



IMRC-2021

6th INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE

Global Prosperity through Research &
Sustainable Development

November 2-4, 2021



ABDUL WALI KHAN UNIVERSITY MARDAN

Garden Campus, Khyber Pakhtunkhwa - Pakistan

For further details, please visit <https://imrc2021.weebly.com/>



6th International Multidisciplinary Research Conference

Global Prosperity through Research and Sustainable Development

NOVEMBER 02-04, 2021

6th **Organized by**
ABDUL WALI KHAN UNIVERSITY MARDAN
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The conference organizing committee welcomes its distinguished guests, academicians, researchers and scholars from around the world to meet, share and discuss their views on Global Prosperity through Research & Sustainable Development

6th International Multidisciplinary Research Conference

Global Prosperity through Research and Sustainable Development



Conference Structure



Time	Day 1 Tuesday 2 November 2021	Time	Day 2 Wednesday 3 November. 2021	Time	Day 3 Thursday 4 November 2021
8:30 – 10:00	Registration/Guests to be seated	10:00 – 11:00	Session 1	10:00 – 13:45	Session 1
10:00 – 10:05	Recitation from the Holy Quran	11:00 – 12:00	Tea Break	Closing and High Tea	
10:05 – 10:15	About the Conference	12:00 – 13:00	Session 2		
10:15 – 10:30	Welcome address by VC, AWKUM	13:00 – 14:00	Lunch/Prayer		
10:30 – 10:45	Address by VC, SUIT	14:00 – 15:00	Session 3		
10:45 – 11:00	Address by VC, SBBWU	15: 00 – 18:00	Tour – Takht Bahi Conference Dinner		
11:00 – 11:15	Address by the Chief Guest				
11:15 – 12:00	Announcements, Group Photo, Tea Break				
12:00 – 13:00	Session 1				
13:00 – 14:30	Lunch/Prayer/Poster Exhibition				
14:30 – 16:00	Session 2				

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Conference Program Details



Time / Duration	Day 1 – Session 1 (November 2, 2021)		
	Room 1	Room 2	Room 3
Session Chair	Prof. Dr. Abdul Wadood Biochemistry, AWKUM	Prof. Dr. Niaz Muhammad Islamic Studies, AWKUM	Prof. Dr. Hamayun, Botany AWKUM
12:00 – 12:15	Dr. Xia Xiaojian Prof. Deptt. of Horticulture Zhejiang University, China	Keynote: Dr. Murat Kaya Material transfer from nature to technology	Dr. Anushka Ataullahjan University of Toronto
12:15 – 12:30	IMRC-NS-02 Shabaz Asghar Incidence of insect pest in coriander, and their management through biopesticide.	IMRC-SS-01 Israr Khan التجديد الفقهي حول العمل بمبدأ الاحتياط لأجل سدّ الذرائع: دراسة فقهية تحليلية مقارنة Jurisprudence renewal about working with the principle of precaution in order to leave the suspicion things: A comparative, analytical and jurisprudence study	IMRC-NS-14 Saima Nawab Screening for <i>in-vitro</i> and <i>in-vivo</i> anti-inflammatory effects of lizards (<i>Hemidactylus frenatus</i>) skin extract
12:30 – 12:45	IMRC-NS-04 Kausar Saeed Exploring the diversity of odonatan (Dragonfly and Damselfly) fauna of Mahaban valley district Buner	IMRC-MS-03 Ayesha Khalil 'Kaam Wali maasi' (Maid): A qualitative inquiry about precarious work conditions of maids in Pakistan during COVID-19	IMRC-NS-15 Muhammad Ali Effect of Melatonin on antioxidant and biochemical attributes of moringa under salinity

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12:45 – 13:00	IMRC-NS-08 Yasin Khattak Molecular characterization of biofilmproducing methicillin-resistant <i>Staphylococcus aureus</i> isolated from diabetic foot ulcers	IMRC-EN-01 Abdul Samad Khokarrs Impact of Changing Maintenance Regime of Hydro Power Plant-A Case Study	IMRC-NS-16 Muddaser Shah Chromatographic and <i>In Silico</i> Anti-Inflammatory Screening of <i>Scutellaria Edelbergii</i> Rech. F
13:00 – 14:30	Lunch/Prayer Break/Poster Exhibition		

