



Pakistan vibrantly marked World Science Day for Peace and Dev

Hina Baloch

WORLD SCIENCE Day for Peace and Development (WSDPD) celebrated every year on 10th of November with zest and zeal, which highlights the significance of science in society and the need to involve the public on emerging scientific issues, as well as highlights the importance of science in our daily lives. This year the theme of WSDPD is “Science for Global Understanding”.

World Science Day was celebrated in a befitting manner at national level in Pakistan. A ceremony was held at Pakistan Science Foundation.

Technology Times in collaboration with various organizations chalked out different week-long colorful programmes to celebrate this Day.

The inauguration of the celebration started with the Convention of Scientists at PSF. Ms Yasmin Masood, Federal Secretary for Ministry of Science and Technology (MoST); Dr Hafeezur Rah-

man, Director General National Centre for Physics (NCP); Prof Dr Muhammad Ashraf, Chairman Pakistan Science Foundation (PSF), and Dr Aslam Baig, distinguished scientist addressed the Convention to emphasize the importance of science and its peaceful use for development and its benefits of the mankind.

Ms Yasmeen Masood said that Pakistan was blessed with young talent but we need a lot of coordination among various organizations to tell the youth about the opportunities available for them. She congratulated the winners of science quiz competitions.

Dr Hafeezur Rehman Hoorani, the Chief Guest, said that science is something that not only changes the destiny of nations but also promotes peace, he considers science as a great instrument of peace. He said that science brought different warring nations together through joint scientific programmes.

Dr Hoorani advised the students to strengthen their math and computer programming



skills to excel in science. He also asked the students to read as much as possible and be good listener to become good learner. He called upon media persons to give more coverage to science activities for popularizing the science in the country.

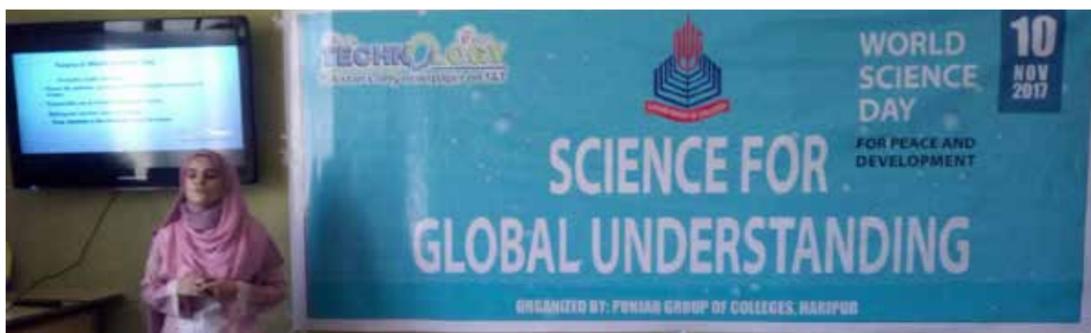
Prof Dr Muhammad Ashraf highlighted the PSFs’ research and science popularization programmes.

On WSDPD, Pakistan Museum of Natural History (PMNH) remained open for the students. Students from different educational institutions also displayed models of their science projects in an exhibition at PMNH.

PSF through its sub-centers and Science Caravan Units also arranged different activities in other cities to mark the day in a befitting manner.

United Nations Educational, Scientific and Cultural Organization (UNESCO) during the General Conference at its 31st session (2001) proclaimed November 10 each year as “World Science Day for Peace and Development (WSDPD)”. Initially the proposal was floated by Eminent Pakistani Scientist Dr. Ishfaq Ahmad, N.I., H.I., S.I. ♦

Technology Times celebrated World Science Day with zest and zeal



ON THE occasion of World Science Day for Peace and Development, Technology Times organized multiple activities at different universities, colleges, and schools; along with the radio transmissions arranged on several radio channels to educate the masses and to introduce Pakistani scientist.

A radio program was organized at Radio FM 101, where Dr. Bushra Mirza, Professor and Chairperson, Biochemistry (BMB), Quaid e Azam University; and Dr Syed Javaid Khurshid, President, Pakistan Nuclear Society discussed the role of science for development in the society.

Dr Saadat Anwar Siddiqi talked upon the Pakistani scientific and

technological research and development and the role of scientist at another radio program at Suno FM 89.4.

Dr Siddiqi stressed the media to mobilize all actors around the topic of science popularization and emphasized the role of scientists in broadening the understanding of how to make societies more sustainable.

Sayed Paras Ali, Editor Technology Times discussed the Pak-China scientific cooperation and the role of CPEC for enhancing technological development in Pakistan at China Radio International’s Dosti FM 98.

Technology Times in collaboration with Punjab College Hari-

por (PCH) organized a seminar for the students highlighting the theme of the year “Science for Global Understanding”. Ms Najam Sahar Durrani explained young minds the purpose of WSDPD. She briefed the relation between science and technology, and how local actions matter for global changes. Sahar Durrani also lectured that how students can reduce the gap between knowledge and action. Majid Khan Principal PCH ensured his support for science propagation and popularization.

By linking science more closely with society, World Science Day for Peace and Development aims to ensure that citizens are kept informed of developments in science. ♦

Pakistan Team all set for SpaceX Hyperloop 2018

PAKISTANI TEAM of engineers is all set to go for hyperloop for the SpaceX Hyperloop pod design competition. The team was competing for last 2 years and makeup to advance level in the competition.

It was the only Pakistani team that has made up to Texas A&M Design weekend among those 120 teams from a competitive pool of 1000+ teams globally made to the SpaceX design weekend USA. Pakistan was among 20 nation that contributed to campaign and made to advanced levels.

After the publication of innovator, visionary and entrepreneur Elon Musk publication on the Hyperloop concept Space X has announced in 2015 first hyperloop pod design competition.

Hyperloop is the 5th mode of travel involving propulsion of a pod at the speed of 700mph i.e., nearly an airplane inside a depressurized tube considered to be a cheap mode of transportation.

Team Burraq a multi-varsity team consisted of LUMS, PIEAS,

GIKI, and NUST that has been through the initial qualification but did not make to finals. But Space X for acknowledging the efforts and commitment of Burraq was invited to SpaceX Headquarters for the Hyperloop pod design competition II on August 27th, 2017.

Barkat Saifee stood for Pakistan and LUMS at the event. He said that it was an exciting opportunity to interact with leading technologists, scientists, and engineers from across the globe and to observe worlds most advanced rockets producer technology.

He added that competition was with top-notch universities such as MIT, Stanford, Carnegie Mellon, Virginia Tech, TU Delft among other top institutions from around the globe.

