 6-8th March 2023 at School of Biological Sciences (SBS); University of the Punjab

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Lahore. Chairperson Department of Plant Pathology, Prof. Dr. Tehmina Anjum gave a talk on "Role of Green Technology in Reducing Input of Agro-Chemicals for Crop Protection". Dr. Waheed Akram presented a poster on "24-Epibrassinolide as promising conformer for tomato receptor like kinases lysm, An in-silico investigation of binding affinity by molecular docking and molecular dynamics simulations". We congratulate SBS on successfully organizing the conference and bringing scientists of the field together on a platform.

DPP hosted 2-Day Workshop on "Outcome Based Education"

Department of Plant Pathology hosted Two-day Capacity Development Training Workshop on "Outcome Based Education" for the faculty members serving at public sector universities in Punjab. The workshop was organized in collaboration with the Punjab Higher Education Commission. The inaugural session held at Faculty of Agricultural Sciences, University of the Punjab on 7th June 2023. Vice Chancellor, University of the Punjab, Prof. Dr. Khalid Mahmood, Dean Faculty of Agricultural Sciences, Prof. Dr. Saleem Haider, Chairperson Department of Plant Pathology Prof. Dr. Tehmina Anjum, Director Training PHEC Dr. Asif Munir graced the session. As many as 55 faculty members from different universities of Punjab attended the training workshop.

The workshop featured comprehensive sessions delivered by esteemed trainers, Prof. Dr. Shahid Imran, Chairman/Professor Department of Mechanical Engineering University of Engineering and Technology Lahore; Prof. Dr. Fahad Noor, and Prof. Dr. Muhammad Amjad. These sessions provided in-depth understanding and practical guidance on various aspects of OBE, including the philosophy and principles, curriculum alignment, effective learning experiences, and quality assurance mechanisms. The faculty members highly appreciated the expertise and insights shared by the resource persons.



During the workshop, the participants actively engaged in discussions and shared their feedback and suggestions. Their valuable input further enriched the learning experience and provided useful insights for the successful implementation of OBE in their respective institutions. OBE is a student-centered approach that focuses on the desired outcomes of the learning process and aligns curriculum, teaching methodologies, and assessment practices to ensure that students acquire the essential knowledge, skills, and competencies required in today's dynamic world.



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Dr. Mansoor Ahmad Baluch, COO PHEC addressed the participants in the concluding ceremony and distributed certificates among training participants. Addressing the participants, Dr. Mansoor Ahmad Baluch said that this training play a critical role in implementation of OBE in their institutions. I am pleased to see that this workshop has provided them with an opportunity to enhance their knowledge and skills in this area.



Students of Plant Pathology from MNSUAM visited DPP along with their faculty members

On 8th June 2023, Students of Plant Pathology from Muhammad Nawaz Shareef University of Agriculture, Multan visited the Department of Plant Pathology, University of the Punjab. The group was led by their teaching faculty including Dr. Muhammad Arsalan Khan, Dr. Akhtar Hameed and Ms. Robina Ahmed. Students were given brief introduction of the department by the Chairperson, which was followed by their visit to various labs, First Fungal Culture Bank of Pakistan and Experimental area of DPP.



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Study trip 2023 of the Department of Plant Pathology; Faculty of Agricultural Sciences - PU

Department of Plant Pathology organized study trip for B.Sc. Hons 8th semester during 15 – 19th June 2023. Students along with Dr. Nasir Subhani, Associate Professor, DPP and Dr. Waheed Anwar, Assistant Professor, DPP visited Rice Research Institute, Kala Shah Kaku; Pir Mehr Ali Shah Arid Agriculture University Rawalpindi and the University of Haripur. During the visit, students interacted with researchers and teachers of these institutes. They were shown the organizational setup and research facilities in these institutions. Both groups shared views on different prospects of research in agriculture. The tour was extended to the highlands including Kaghan and Narran that made this trip even more enjoyable and memorable for the students.