Day 1 – Session 2 (November 2, 2021)			
	Room 1	Room 2	Room 3
Session Chair	Prof. Dr. Amjad Iqbal, Food Science & Technology, AWKUM	Prof. Dr. Gul Rooh Physics, AWKUM	Prof. Dr. Sultan Ayaz Dean Faculty of Chemical & Life Sciences, AWKUM
14:30 – 14: 45	Keynote: Dr. Anjali Pande Generation of reactive oxygen species and their scavenging mechanisms in plants under stress	IMRC-NS-61 Rameem Ijaz Bio-monitoring of aquatic environment by analyzing the biochemical changes in grass carp fish due to acute toxicity caused by sub-lethal concentration of Emamectin benzoate and acetochlor	IMRC-SS-09 Amir Ansar/ Javaid Manzar موجودہ دور اور میڈیا کاردار
14:45 – 15:00	IMRC-NS-20 Zahida Wasil Study of biosynthesis of aspyridone PKS-NRPS gene cluster eterologously expressed in <i>Aspergillus oryzae</i>	IMRC-EN-02 Iftikhar Ahmed Impacts of Distributed Renewable Energy Generation on Power System	IMRC-SS-10 Bismina Siraj مہکتی دھرتی 'سنگتی' سانسوں کا مطالعہ ملی و قومی شاعری کے تناظر میں

15:00 – 15:15	IMRC-EN-03 Izhar Ud Diners Development of an Electricity Theft Detection System	IMRC-SS-03 Bilal Khan Shakhsi Jarga and everyday peace: a grounded theory approach	IMRC-SS-11 Israr Khan التجديد الفقهي في إدراك الانخفاض الفاحش في سعر الفضة وأثرها على تعيين بعض الأحكام الفقهية أنموذجاً: دراسة تأصيلية تطبيقية
15:15 – 15:30	IMRC-NS-19 Sidra Mubin Pharmacological and Phytochemical Investigation of <i>Scutellaria Petiolata</i> Hemsley & Lace, From Swat, Khyber Pakhtunkhwa	IMRC-SS-05 Qaiser Iqbal Power Politics and Hedging in the Asia-Pacific: China and the QUAD	IMRC-SS-12 Shagufta Moghal Promoting Interdisciplinary Teaching and Learning through STEAM Education: Perspectives of In-Service Teachers
15:30 – 15:45	IMRC-NS-09 Muhammad Kabir Green Biology as Clean Technology, in Changing Climate due to Environmental Pollution	IMRC-SS-06 Shaukat Ayub Deciphering Sino-Russian Convergence and Divergence of Interests in Central Asia	IMRC-SS-04 Aiza Muhammad Perceived Parental Expectations, Perceived Self-Performance, Academic Engagement and Mental Health of University students who failed MDCAT
15:45 – 16:00	IMRC-NS-10 Amna Khan Identification of food damaging insects of the family Noctuidae (Lepidoptera) based on morphological and molecular characterization of CO1 gene sequences	IMRC-SS-08 Sher Muhammad Elections Act 2017 and Women's Participation in the Electoral Politics of Pakistan: A Study of 2018 General Elections	IMRC-SS-02 Aman د ضلع مردان د زنداني ادیبانو او شاعرانو د زنداني ادبي خدماتو جائزہ

Time/ Duration	Day 2 – Session 1 (November 3, 2021)			
	Room 1	Room 2	Room 3	Room 4 (PEPRI Session)