The event in itself is incredibly prestigious and the whole world watching it is a source of cutting-edge innovation. This has been a once in a lifetime opportunity to an organization that works at the level of NASA or even beyond. ♦

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Science for global understanding: a matter of concern

MUSLIM INTELLECTUALS saved the hunger for scientific knowledge and inquiry alive even during the darkest ages of Europe. Scientific discoveries have been the fundamental driver of human progress, development and prosperity. It is evident that science plays a very important role in peace and development of the society. Every year on 10th of November World Science Day for Peace and Development is celebrated globally with an objective to enhance science understanding. But unfortunately, in Pakistan, science is not being popularized in public with understanding, as it needs to be popularized. Science popularization is directly related to communication, the clearer communication, the more public understanding. There is lack of proper mediums in our country to address the audience about the innovations of science and technology, which are bringing revolutionary changes in daily lives. Science Communication is one of the core mediums to address this challenge. But, if you think to launch a Popular Science publication in Pakistan, it is just like commenting financial suicide. Since the Independence, our country has witnessed several Popular Science publications, but except few of them all have failed after short existence. Short life expectancy of these Popular Science publications is a result of various factors as lack of financial and policy related support from government, and specially government science and technology organizations. Despite of accepting science crucial role of development, government is taking science popularization as for granted. Resulting, science remains within the boundaries of classroom-belonging to educational matters only. Pakistan Science Foundation, the only government body who is responsible for communicating science to the public having a meager budget of PKR 8 million per annum for science popularization. Here question arises that, is this budget enough for 198.4 million population of Pakistan? After 70 years of independence our government is failed to distinguish between popular science publication and research journal. Most unfortunately, our government organizations almost have no policy to support popular science publications. When it comes to academia, whether public or private, they offer degree courses in journalism, they taught them every branch of journalism, except science. Concept of Science Communication or Science Journalism is treated as alien in media industry as well. It is because the Media Sciences or Mass Communication faculty itself is not much aware about science. At the other end, scientists and researchers hardly knows about how to share their knowledge for public understanding. The content they wrote, the communication they made, is not easily understandable for public, specifically where (in our society), the knowledge is far below the literacy. Fortunately, there are some media outlets, who cater only scientific content, and always remain hunger to have scientific material. But, if any noteworthy article or story or report is created, it mostly gets published in general publications, as well. To increase the public understanding of science and technology, here comes the role of Ministry of Science and Technology and its allied organizations. They should provide support to those who intend to address science to wider audience and give priority to their work at every level. Because Science Communication has a crucial role to perform and to empower public understanding of science and technology. It is just a matter of concern to re-think at this World Science Day, about challenges and opportunities of science and communication for global understanding.



Arslan Rauf

Deleterious effects of waste-water and its sustainable use

Discarding of rising volumes of waste-water, because of quickly growing urban agglomerations and mounting industrialization become hot issue which developing countries are currently harassed to deal....

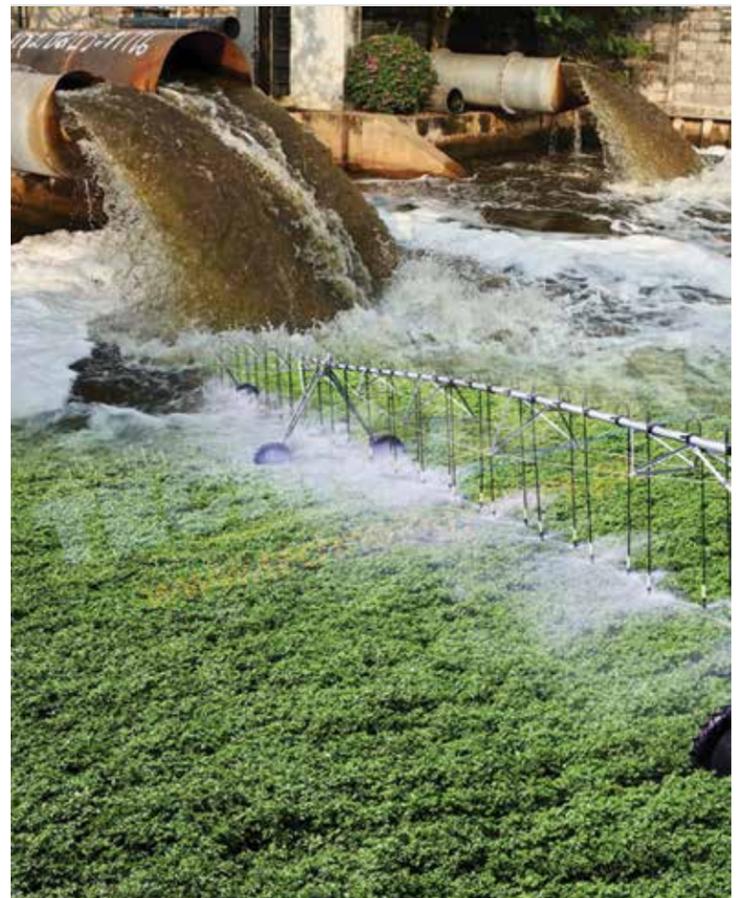
Deleterious effects of waste-water and its sustainable use

Arslan Rauf¹, Muhammad Zia-ur-Rehman¹, Muhammad Zeeshan¹, Zahoor Ahmad²

Discarding of rising volumes of waste-water, because of quickly growing urban agglomerations and mounting industrialization become hot issue which developing countries are currently harassed to deal. The technology for treating waste water is often painstaking as unreasonable luxuries suitable only to prosperous countries. On the other hand, the insufficiency of water for irrigation is a constantly rising problem, due to which utilization of waste water in agricultural production has become a regular practice in three fourth of the cities in Asia, America, and Africa. Use of waste water for farmland application is the most suitable channel as it offers a chance to reuse the beneficial plant nutrients restricted in this waste-water for crop production. Thus the secure and sustainable use of waste-water in agriculture give out as a low cost substitute of treatment and helps in avoid unrestrained discarding of waste water into lakes and streams.

In the urban and peri-urban areas this waste-water is used for enhancement of nutrients. Benefits of these nutrients depend on the quantities of waste-water applied, application time, nutrient concentration in sewage-water, intrinsic productiveness of soil and nature of crop grown. The nutrient providing capacity is believe to be the major driver for sewage irrigation but negative effects by excessive use through encouragement of over watering, lodging and the consequential loss of crop yields. Because the fertilization is inseparable from irrigation with sewage-water; the farmers are using this water with liberty respect to free cost. Irrigation rate depends on crop water needs and not the nutrient requirements. Continuous use of such waste-water results in contamination of water and soil.

Among these contaminants toxic metal contamination is really debatable issue. Different toxic metals are being used as backbone in agglomerating industries. Toxic metals elevated



uptake effect both animals and plants. The most widespread visual symptoms of toxicity of metals in plants includes turgor loss, stunted growth, chlorosis, necrosis, fewer germination and reduced photosynthetic activity which even responsible for plant death. While in human beings excessive uptake of toxic metals causes disease including skeletal, endocrine, kidney dysfunction, skin cancer, hypertension, proliferative lesions, lung cancer, reproductive, nervous, enzymatic, circulatory and immune system failure.