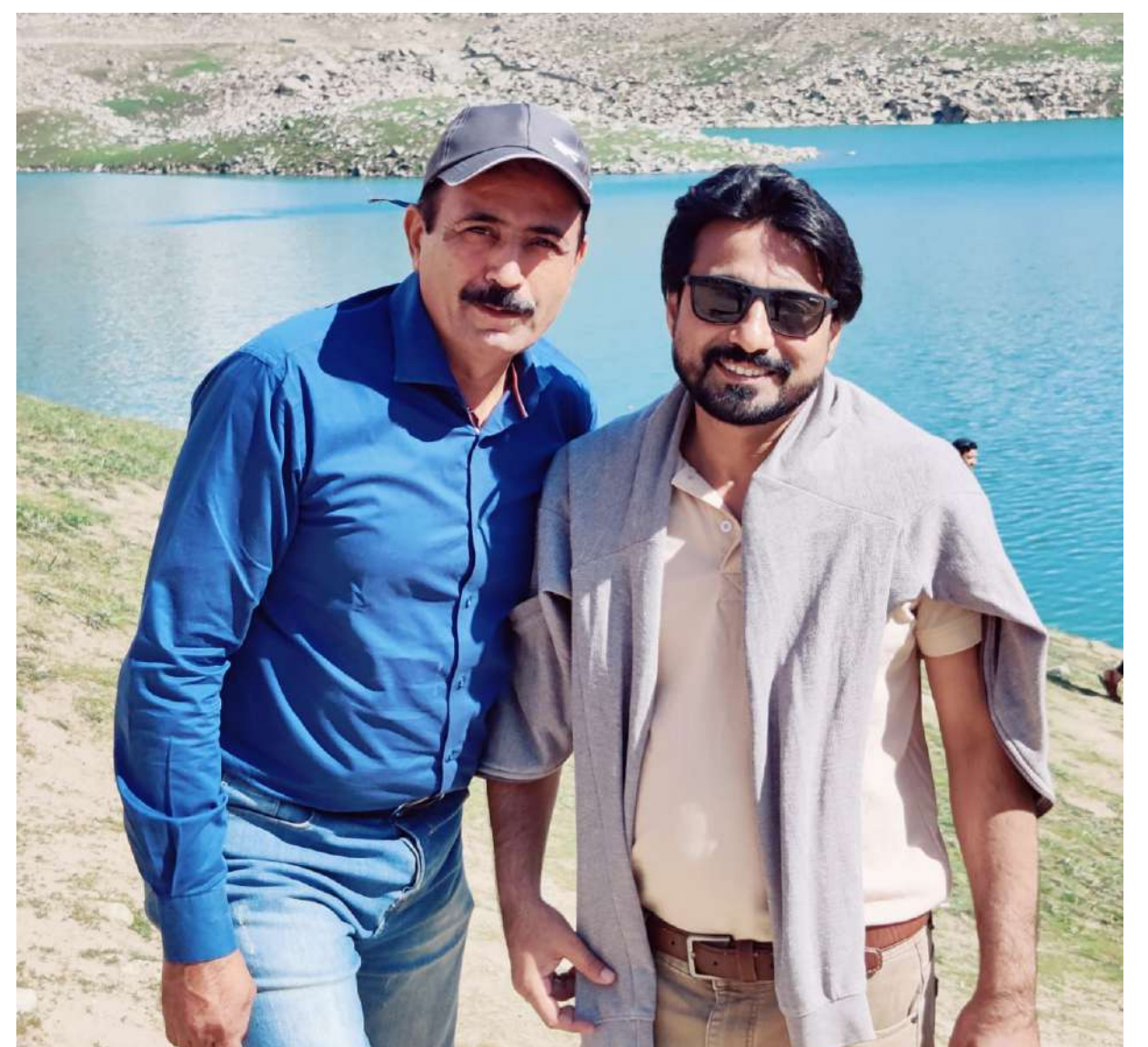
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About Us

In Pakistan, Mycologists and Plant Pathologists have been culturing microorganisms specially fungi for a long time but there had been no maintenance of microbial cultures except a few research groups that hold small personal collections. Because of this, researchers, teachers and students, faced difficulties in finding authentic cultures of their requirement. Keeping in view the importance of culture collections in microbial research, the Department of Mycology and Plant Pathology (MPPL) now, Department of Plant Pathology (DPP), University of the Punjab took initiative and started Fungus Culture Bank of Pakistan (FCBP) in 2003 with seed money provided by the Punjab University. Dr. J.H. Mirza, a retired professor and a mycologist of repute was appointed as an in-charge of FCBP along with two research associates and a laboratory attendant. Today FCBP holds over 1200 accessions of fungi. These cultures are being provided to researchers and teachers throughout Pakistan at nominal cost. FCBP has also been receiving requests for bacterial cultures along with fungal cultures. Hence, it also started working on bacterial isolates in 2005 and has accumulated an inventory of more than 500 bacterial cultures. FCBP is registered with World Data Centre for Microorganisms (WDCM).