Session Chair	Prof. Dr. Waheed Murad, Botany AWKUM	Prof. Dr. Raham Sher Biotechnology AWKUM	Dr. Hazir Rahman Microbiology, AWKUM	Prof. Dr. Javed Iqbal Economics, AWKUM
10:00 – 10:15	IMRC-NS-21 Parveen Bibi Chromatographic, <i>In-Vitro</i> Biological and <i>In-Vivo</i> Pharmacological Profiling of <i>Scutellaria chamaedrifolia</i> Hedge & Patons	Keynote: Dr. M. Mansoor Alam Professor, Riphah International University An optimized deep learning algorithm for efficient smart grids operations: A systematic approach for electricity theft, detection and imbalance load forecasting.	Keynote: Dr. Abdul Hafiz Ab Majid University Sains Malaysia Urban insect pests: Molecular application in understanding insect ecology & behaviour in urban environment	IMRC-MS-01 Arooj Employee-level outcomes for work passion
10:15 – 10:30	IMRC-NS-23 Humayun Khan Treatment of Acrylic Acid contaminated water using raw and chemically modified alumina	IMRC-SS-42 Sameera Akbar Reflections of smartphone overuse on the social behaviour of undergraduates during the pandemic of covid-19	IMRC-SS-43 Shazia Malik Investigating the causes of truancy in male students of secondary schools in district mandi bhauddin	IMRC-MS-04 Muhammad Babar Ali Khan Corporate governance and dividend policy: empirical analysis of pakistani listed companies
10:30 – 10:45	IMRC-NS-25 Fatima Saqib Potential Hypotensive & Cardioprotective role of <i>Populus ciliata</i> (Wall. Ex Royle) in Rodents.	IMRC-MS-05 Barirah Zaufishan Climate Change Perceptions and Human Wellbeing: A Problem of today and tomorrow	IMRC-NS-81 Aziz Ur Rehman Characterization of blood borne <i>Salmonella typhi</i> from <i>North-West Pakistan</i> : Drug resistance signature and differential proteome	IMRC-MS-06 Abdul Basit Sustainable Development Goals (SDG) Reporting in Japanese Banks

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10:45 – 11:00	IMRC-NS-26 Saira Batool Remote Sensing Investigation of Soil Erosion through Hypsometry and Spatial Auto-correlation in Chakwal District-Potwar	IMRC-EN-04 Muhammad Abu Bakar To study the behaviour of fiber reinforced concrete against fire by using SikaFiber®12	IMRC-NS-35 Arusa Aftab Microsatellite loci related to Quinone and Phenol biosynthesis from <i>Nigella sativa</i> L. and their cross-accession amplification	IMRC-SS-07 Sumbal Taj Pakistan's Next Industrial Revolution: A study of Hazara Division
11:00 – 11:30	Tea Break			

Time/ Duration	Day 2 – Session 2 (November 3, 2021)			
	Room 1	Room 2	Room 3	Room 4
Session Chair	Dr. Badshah Islam Chairman, Horticulture, AWKUM	Dr. Zafar Hayat Chairman, Agronomy, AWKUM	Dr. Farman Ali Chairman, Entomology, AWKUM	Dr. Wali Rahman Management Sciences, SUIT, Peshawar
11:30 – 11:45	IMRC-SS-13 Shazia Sarwar Urban Development and Town Pattern in Lahore	IMRC-EN-05 Muhammad Wasim Seismic capacity evaluation of Special Moment Resisting Frame (SMRF) detailed beams	IMRC-SS-22 Saba Naz	Keynote: Zafar Ahmad Siddiqui Director ORIC, ISRA, Hyderabad. Why businesses become successful and how they fail?
11:45 – 12:00	IMRC-NS-12 Sidra Rahman Silicon nanoparticles alleviate cadmium-induced stress on maize (<i>Zea mays</i> L.)	IMRC-NS-77 Saira Qureshi Urease Inhibition activity of Azo Pyrimidines	IMRC-NS-76 Faiza Riaz Designing and Molecular Docking Study of Azo Quinoline Derivatives as Antibacterial Agents	IMRC-NS-80 Syed Ali Raza Shah Detection of <i>Helicobacter pylori</i> Through Microscopy and PCR in Gastric Biopsies