By knowing the deleterious effects because of toxic metals in our ecosystem their phyto-availability should be reduced. To achieve these aim different types of physical, chemical and biological techniques are used. Physically soil upper contaminated surface removed and may be replaced, high voltage to make volatile metals, deep horizon mixing. Chemical technique includes amendments (organic and organic) that bound metals and lower uptake by plants. Biological method is in situ, non-deteriorating and natural remediation

including use of hyper-extractor plant species and low accumulating species. Vegetable on or near contaminated sites have tendency to accumulate metals from surrounding environment, which leave humans on a great risk. Low accumulating species can be successfully grown to avoid metals uptake by crop plants. It has already been well documented from research that metals accumulation in edible plant parts and straw differ greatly among genetically different cultivar even in the same environment.

Waste water contains metals which pose deleterious effects on plant as well on human health. Government should pay special attention to make policies and take action strictly against industrialists and bound them to run water treatment units. Farmers should be educated on this issue so that they may use remediation technology. Cultivars with low metals accumulating should be preferred.

The authors are from ¹Institute of Soil and Environmental Sciences, University of Agriculture Faisalabad, and ²Cholistan Institute of Desert Studies, The Islamia University of Bahawalpur.



Rahil Shahzad

Hybrid Wheat Breeding: A way forward

With the expected growth in world population over 9 billion by 2050, the Food and Agriculture Organization of the United States is eyeing on an increase of about 60% in food grains by that....



Hybrid wheat breeding: a way forward

Rahil Shahzad¹, Shakra Jamil¹, Iqra Ghafoor²

With the expected growth in world population over 9 billion by 2050, the Food and Agriculture Organization of the United States is eyeing on an increase of about 60% in food grains by that year. It seems to be an ambitious target probably because of two reasons: there are serious concerns about the viability of existing production systems and the sustainability of current growth rates in crop production and the expected climatic changes are supposed to have a severe negative impact on the agricultural production. Wheat is grown most extensively worldwide with a promise to meet almost 20% of our calorie and protein requirements. To meet the global challenge of increasing agriculture productivity @ 60% till 2050 the rate of grains need to be 1.6% rather than the current gain of 1%. However improvements in the disease resistance and stress tolerance will hardly meet this challenge. Instead we have to shift the breeding systems of wheat and other food crops.

Incorporation of new genetic and genomic technologies (CRISPR/Cas9 etc.) in wheat is quite difficult because of complex genome interplay (an allohexaploid with genome size 50 times larger than rice). One of the promising option for achieving the significant yield boost across diverse environment is via hybrid breeding. Hybrid breeding offers couple of advantages firstly it provide a yield boost of 10% and yield stability secondly hybrid seed production system will draw the investment from both the public and private sectors. However competitiveness of hybrid wheat seed system with line varieties will depend on the cost effectiveness of the system.

Lowering the hybrid seed production cost depends on the reliable and inexpensive system which forces outcrossing. Wheat male sterility and restoration system were reported a long ago in 1960s but seemed cost ineffective and depleted. There are three types of male sterile systems i.e. chemical based, cytoplasmic male sterile system and non-conditional nuclear-encoded

recessive male steriles (ms) system. The value of the recessive male sterile was first recognized in 1972 with the introduction of the XYZ system. The system was mainly focused on reducing the cost associated with propagation of pure stands of male sterile lines by cytogenetic chromosomal manipulation. This system further provided advantages of broadening the parental lines choice ignoring the negative alloplasmic and cytoplasmic yield penalties and alleviating the problems associated with incomplete fertility restoration.

A cost-effective and flexible hybridization platform that uses a recessive male steriles is Seed Production Technology (SPT). The SPT has already been developed in rice and wheat but yet awaited in wheat. SPT platform overcome a lot of problems associated with large scale production of male steriles for use as female parent in hybrid breeding. SPT uses a maintainer line solely for the propagation of non-GM homozygous recessive male-sterile parents; therefore, F1 hybrids provided to farmers are considered to be non-GM. However development of SPT in wheat requires the identification of appropriate non-conditional, nuclear encoded recessive male sterile. These types of mutants are rare to identify in the polyploids due to genetic redundancies. Many of our food crops are polyploids i.e. wheat, oats, potato, sweet potato, peanut, sugarcane, cotton, kiwifruit, strawberry, and plums. For example to date only 10 nuclear encoded recessive male sterile has been identified in wheat as compared to 108 in barely (a diploid).

Polyploidy not only makes it difficult to find suitable male sterile mutations but also complicates deploying mutants since multiple mutations would be needed to deal with genetic redundancy and this increases breeding costs and population sizes needed for introgression of each additional mutation. So the effective mutant will be one that is control by single locus. There are only two locus out of ten ms1 and ms5 located on chromosome 4BS and 3AL respectively. The first mutant ms1 was observed in Australian wheats in late 1950s, later on it was also observed in the EMS treated wheat population in 1976.



A cost-effective and flexible hybridization platform that uses a recessive male steriles is Seed Production Technology (SPT). The SPT has already been developed in rice and wheat but yet awaited in wheat. SPT platform overcome a lot of problems associated with large scale production of male steriles for use as female parent in hybrid breeding

However, even for ms1, the variability between backgrounds and mutant alleles, and problems with male sterility penetrance were reported. In order to address these problems, it was necessary to identify the gene underlying the Ms1 locus and explain its function.

However a couple of week ago a paper was published in Nature in which the authors described the identification of the Ms1 gene sequence (TaMs1) by map-based cloning and demonstrated its function in male fertility by complementation of the ms1d mutant. TaMs1 encodes a glycosylphosphatidylinositol (GPI)-anchored lipid transfer protein, which is necessary for pollen exine development. From

a traditional breeding perspective, the molecular identity of the TaMs1 gene sequence now allows the development of germplasm-specific markers for fast-tracking ms1 introgression into diverse female-inbred parental lines. Moreover, complementation studies demonstrate that ms1 is unique and contrasts with other reported wheat ms mutant alleles in that ms1 behaves as a single-mutant locus in hexaploid wheat and a single copy of Ms1 restores fertility. Observed variation in penetrance of sterility between these ms alleles, understanding the relationship of these mutations to pollen production, as well as optimizing ms1 as a system for the production of a hybrid seed is now

possible through the adoption of advanced breeding technologies such as gene editing. Further, once highly penetrant ms1 alleles are identified, rather than introgression through conventional backcrossing, this new variant allele could be rapidly introduced into the most elite genetics by directly editing TaMs1. The identification of the Ms1 gene sequence represents a key step towards developing a robust hybridization platform in wheat similar to the maize SPT and will be a positive shift in wheat breeding to achieve the set goals.

The authors are from ¹Agricultural Biotechnology Research Institute, Ayub Agricultural Research Institute Faisalabad, and ²Wheat Research Institute, Ayub Agricultural Research Institute Faisalabad.