Service Charges

Culture Acquisition	1000/- Rs
Safe Deposit	5000/- Rs (Annual)
Culture Identification	1500/- Rs
Sample Processing	2000/- Rs
Molecular Identification	8000/- Rs (May vary according to US dollar rates)
Internship	Payment will be according to the duration of research work



Prof. Dr. Muhammad Saleem Haider

Dean Faculty of Agricultural Sciences (FAS), University of the Punjab

Prof. Dr. Tehmina Anjum

Chairperson Department of Plant Pathology, FAS

Dr. Uzma Bashir

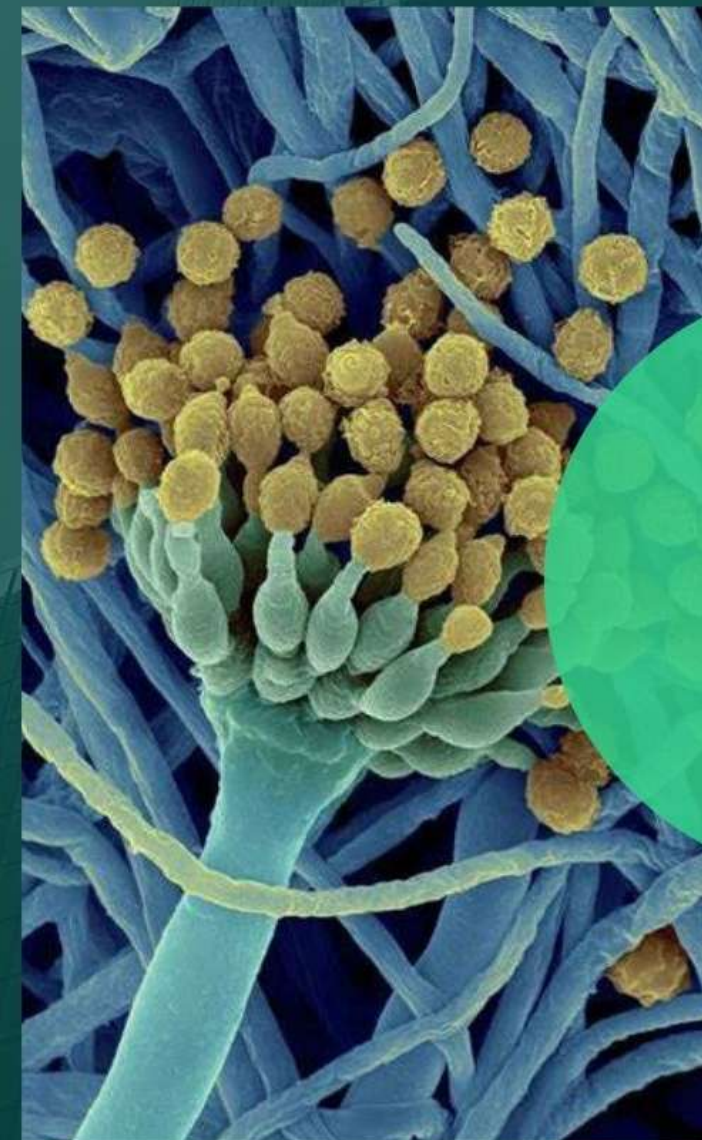
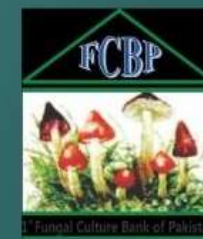
Associate Professor/Incharge FCBP

Dr. Tariq Manzoor

Research Officer

Mr. Karamat Ali Zohaib

Research Associate



First Fungal Culture Bank of Pakistan - FCBP

OUR SERVICES

Public Deposit

If you think that your cultures are valuable, please deposit them with the FCBP. The cultures will be preserved in the best possible ways. There is no fee for deposit of cultures in the general category. Cultures will not be entertained for accession number without gene bank number. On depositing an identified culture with gene bank number, FCBP will provide one free culture on request.

Safe Deposit

If you don't want to share your culture with scientific community, you can still deposit that in FCBP. These cultures are handled confidentiality and are kept under security. Only the depositor has access to these cultures. Such cultures are only provided on demand after permission of the depositor. There is an annual fee for such a deposit. An

Culture Identification

If you have isolated a microbial culture and don't know its identification, FCBP is here to provide you identification services. Only three days old pure culture will be accepted for the identification. Maximum five cultures will be accepted at a time under a single research title. Cultures are identified on morphological and biochemical characteristics. On request we do provide services for molecular identification of your cultures.

Internship & Trainings

FCBP is accepting internship students who wish to learn isolation and identification of microbial cultures. Training fee will depend on duration and quantity of work. We offer short term training facility to PhD, MS and BS students. FCBP also provides certificates upon completion

Culture Provision

Cultures can be ordered by accessing the online catalogue. Most of the cultures are supplied in fresh form on media plates/vials. The prescribed fee should be sent along with the request form. Cultures are not supplied to private addresses. Cultures should be revived / subcultured as soon as they arrive. If the culture of your interest is not listed in the catalogue, please enquire about its availability. A note on the reference to any publication using FCBP strains is mandatory. Keeping in view the daily engagements of FCBP staff, 5 cultures may be served at a time. Subsequent requests, if there are any, would be entertained after a period of 10 days.

Sample Processing

FCBP is also accepting samples for their processing to isolate and identify associated microbes.

Contact Us



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**Department of Plant Pathology;
Faculty of Agricultural Sciences;
New Campus; University of the**