12:00 – 12:15	IMRC-SS-39 Asad Ullah An inclusive Islamic scheme for the economic security of citizens.	IMRC-NS-79 Hina Hameed Medicinal activity of selected plants and its chromatographic fractions against skin MDR bacteria.	IMRC-SS-38 Irfan Yonus A study of training need of primary school head teachers in disaster management in district Poonch	Gul e Rana IMRC-SS-47 Shakespeare in Pakistan
12:15 – 12:30	IMRC-SS-14 Tahira Akbar <i>Semiotic analysis of English books of Khyber-Pakhtunkwa Textbook Board (Pakistan) with Gender Lens: Exploring the gender sensitization level of Khyber-Pakhtunkwa Textbook Board officers</i>	IMRC-EN-06 Syed Amer Mahmood Remote Sensing Investigation of Topographic Land management and dynamics for Kabul River Basin (Pakistan-Afghanistan)	IMRC-SS-23 Ghazal Mohni	IMRC-SS-32 Toheeda Begum Regional security and cooperation; a critical appraisal of Pak-Russia relations on the eve of twenty first century
12:30 – 12:45	IMRC-SS-15 Farah Rahman A Stylistic Study of the Linguistic Deviations in E. E. Cummings' Poem: "In Just"	IMRC-EN-07 Hina Zahir Impacts of activation energy and entropy generation in peristalsis of Carreau-Yasuda nanoliquid	IMRC-SS-24 Iqra Maryam Depiction of human nature in <i>lord of the flies</i>	IMRC-SS-34 Fasih ur Rehman The War-on-Terror and The Spatial Predicaments of Pashtuns
12:45 – 13:00	IMRC-SS-16 Syeda Atia Social Issues and Environmental Justice: An Ecocritical Study of Amitav Ghosh's <i>The Hungry Tide</i>	IMRC-SS-17 Bismina Akhtar A Feminist Stylistics Analysis of Rupī Kaur's Poetry Collection, home body	IMRC-SS-25 Shahzeb Shafi Formalism and communism in orwell's <i>animal farm</i>	IMRC-MS-07 Ahmad Khalid Female Entrepreneurs in Pakistan: Demystifying Perceptions and Reality surrounding Female Body Image and Objectification
13:00 – 14:00	Lunch/Prayer Break			

Time/ Duration	Day 2 – Session 3 (November 3, 2021)			
	Room 1	Room 2	Room 3	Room 4
Session Chair	Dr. Muhammad Naeem Chemistry, AWKUM	Dr. Ayaz Ahmad Chairman Biotechnology, AWKUM	Dr. Asma Gul Statistics, SBBWU, Peshawar	Prof. Dr. Muhammad Azam Khan Economics, AWKUM
14:00 – 14:15	IMRC-NS-27 Syed Amer Mahmood Remote Sensing Investigation of topographic land management and dynamics for Kabul River basin (Pakistan-Afghanistan)	IMRC-SS-18 Tariq Muhammad A Critical Analysis of Ecofeminist Issues in <i>Mother</i>	IMRC-NS-36 Abdur Rahman Assessment of Anti- Inflammatory, antioxidant and antidiabetic potentials in <i>Apes Mellifera</i> Honey of District Bunir	Keynote: Dr. Zafar Ahmad Siddiqui Director ORIC, ISRA, Hyderabad. Relationship Management. 21 st Century Skill
14:15 – 14:30	IMRC-NS-28 Arshad Javaid Identification of possible antifungal constituents in leaves of <i>Kochia indica</i> for control of <i>Macrophomina</i> <i>phaseolina</i>	IMRC-SS-19 Asfandiyar Fida A study of seeking possibilities of integrating technical education at school level	IMRC-SS-46 Ume Kulsoom Measuring pattern of Crop Diversification across Districts of Sindh	IMRC-MS-08 Jamshid Ali Turi Good Governance through Sustained Project Development
14:30 – 14:45	IMRC-NS-30 Sajid Ali Post-emergence herbicides affect the yield and quality of wheat (<i>Triticum</i> <i>aestivum</i> L.)	IMRC-SS-20 Amjad Saleem Language in the classroom: from formulaicity to novelty	IMRC-NS-56 Sobia Khan Presence of bioactive polysaccharides in okra: role in human health	IMRC-SS-44 Madiha Kamal Does capital formation always result in growth? a sectoral economic growth analysis of Pakistan

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14:45 – 15:00	IMRC-NS-54 Hina Gul Bioactive saccharides from yum seeds exude	IMRC-NS-60 Nargis Jamila Catalytic and sensing properties of gold nanoparticles synthesized via <i>Micromeria biflora</i> Herb	IMRC-NS-41 Madeeha Shah Comparison of different regimens in the treatment of covid-19 in KPK	IMRC-SS-45 Madiha Kamal Structural Transformation and Political Economy: A New Approach to Inclusive Growth
Tour – Takht Bahi (throne of the water spring) Conference Dinner				