Zain Ul Abadeen

Avian Necrotic Enteritis: Poultry industry in Pakistan

Pakistan is an agricultural country and a large portion of population is linked with this. Livestock is an integral part of agriculture sector and it contributes to the agricultural and national GDP up to 56% and 13%,



Syeda Anum

Micropropagation — techniques and applications

Micropropagation is the practice of rapidly multiplying reserve plant material to produce a large number of progeny plants, using modern methods of plant tissue culture. Micropropagation is used to

Avian Necrotic Enteritis: poultry disease

Zain Ul Abadeen

Pakistan is an agricultural country and a large portion of population is linked with this. Livestock is an integral part of agriculture sector and it contributes to the agricultural and national GDP up to 56% and 13%, respectively. Poultry industry has gained much expansion since 1970 and it gives contribution of 11% and 2% in livestock and national GDP. Poultry industry provides cheaper, readily available and good source of animal protein in the form of poultry meat, eggs and byproducts.

Enteric diseases are important concern to poultry industry because these diseases effect the economics of industry in different ways including decreased production, low feed conversion efficiency of poultry birds and increased production cost in terms of medication.

Necrotic enteritis:

Necrotic enteritis is an important enteric disease in poultry caused by *Clostridium perfringens* type A and this disease was

reported first time by Perish in 1961. Necrotic enteritis costs to the global poultry up to 5 billion US dollars per annum in terms of medication cost and poor growth of poultry birds. In broiler, it usually occurs between 2nd to 5th week of age and mortality is up to 2-10%.

Causative agent:

Clostridium perfringens is an anaerobic, gram positive, non-motile, spore forming bacterium readily present in the soil, feces and poultry litter. It is normal inhabitant of the gastrointestinal tract of the poultry birds.

Toxins:

Clostridium perfringens have 5 toxinotypes including type A, B, C, D and E and these toxinotypes are mainly based on different types of toxins produced like alpha, beta, epsilon, iota and enterotoxins. These toxins are exotoxins and are mainly responsible for the production of clinical signs and disease in animals and poultry birds. *C. perfringens* type A mainly produces alpha toxin.

Predisposing factors:

There are several predispos-



ing factors which elicit the clinical signs and lesions of necrotic enteritis in the poultry birds including coccidiosis, presence of pathogenic *C. perfringens*, feed composition like high protein diet, stress, poor immune status, mycotoxins, lack of biosecurity, bad managemental conditions

and other concurrent diseases like salmonellosis etc.

Pathogenesis:

C. perfringens is a normal inhabitant of chicken's gut microbiota and usually remain in low number under healthy conditions (10²-10⁴ cfu/g of ileal digesta)

but when conditions in the intestinal tract changes, lead to the increase in the number of the pathogenic *C. perfringens* (10⁷-10⁸) and produce toxins lead to the development of disease with the production of lesion in the small intestine of the birds.

Continued on page 05

Micropropagation — techniques & applications

Syeda Anum Masood Bokhari

Micropropagation is the practice of rapidly multiplying reserve plant material to produce a large number of progeny plants, using modern methods of plant tissue culture. Micropropagation is used to multiply noble plants, such as those that have been genetically modified or raised through conventional plant breeding methods. It is also used to provide a sufficient number of seedlings to plant from a common plant that does not produce seeds, or does not respond well to vegetative reproduction.

Micropropagation Technique:

Micropropagation is a complicated process and comprises mainly 4 stages (I, II, III and IV).

Step 0:

This is the initial step in micro-propagation, and involves the selection and growth of common plants for about 3 months

under controlled conditions.

Stage I - Establishment:

In this stage, the initiation and establishment of the culture is achieved in a suitable medium. The selection of appropriate explants is important. The most commonly used explants are organs, shoot tips and axillary shoots. The explant selected is surface sterilized and washed prior to use.

Stage II - Multiplication:

At this stage, the main activity of micro propagation occurs in a defined culture medium. Phase II mainly involves the multiplication of shoots or the rapid formation of explant embryos.

Stage III - Rooting:

This stage involves the transfer of shoots to a medium for rapid development in shoots. Sometimes sprouts are planted directly on the ground to develop roots. In vitro rooting of shoots is preferred while simultaneously handling a large number of species.

Stage IV - Acclimatization:

This stage involves the establishment of seedlings in the soil. This is done by transferring seedlings from stage III of the laboratory to the environment of the greenhouse. For some plant species, stage III is omitted, and nonrooted shoots of stage II are planted in pots or in a suitable compost mix.

Factors Affecting Micro-propagation:

For success in clonal propagation in vitro (micro-propagation), optimization of several factors is necessary.

1. Genotype of the plant:

Selection of the correct genotype of plant species (by screening) is necessary to improve micropropagation. In general, plants with a vigorous germination and branching ability are more suitable for micro-propagation.

2. Physiological status of explants:

The explants (plant materials) of the most recently produced parts of plants are more effective

than those of the older regions. A good knowledge of the process of natural propagation of donor plants, with special reference to the stage of growth and seasonal influence, will be useful in the selection of explants.

3. Culture media:

Conventional plant tissue culture media are suitable for micro-propagation during stage I and stage II. However, for stage III, certain modifications are essential. The addition of growth regulators (auxins and cytokinins) and alterations in mineral composition is essential. This depends largely on the type of crop.

4. Cultural environment:

Light:

The photosynthetic pigment in cultured tissues absorbs light and, therefore, influences micro-propagation. Variations in daytime lighting also effect micro-propagation. In general, a lighting of 16 hours of day and 8 hours of night is suitable for the proliferation of shoots.

Temperature:

The majority of micropropagation culture necessitates optimum temperature around 25 °C. However, there are some exceptions.

Micropropagation applications:

- Suitable alternative to traditional methods
- High prevalence of plants
- The production of disease-free plants
- Seed production in some crops
- Cost effective process
- Automated micro propagation
- Very small size explants can be used
- Only practical method of multiplying genetically modified cells or cells after protoplast fusion.
- Ease in keeping, packing and transport of material multiplied by micropropagation

The author is scholar at Institute of Horticultural Sciences, University of Agriculture, Faisalabad.



Tanvir Ahmad

Phytopathogenic bacteria "Xanthomonas" and its host interaction

Xanthomonas is a gram-negative Plant Pathogenic Bacteria which belong to the phylum Proteobacteria, these are rod shaped and this type of all bacteria cause leaf spot or blight infection.....