Time/ Duration	Day 3 (November 4, 2021)		
	Room 1	Room 2	Room 3
Session Chair	Dr. Anwar Hussain Botany, AWKUM	Prof. Dr. Sher Afzal Khan Computer Science, AWKUM	Prof. Dr. Haroon Khan Pharmacy, AWKUM
10:00 – 10:15	Keynote Dr. Manda Ken Yu, USA Bacterial Type III Secretion System	IMRC-SS-26 Nimra Saleem BBC version of sound effects in <i>and then there were none</i>	Keynote Rizwana Mustafa CEO, Scientific Pakistan. Creative scientists and entrepreneurship: leaders of the future
10:15 – 10:30	IMRC-NS-44 Saeeda Zafar Assessment of Socio-economic factors in prevalence of animal diseases in Peshawar	IMRC-SS-27 Asif Saleem Changing Facets of Regional Politics and Challenges to CPEC: An Analysis of Trepidation and Opportunities for India, Afghanistan and Iran	IMRC-NS-71 Sadam Khan Prevalence of esbl-producing <i>klebsiella pneumoniae</i> isolated from mastitic milk in peshawar

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10:30 – 10:45	IMRC-NS-45 Shabaz Ahmad Effect of macronutrients-induced biochemical changes in plant as mediator of insect pest population in <i>Okra</i> (<i>Abelmoschus esculentus</i> (L.) Moench)	IMRC-SS-36 Waliyat Bibi The impact of Covid-19 Pandemic on Life of Higher Education Students of District Peshawar, Pakistan	IMRC-NS-72 Tabassum Phytochemical analysis and medicinal potential of selected plants against multidrug resistant bacterial pathogens
10:45 – 11:00	IMRC-NS-49 Wajid Munir Synthesis, characterization of new ferrocenyl schiff base complexes and their biological activities	IMRC-CS-08 Muhammad Yasser A hybrid of threshold based adaptive penalty function and cuckoo search algorithm	IMRC-NS-73 Ihtisham Ul Haq Molecular study of multi-drug resistant <i>escherchia coli</i> in mastitic milk samples recovered from district swat
11:00 – 11:15	IMRC-NS-53 M. Taj Akbar Prevalence, histopathology and associated risk factors of <i>Helicobacter pylori</i> among dyspeptic patients of Peshawar	IMRC-SS-35 Sidra Iqbal A study of self-efficacy belief of secondary school teachers of district Peshawar.	IMRC-NS-74 Sadiq Shah Pre-storage chitosan-thyme oil coating control anthracnose in mango fruit
11:15 – 11:30	IMRC-NS-67 Amina Bibi Synthesis and application of silver nanoparticles using <i>Clematis Grata</i>	IMRC-SS-40 Mr. Imad Analyzing the green practices in the hotel industry of KPK through the concept of environmental innovation	IMRC-SS-47 Adnan Khan Combination of Robust Activation Function and loss function based on M-estimation in Feed Forward Neural Network for Regression problem
11:30 – 11:45	IMRC-NS-64 Rukhsana Erosive Effect of <i>Punica granatum</i> Stem against Teeth	IMRC-CS-09 Fayaz Muhammad Applications of Deep Convolutional Neural Network for the Classification of Auto-Immune Diseases	IMRC-SS-31 Anbarin Rights and Representation: A Critical Discourse Analysis of Pakistani and American Proverbs about Women

11:45 – 12:00	IMRC-NS-65 Laiqa Mehreen Antioxidant Activity of <i>Moringa oleifera</i> Mediated Nickel Nanoparticles	IMRC-CS-10 Muhammad Shoabib Siamese and Nasnetlarge Convolutional Neural Network-Based Violence Detection and Recognition System	IMRC-SS-33 Rahela Anjum Impact Of Online Learning On Students Perception And Satisfaction
12:00 – 12:15	IMRC-SS-28 Amjad Ali Khan Does socio-economic condition affect the spread out of covid-19? comparative study of asian and european countries	IMRC-CS-11 Saeed ur Rehman Covid-19 identification based on symptoms using machine-learning techniques	IMRC-NS-78 Amir Zada Photocatalysis with Noble Metal Loaded and Metal Oxide coupled gC ₃ N ₄ based Semiconductors for Energy Production and Environmental Remediation
12:15 – 12:30	IMRC-SS-29 Saad Salman Masculinity Versus Femininity: a Dichotomy in Tehmina Durrani's Autobiographical Narrative, My Feudal Lord	IMRC-NS-68 Wajheeba Khan Dyes Degradation Property of <i>Buxus sempervirens</i> Silver Nanoparticles	IMRC-NS-75 Muhammad Akram Role of plant tissue culture technology in drought resistant clone production during the current era of climate change
12:30 – 12:45	IMRC-SS-30 Shabir Effect of Charity on Poverty Reduction in District Malakand	IMRC-NS-69 Malka Saba Synthesis and Applications of biosynthesized Gold Nanoparticles using <i>Polygonum afghanicum</i>	IMRC-SS-48 Majid Khan

Research Conference

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12:45 – 13:00	IMRC-NS-52 Fazal Said Exploring the role of <i>Apis</i> and Non<i>Apis</i> insect visitors towards cross pollination, their influence on yield, oil content and other quality parameters of Sunflower (<i>Helianthus annuus</i> L.) in Mardan, Khyber Pakhtunkhwa	IMRC-NS-70 Muhammad Ali Khan Seroepidemiological Study of Crimean Congo Hemorrhagic Fever Virus (CCHFV) in Human and Livestock Population in District Mardan	IMRC-SS-49 Salman Ahmad Dynamics of mushroom growth of private sector schools in district Nowshera, Khyber Pakhtunkhwa
13:00 – 13:15	IMRC-SS-37 Hussain Ali Utilization of family planning methods among currently married women in Pakistan: Insight from Pakistan Demographic and Health Survey 2017-2018	IMRC-SS-41 Miss Hira Akbar Do hospital and doctors' specific factors determine the wellness of the patient?	IMRC-SS-49 Ifqut Shaheen The representation of Gandhara in Pakistan: Ahmad Hasan Dani's utilitarian approach
13:15 – 13:30	Ghulam Hasan Abbasi IMRC-NS-11 Mitigating effect of proline on morpho-physiological, biochemical and ionic attributes of aniseed (<i>Pimpinella anisum</i> L.) under cadmium stress	Keynote: Dr. Nadeem Tahir: Henan, Agriculture University, China Application of nano materials for biohydrogen from agriculture waste	Dr. Raheela Bibii IMRC-SS-50 ادب اور نفسیات: ایک مطالعہ
Closing & Lunch			

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Green Biology as Clean Technology, in Changing Climate due to Environmental Pollution

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ABSTRACT

Objectives

The climate is an important environmental factor of an area, any country and even the whole world. The changes in environmental factors of an area over long period of time constitute climatic change. It includes quantity of light, temperature, humidity, wind, gases, air, water and soil etc. which average for about 30yrs. These changes affect the agriculture sector, animals, hydrological cycle, wind pattern, distribution of rainfall, growth and development of plants and even whole food chain as plants are producers on crust of earth.

Method

Soil and plant samples were analyzed for different heavy metal pollutants according to standardized tests. Metal contents in soil and plant tissues with enrichment & translocation factors and tolerance indices were determined. Some pollution tolerance plant species were pointed out which will be helpful in keeping the environment clean and green.