Phytopathogenic bacteria "Xanthomonas" and its host interaction

Tanvir Ahmad and Muhammad Usman

Xanthomonas is a gram-negative Plant Pathogenic Bacteria which belong to the phylum Proteobacteria, these are rod shaped and this type of all bacteria cause leaf spot or blight infection in the host, Xanthomonas has single flagellum which is polar in nature. The suitable temperature for the bacterial growth is 25o-30o C. Colonies of bacteria are yellow in color and this yellow color is due to special pigment xanthomonadin which is also important to protect the bacteria from the environmental damages. Xanthomonas genus of the bacteria effect not only crops like cotton, rice but also cause the serious problems in trees like Xanthomonas campestris pv. citri cause citrus canker in citrus, Xanthomonas campestris pv. mangiferae-indicae cause the Bacterial Black Spot of the mango, Xanthomonas campestris pv. fici cause the Bacterial blight of fig and Xanthomonas campestris pv. pruni cause the Bacterial spot of peach.

It is reported that in several conditions, Virulence mechanisms of strain-specific variations in Xanthomonas spp. have been might reflect bacterial adaptations to specific host plants. Bacteria mostly present in the form of epiphytes on the surface of the plant but it invades through wounds, stomata and hydathodes. The main feature of these bacteria is that it can cause infection systemically. When it enters in the tissue of the plant, this pathogen specie multiply in

either in intercellular spaces or colonizes in the xylem tissues and spread systematically in the whole plant parts. Bacteria are also supposed as hemibiotrophic organisms because in early life stages they feed on the living host but in later the feed on the dead tissues. On molecular research, bacterial virulence has diagnosed which has main contribution to host-pathogenic interaction. Plant pathogenic bacteria has ability to attach with the plant surface, enter into the intercellular space of the host tissues, where they obtain nutrients and initiate the plant defense responses.

Successful infection of the host plant is established, and this infection is depend upon on the bacterial secretion system which enter the protein or DNA directly into the host cell cytoplasm and this process is known as translocation. The protein which is translocated in the host cell is known as effectors protein. Lots of infectious bacteria excrete the combination of the proteins those give the progress of the disease and multiplication of the bacteria specie. Xanthomonas spp. secretes a characteristic EPS (extracellular polysaccharides) xanthan, by which mucoid appearance of the bacterial colonies are formed. Furthermore, Xanthan might cause wilting of host plants by disturbing the water flow in xylem vessels and this is most common in vascular pathogens. Avirulencant / pathogenic Xanthomonas pathovar have avr genes in their genomes, which shows that interaction with the



Xanthomonas spp. secretes a characteristic EPS (extracellular polysaccharides) xanthan, by which mucoid appearance of the bacterial colonies are formed. Furthermore, Xanthan might cause wilting of host plants by disturbing the water flow in xylem vessels and this is most common in vascular pathogens

host is depend upon on the gene for gene theory. Hypersensitive response is occurred in the host when Xanthomonas show incompatibility with the host which leads the local lesions due to cell death of the host. It has been reported that of Xanthomonas campestris pv malvacearum has characteristic plasmids which

has important role in the pathogenicity, but it is even not reported in the American and Africans strains of the bacterial pathogens which indicate that variations in the virulence is not related to the plasmid. But in further studies it has been reported that aggressiveness of the pathogen has occurred by plasmids of bacte-

ria. Xanthomonas is included in special group due to its specific characteristics which make it different from the other bacterial species mainly basis on the host range are some are placed in the Xanthomonas campestris.

The authors are scholar at Department of Plant Pathology University of Agriculture Faisalabad.

From page 04 — Avian Necrotic Enteritis: poultry disease

Regulation of toxin gene expression in *C. perfringens*:

In *C. perfringens*, expression of toxin gene is regulated by tow component regularity system including VirR/VirS system, which is present in type A. Two types of cell signaling like agr and AI-2 signaling is important for regulation of toxin genes.

Clinical Signs:

Necrotic enteritis mainly occurs in two forms including clinical and subclinical. Typical clinical signs of necrotic enteritis include depression, reluctance to

move, diarrhea, loss of appetite, dehydration, ballooning of the intestine due to gas accumulation and sometime ulcers or light yellow spots on the surface of intestine can be seen. It is believed that sub clinical form of the disease has more negative impact of the economics and performance of the birds.

Pathological lesions:

Grossly:

Effected birds have dehydration, dark colored breast muscles, severe inflammation of the duodenum and ileum, distension

of intestines due to accumulation of gas and mucosa of the intestine is covered with a diphtheroid membrane known as "Turkish Towel". In advanced cases, sloughing of the intestinal mucosa along with areas of necrosis can be observed. In some cases, cholangiohepatitis and gizzard erosions are seen.

Microscopically:

Initially microscopic lesions are developed at the apices of the intestinal villi which are characterized by the sloughing of the epithelium then these lesions are extended up to crypts, submu-

cosa and muscular layers of the intestine. Coagulative necrosis along with large number of inflammatory cells can be seen.

Diagnosis:

Diagnosis of the disease can be performed through case history, clinical signs, lesions, gram's staining, biochemical tests, ELISA (enzyme linked immunosorbent assay) and PCR (polymerase chain reaction).

Treatment:

Treatment of necrotic enteritis is usually done through a list of antibiotics including Penicillin,

Amoxicillin, Ampicillin and Erythromycin etc. Several strategies are developed as non-antibiotic feed formulation treatments to control necrotic enteritis.

Control:

Necrotic enteritis can be controlled by following ways including

- Strict monitoring
- Farm hygiene
- Stabilizing the gut flora by using Prebiotics, Enzymes, Acids and Essential oils
- Feed quality
- Treatment and Vaccination



Major Ali Jaffar Zaidi

Salvation of Pakistani youth only through modern technology-skills

We have entered the era of Technology, though as a nation we lack almost every aspect of it. In the near future the ruling powers in the world shall be defined by the amount of water they.....



Salvation of Pakistani youth only through modern technology-skills

Major Ali Jaffar Zaidi (Retd)

We have entered the era of Technology, though as a nation we lack almost every aspect of it. In the near future the ruling powers in the world shall be defined by the amount of water they hold or the advancement they have made in technology.

Keeping in view the current political affairs, to excel in education is perhaps the ultimate manner to clear the stigma over the Pakistani Nationals.

Our educational institutions are falling back in terms of teaching and research, although it's their basic mandate. On the contrary, our industries too, seem less interested in outlining its needs of the kind of specialized manpower synonymous to the world market. What many do not recognize is that these industries must work in harmony to benefit the entire system. The academia, by including an updated curriculum in coherent with the industry conveying what should be updated. Here lies the concrete basis of all the other tribulations that follow. Our teachers, trainers and lecturers do no emphasize over the collateral good that triggers when we learn what is to be learnt. This includes, all sorts of etiquettes, morality and knowledge that pertains to our ever-growing needs in the society. This is causing major leadership crisis. Awareness of education as well as value added education is the essence to overcome this turmoil.

As I intended to return the favours bestowed upon me by my motherland, I saw an opportunity to fulfil this dream of mine by giving to the youth a gift in the form of top of the line value added education & skills that will bridge the gap between the needs of industry and the skills of people.