Results

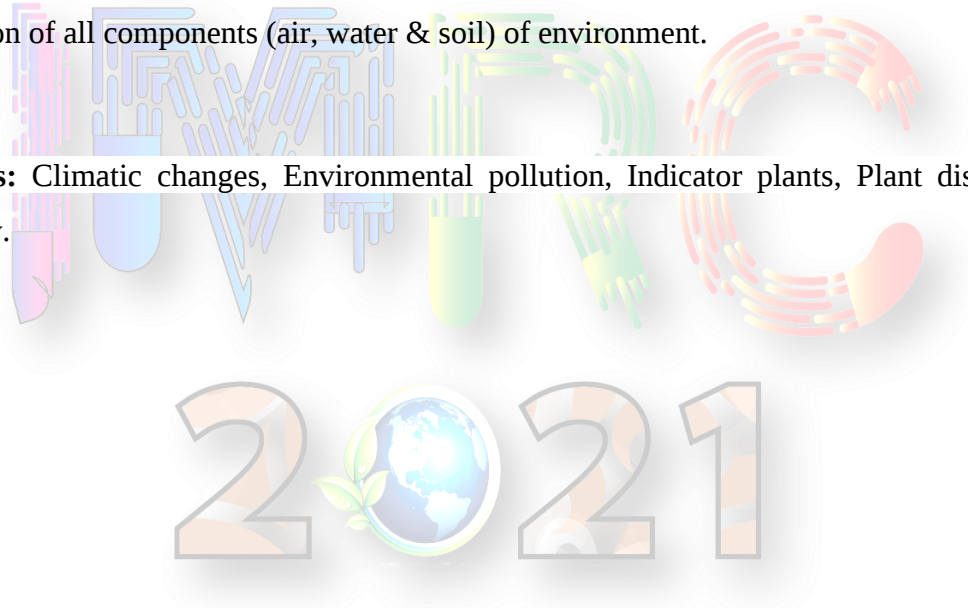
Some plants species indicated the nature of the polluted soil on which they grow, such are called "soil indicator plants". Plant species exhibited characteristics tolerance limits to soil pH. Many plants showed tolerance and grew over a broad range of pH (3.5 to 8.5). Some plant species have been used as indicators of pollution of air and water. Certain plant species such as *Chara*

utricularia and *Wolffia* were found to grow well in polluted water. Plant species like *Agrotis*, *Festuca*, *Anthoxanthum* and *Impatiens* are used as metallic tolerance plant indicators for Cu, Pb, Zn and Cd respectively. Presence of diatoms indicated sewage pollution. *Escherichia coli* bacteria indicate water pollution. The growth of lichens was found to decrease when the air is polluted.

Conclusions

Environmental pollution inhibits plant growth and reduces productivity. Plant growth is inhibited or destruction of all components (air, water & soil) of environment.

Key Words: Climatic changes, Environmental pollution, Indicator plants, Plant distribution, Productivity.



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Mitigating effect of proline on morpho-physiological, biochemical and ionic attributes of aniseed (*Pimpinella anisum* L.) under cadmium stress

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^bDepartment of Soil Science, Faculty of Agriculture & Environment, The Islamia University of Bahawalpur.

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Abstract

A hydroponic experiment was conducted to evaluate the mitigating role of proline against cadmium stress in aniseed (*Pimpinella anisum* L.). Two cadmium levels 2.5 mM and 5mM along with one proline level 50 mM was applied in sole and combine form and half strength Hogland solution used as a nutrient media. Results revealed that cadmium stress exerted strong negative impacts on root and shoot length, fresh and dry biomass, plant water relations and membrane stability, chlorophyll a, b, carotenoid contents, Na⁺ and K⁺ concentration along with inferior activities of antioxidant enzymes. However, proline application significantly mitigates the hazardous effects of cadmium by altering plant growth attributes, water relation and providing antioxidant defense against cadmium toxicity and maximum values of all attributes were recorded when proline was applied @ 50 mM in sole form. Moreover, present study revealed that cadmium stress reduced all the growth, physiological, ionic and biochemical attributes drastically while application of proline gradually neutralizes the drastic effect of cadmium in aniseed by improving all above-mentioned attributes of aniseed.

Key Words: Cadmium, Aniseed, Antioxidant, Proline

Study of biosynthesis of aspyridone PKS-NRPS gene cluster heterologously expressed in *Aspergillus oryzae*

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^aDepartment of Chemistry, Shaheed Benzair Butto Women University Peshawar

^bSchool of Chemistry, University of Bristol, UK

^cSchool of Biological Sciences, University of Bristol.