My Company CIBA Consulting Pakistan (Pvt) Limited which is an Information Technology Consulting company is partners with SAP in SAP Learning Hub-Student Edition & Professional Edition.

Through SAP, students are trained to become successful professionals or entrepreneurs, whose services would be immensely valuable to industries providing high end job place-

ments. In this manner, locales will benefit and the rate of unemployment will decrease by leaps and bounds.

We, at CIBA felt that the youth of Lyari has faced an immensely rough patch and has been battle inoculated. They deserve to turn over a new leaf, and be renowned and catapulted into the mainstream of Pakistan. For this venture, CIBA decided to create its sub-organization:

Lyari Innovation Technology Enhancement (LITE)

LITE was then phased out into 7 stages:

- 1 A Technological map of Lyari to be prepared showing diversity at its pinnacle, where hundreds of communities have been living harmoniously for decades.
- 2 Choosing a volunteering alpha couple from each faction for better communication between CIBA and the whole community.
- 3 During stage 1 & 2, to begin SAP Training & Certification in Benazir Bhutto Shaheed University Lyari and create a top tier potent force.
- 4 Once the picking process of the volunteer alpha couples to be complete they were to be homogenized with the trained students of BBSUL, that shall aid them with the skills and expertise needed.
- 5 The volunteer alpha couple then shall set its course back to its community teaching them the competencies learned.
- 6 Eventually, every home shall have enough aptitude to make their own products, while CIBA shall be providing them with linkages of Software companies across the globe.
- 7 Soon enough, through monitoring & utmost support, these homes will turn into 'Software Development Houses' and the residents, an emblem of talent and vigor.

This pursuit should be able to transform Lyari ultimately as the "Silicon Valley of Pakistan" within a span of 5 to 10 years.

Putting this vision into viable practicing, CIBA chose to begin this journey of education and development in Benazir Bhutto Sha-

heed University, Lyari.

Benazir Bhutto Shaheed University Lyari (BBSUL), is the first ever university of Pakistan to create following four SAP records:

- a) To adopt and implement SAP Training & Certification as the first university of Pakistan.
- b) First university to enroll 256 students and issue them SAP-User IDs
- c) A total of 77 students sat in as a single batch ever for SAP Certification which is the highest number of students to sit in SAP Certification in a single go till date in Pakistan and passed in flying colors.
- d) The most difficult of SAP Modules, SAP BASIS was cleared in the first attempt by 4 undergraduate students of BBSUL which even the most qualified and experienced professionals are unable to clear in the first attempts.

BBSUL has modelled a remarkable impact by its talent and potential in the province of Sindh, thus, CIBA perceives that a much more massive jolt could be created in all educational institutions for Pakistan and world-wide.

With stage 5 close to completion, Lyari shall become a hub of software houses, buzzing with creativity and success in no time, being a massive revenue generator for Pakistan and an exemplar tech-City for the IT World.

Our regular visits to Gwadar show that tremendous progress has already been achieved in regard to CPEC Development. This upcoming Mega Project is picking pace, with a magnanimous flow of vacancies that are now flooding the market.

Our neighbours, like China and India are stronger in SAP beyond our recognition producing thousands of consultants whereas our numbers are close to negligible. Soon large industrial names shall phase out without integration with technology in terms of the overall industry and its proven competent resources.

In case we fail to deliver and produce adequate resource, China shall be compelled to bring its very own SAP Consultants resulting maximum pay and allowance of the total investment to rebound to China causing unimaginable deprivation to our Pakistani talent-

By 2018, CIBA aims to Train and Certify 20,000 to 30,000 students catering for the initial SAP Resources for the upcoming industries in this mega project of CPEC

ed & educated youth.

CIBA Consulting Pakistan (Pvt) Limited, has begun SAP Training & Certification for the students of University of Turbat, Gwadar Campus. Total enrollments have reached a number of 187 with most applicants being female. Classes shall be commencing soon.

CIBA Consulting Pakistan has also signed an agreement with Gwadar Port Authority to establish and operate Pak-China Technical & Vocational Institute in the present structure of old Gwadar college overlooking the Gwadar Free Trade Zone. These are sole endeavors of CIBA.

The current renovation process is an organized vocational training also a part of our curriculum where 650 local applicants are already in our databank, keen, willing, ready and able to start. This is a new concept altogether where, students themselves are learning to build their very own institute in order to learn architectural skills, and once complete, the institute shall have many more vocational trainings for these candidates that will be able to enhance their expertise as craftsmen.

With top tier excelling in SAP and the middle lower tiers training at the vocational institute, the technical skills acquired by all tiers of youth in Gwadar granting them with wonderful employment opportunities thereby placing them on the driver's seat of all the industries planned in CPEC Mega Project.

Soon we will be obtaining few more public-sector ghost buildings in every province of Pakistan to setup advanced vocational and technical institutes for the benefit of the national youth.

SAP certification provides an instant leap from being a job seeker to a job provider. It is value added education that adds more merit to our brilliant students that get recruited in the best positions in prestigious firms, that allows them to experience and understand all the must haves and not's before they begin one which is their very own. We are integrating SAP as a job oriented certification at the cheapest rates at the lowest global cost, for our under-privileged which will be a two-way corridor for new talent to rise and old talent to hone itself even further.

Through SAP and now with the addition of other vocational trainings, we shall train students to become successful professionals or entrepreneurs, whose services would be immensely valuable to our industries. This way the academia is being gradually integrated with the current syllabi of global enterprise; and our industries fully aware of the resources that it can use.

My inspiration and impetus for these triumphs at the age of 67 has been none other than divine help and the motto of my school, Lawrence College Murree Hills that is "Never Give In". When I can attain this now then anything is possible with determination, perseverance and dedication

CIBA is proud to achieve 100% results in Training and Certification with over 720 graduates till date, placed in prestigious positions in multinational companies across the country. Another 4800 are currently undergoing Training and Certification.

The author is President at CIBA Consulting Pakistan (Pvt) Limited.

COMSATS adds Somalia as its 26th Member State

FEDERAL REPUBLIC of Somalia has signed an accession international agreement to join the Commission on Science and Technology for Sustainable Development in South (COMSATS) in Islamabad.

For Education, Ministry of Education, Culture, and Higher Education, Somalia, Abdi Dahir Osman, consented to the arrangement, while from COMSATS the signatory was the association's Executive Director Dr. S. M. Junaid Zaidi.

Ambassador of Somalia joined Somali Minister in Islamabad, Pakistan, Khadija Almahzoumi; First Secretary, Embassy of Somalia, Ali Sheik; and Advisor to the Ministry of Education, Culture, and Higher Education, Mohammed A. Nur. Senior authori-



ties from COMSATS likewise saw the service.

Dr. Zaidi expressed gratitude toward the Minister and the Ambassador for trying the endeavors which prompted the consenting to of increase arrangement. He additionally recommended about COMSATS, its statutory bodies, its global projects, and exercises and considered this understanding another part of science-drove cooperation for accomplishing supportable financial advancement.

International conference on Poultry Processing concludes

FIRST INTERNATIONAL Conference on 'Poultry Processing: Farm to Fork Management' to aware ordinary customer about poultry meat market concluded in a ceremony organized by Department of Poultry Production of the University of Veterinary and Animal Sciences Lahore in collaboration with Higher Education Commission (HEC), Pakistan Poultry Association (PPA) and K&N's.



Poultry production and nutrition aspects of meat quality, halal slaughtering, food safety measures, capacity enhancement of academia, medicine residuals, poultry welfare during live hauling, poultry product development, shelf life and packaging, poultry meat and consumer health, rendering and waste disposal, including five technical sessions, 35 presentations on different topics and a mini-exhibition featured in the two-day conference.

Other issues related to poultry market are transportation from distant farms, severe weather conditions and inappropriate slaughtering of birds, blood retained/coagulated in drains cause different health hazards.

Withdrawal of antibiotics from meat is totally lacked in regula-

tion system that have a direct effect on human health, also no mechanism to control diseased bird making its meat dark that customer does not want to buy.

Conference suggested that regular customers should buy processed meat for healthy eating. The development of processing industry can hitch the rising prices of meat too by balancing the demand and supply chain. It will create awareness about the nutrient values of processed meat among commons. The processing industry maintains proper hygienic condition from farm to fork.

It was concluded from poster and oral presentation of ICPP consumers have no awareness about poultry meat quality and most important about its safety as there is no regulatory authority to monitor poultry meat market whether the bird is diseased or dead bird in wet market.

Collection of GST and WHT from cellular users discussed

SENATE'S STANDING Committee on Information Technology and Telecommunications had met with Senator Shahi Syed in chair.

Progress on implementation status of recommendations of committee concerning increase in the pension of retired PTCL employees and policy devised

by FBR and PTA about collection of taxes i.e. GST and WHT from cellular users was discussed in meeting.

Secretary Ministry of Information Technology and Telecommunications, Senators Syed Shibli Faraz, Taj Muhammad Afridi, and Dr. Ghous Muhammad Khan has

Workshop held on 'Testing Indigenous Hydroponics Model for Vegetable Growing'

A FIFTEEN-days preparing workshop on hydroponics horticulture under the venture titled 'Testing Indigenous Hydroponics Model for Vegetable Growing' in a joint effort with Agriculture Development Bank of Pakistan started at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi (PMAS-AAUR).

PMAS-AAUR, Vice Chancellor Prof. Dr. Rai Niaz Ahmad was the central visitor at the inaugural session which was likewise gone to by dignitaries, chiefs, employees, and agriculturists. More than 30 ranchers from Punjab territory and different territories of the nation will get preparing on hydroponics innovation under the instructional course. This is a sixth instructional course out of eight, under which add up to 200



agriculturists would be bestowed preparing on hydroponics innovation.

Dr. Rai Niaz Ahmad stated, hydroponics framework, in which development is finished by encouraging and water under a particular procedure by controlling atmosphere into good conditions, definitely would lead

the horticulture division towards advancement and productive bearings. The framework is a protected, nutritious approach to create tasty and top-notch vegetables and organic products in a sound domain by embracing the gigantic innovation with capacity to deliver agro items up to 40 times and 100 times conservative than European show.

Pakistan set to develop IT park

PAKISTAN'S GOVERNMENT imagining its vision to end up plainly a main 25 worldwide economy and join the group of upper-center pay nations by 2025 with 'Pakistan Vision 2025' - is allegedly completely outfitted to set up data innovation (IT) stop in Islamabad.

In this association, the Ministry of Information Technology and Telecommunication has welcomed ask for proposition (RFP) for acquirement of consultancy administrations for undertaking natural effect appraisal (EIA) for innovation stop advancement venture Islamabad.

As per the RFP record, the venture site is arranged in Chak Shahzad, 8km far from Islamabad. The task site incorporates a region of 60,000m² while the aggregate size of innovation stop zone would be 190,000m². The entire region is intended to be created as the IT centered innovation advancement bunch and will be produced slowly as stage 1 incorporates building up a range of 60,247.69m² or 14.9acre and stage 2 incorporates a region of 134,936.50m² or 33.34acre.

PAS Gold Medal honored Prof. Dr. Jamshed Iqbal

PAKISTAN ACADEMY of Science awards Gold Medals and Prizes in 13 fields of Science and Technology to Pakistani scientists who have made original research contributions. Fellows of the Academy, Universities, and R&D Organizations are made nominations for the awards. Expert Committees formed by the Council of the Academy has evaluated the nominees. So far 200 scientists have been honored with these awards.

Prof. Dr. Jamshed Iqbal (Tamgha-i-Imtiaz), Head of Centre for Advanced Drug Research, COMSATS Institute of Information Technology (CIIT), CIIT Abbottabad honored with PAS Gold Medal-2017 on 1st of November, 2017 by Pakistan Academy of Sciences, Islamabad in the field



of Chemical Sciences Including Pharmaceutical Sciences in recognition of his outstanding and meritorious research work on the subject in the recent ceremony.

Prof. Dr. Jamshed Iqbal is an adept teacher and researcher of chemical sciences and now leading the Centre for Advanced Drug Research in the prestigious CIIT, Abbottabad of Pakistan in Islamabad.

Plastic money and digital transactions trending in PaK

Adoption of digital transactions in Pakistan has seen a 17% growth YoY during 2016-17 as per annual performance review from State Bank of Pakistan (SBP).

The credit goes to mobile broadband technology in Pakistan that has encouraged digital transactions. Increasing awareness and efficiency of e-commerce businesses and online payments systems are also responsible for this change. Mobile and internet banking transactions are gradually becoming strong while ATM stills hold a sizeable part of transactions while.

Around 625.8 million transactions made through electronic banking, businesses, and consumers of Pakistan that registered a 17% growth than last year's 543.8 million.



During 2017 total value of transactions mounted at Rs37.1 trillion not depicted any improvement. The total commercial banking activity accounted for Rs31.1 trillion while transactions remained 143.6 million.

SBP reported that Rs31.1 trillion...was 23% of total e-banking transactions by volume and 84% by value.

PASTIC to develop consortium of S&T with R&D libraries of Pakistan

IT IS needed in this digital era to develop a common platform for libraries at the national level so that access to electronic resources can be offered to users at lower cost and finest fund utilization.

A PSDP project of PASTIC entitled "Modernization of PASTIC National Science Reference Library for Effective Resource Sharing among S&T libraries in Pakistan" has been approved. One of the core objectives of this project is to develop a consortium of S&T with R&D libraries of Pakistan (CSTRDLP).

Pakistan Scientific & Technological Information Centre (PASTIC) a minor PSF working under Ministry of Science & Technology is a premier national organization of S&T Information Management and Dissemination. PASTIC supplies S&T information as per need of researchers from universities, R & D organizations, and the industry.

PASTIC has been motivated

for establishment of libraries in addition to librarians for effective resource sharing by creation of Union catalog, to digitization and automation of libraries by training and distribution of WinISIS software.

All the central, national and departmental libraries of universities, National Centers of Excellence and Scientific organization condensed to create latest library tools for resource sharing by the consortium.

The first meeting in this regard was held on at PASTIC, QAU campus, Islamabad. Information professionals from all provinces have attended the meeting. The current status of library data at institute level, potential risks in the development of the consortia, set rules, procedure, responsibilities, guidelines, etc. was the agenda of meeting. A working committee was founded to hold them responsible for the formulation of rules and regulations for this consortium. ♦

Conference on "Mountain Specific Innovative Solutions for potential scaling up in Pakistan"

THE INTERNATIONAL Centre for Integrated Mountain Development ICIMOD organized a conference on "Mountain Specific Innovative Solutions for potential scaling up in Pakistan" in collaboration with Pakistan Agricultural Research Council (PARC), held at National Agricultural Research Centre (NARC), Islamabad. The conference aimed to improve understanding of mountain-specific vulnerabilities and pliability building in milieu of climate and socio-economic changes. It has suggested tactical actions for mainstreaming and ascending groundbreaking solutions.

Chairman, Pakistan Agricultural Research Council (PARC) Dr. Yusuf Zafar said that over the past few decades, Hindu Kush Himalayan region undergoing transformative change, particularly human movement, and integration of local economies and obstinate problems progressively expanded rural livings and disregarded use of natural resources.



Ms. Margaret Adamson, Australian High Commission, a guest speaker said that ICIMOD and other organizations' assessment specify that mountains more prone to climate change and communities in Hindu Kush Himalaya, and remotely are susceptible to climate change effects. He explained that there is increased frequency and duration of extreme climatic events and natural disaster.

Fazal Abbas Maken, Federal Secretary, Ministry of National Food Security & Research said that strategic actions are required for mainstreaming and scaling up of innovative solutions in mountain areas. Therefore, resilience of

mountain communities is a need of the day which cross-thematic integration and interdisciplinary approaches to understand the context and achieve resilience outcomes across its three dimensions of recovery, improved adaptive capacity and transformative change.

Bernard Francos, Head of Cooperation and Minister-Counselor, European Union Delegation to Pakistan in his address highlighted that the conference plans to feature the developing effects of environmental change, debilitating the wellbeing, survival, and flexibility of mountain groups that require a prompt and more extensive range of environmental change adjustment systems. ♦

Pakistani student's IDE 'Asmder' for scholars

A PAKISTANI student has developed a complete-blown included development surroundings (IDE) 'Asmder' for meeting language needs to make the lives of the scholars less difficult. Tabish Rafiq, a pc technological know-how student stated, "I used a simple textual content editor, NASM compiler and DOSBox emulator to run the applications".

"The maximum assist we may want to discover changed into to get a textual content editor like Atom and set up a few extensions to make it a bit bit friendly

for assembly language. locating errors and debugging the packages turned into still a nightmare and this changed into the cause that many students have been simply fearful of the course," he delivered.

Asmder targets to be the cure for all the ailments, it makes use of the DOSBox emulator and provides some brought benefits and functionalities to make the lives of the scholars less difficult. He had to go through all the difficulties that include coding in meeting language. Seeing as

there was no right IDE available to help college students undergo that route, he got down to broaden one of his very own Syntax highlighting, Code explorer, Intellisense, 64-bit compatibility, Instant error detection, and Easy debugging with registers/flags inspection.

Asmder provides full-blown improvement surroundings for MASM software which includes a totally sensible editor which could vehicle-complete the instructions and detect errors before you run the program. ♦

UoH observed 'Academic Day' in partnership with HEC and Microsoft Pak

MICROSOFT PAKISTAN has collaborated with Higher Education Commission (HEC) of Pakistan to hunt a combined initiative for promoting the use of advanced Information Technology and Cloud computing solutions, in the education sector, pioneering and insightful initiative that includes a mega event organized every academic year, in major universities across the country.

The 'Academic Day' has been organized in the University of Haripur.

Discussions on Education Transformation Agreement (ETA) between the two organizations, its impact, and role in the education landscape of Pakistan was part of the event. ETA helps the

faculty & students remain up-to-date with the latest technological advancements, through technical trainings, workshops & seminars. Furthermore, Academic Day showcases the features of Microsoft Azure and its potential role in the Education industry.

Microsoft's Cloud solution Office 365, due to its effective performance is a powerful platform used in Pakistan by more than 250,000 consumers.

Participants also discussed the Imagine Cup Microsoft's leading technology competition and its winners for next year's engagement plan and over the past 4 years.

Commitment of HEC and Microsoft to deliver advanced



training and boot camps, along with the free distribution of pioneering software packages to universities across Pakistan was celebrated at the event. HEC has taken several ICT initiatives for advanced services to education and research communities of Pakistan. ♦

The Mix — Pakistan's first tech-centered festival: PITB

PAKISTAN'S FIRST tech-centered festival The MIX 2017 held as an initiative from Punjab Information Technology Board (PITB) at Lahore. The MIX was initially experimental focusing on appealing public by advancement and excitement of technology.

The MIX was jam-packed with activities like AR/VR, 3D gaming, Music, Food, Heritage, Health, Finance, Fashion, Media, Kids section, Digital Libraries, Art, Theater etc. due to extensive efforts of PITB. All activities activated by instruments of technology to be in a purely digital space.

PITB had a guide in offering festival is from records and way of life branch of Punjab, facts era university Lahore, Kinetic Pakistan via out of doors digital marketing, Careem Pakistan, Pepsi, TCS, QMobile, Xiaomi, Fabbitt, Venturelive, Habitt, ProPakistani, PCWorld IDG, British Council Library, Cheetay.pk, Aga Khan Cultural provider Pakistan, Unity3D, My artwork international and FM91 as the exceptional radio accomplice.

Dr. Umar Saif, Chairman PITB said that technology is enabling and disrupting the whole lot in Pakistan and all of that comes collectively at the mixture in Lahore, so come find your mix. He warmly welcomed all of Pakistan to event.

On concert events with the intention to be done by way of Abdullah Qureshi and FACE tune Mela who will carry Qawalistan and Bakshi Brothers amongst others.

Director Entrepreneurship Nabeel Qadeer alongside along with his group have designed this pageant to sell enjoy based totally getting to know and provide a platform to trade makers using technology. PITB encourages humans to deliver tote bags and refillable bottles and be part of this tech picnic with their entire households!

Some other interesting spotlight of the pageant is the arrival of a delegation from Austin, Texas as a part of PITB's Plan9-ATX-PAK software who can be becoming a member of within the festivities of the mix. ♦