Abstract

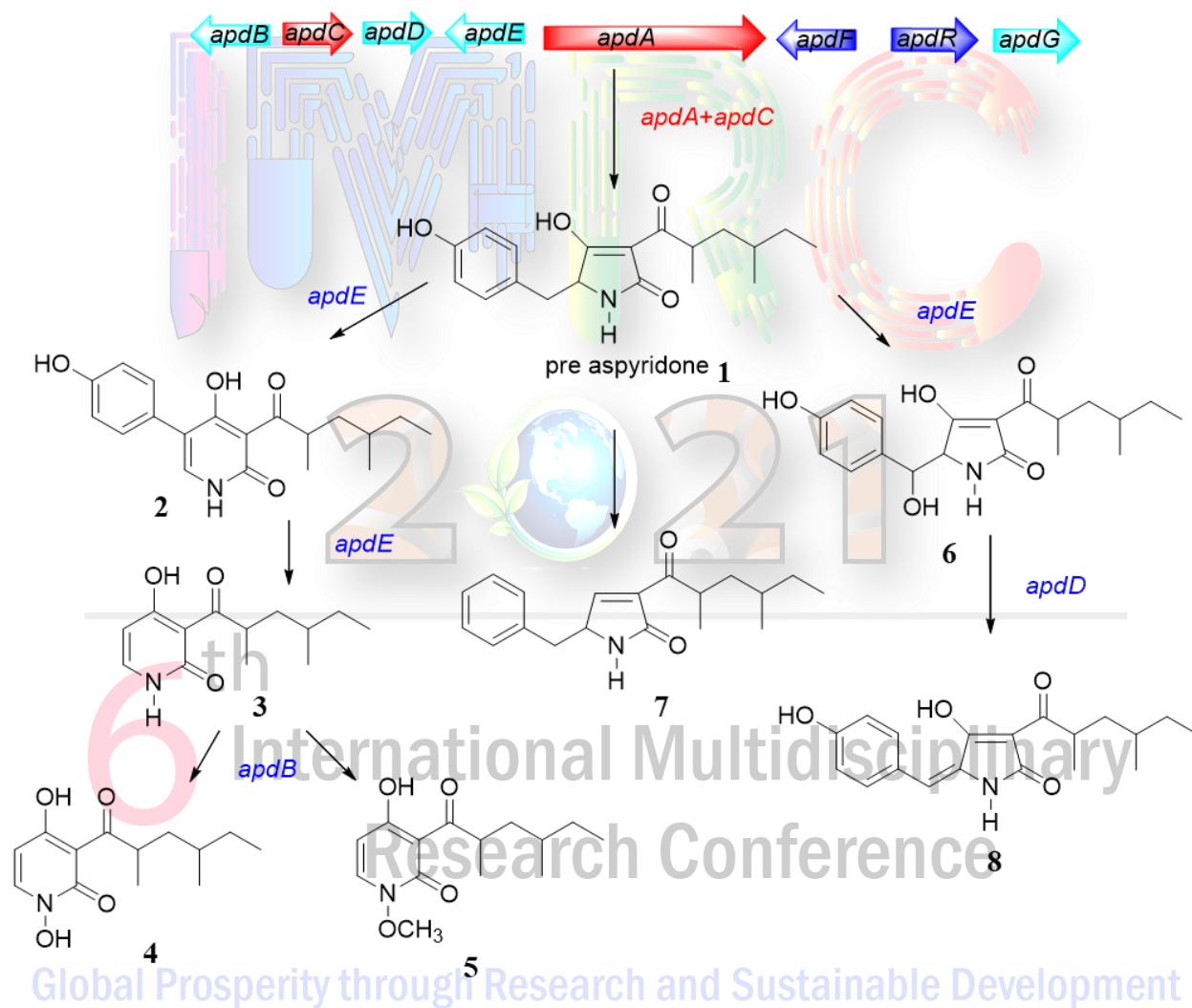
Objectives: Hybrid polyketide-nonribosomal peptides (HR-PKS) are one of the important classes of fungal natural products. The aim of this work was to investigate the programming behavior of the iterative enzymes of PKS-NRPS and delineate biosynthetic steps of PKS-NRPS compounds. This work involves isolation and structural elucidation of compounds obtained from heterologous expression of selected aspyridone 2 PKS-NRPS genes in *Aspergillus oryzae* (M-2-3).

Methods: The mutant strains made of *A. oryzae* were prepared in collaboration with School of Biological Sciences, University of Bristol. Chemical analysis of mutant fungal strains was done by LCMS and characterization of new structures was done by 1D and 2D NMR.

Results: Aspyridone A 2 and aspyridone B were reported as final products of a putative PKS-NRPS gene cluster in *Aspergillus nidulans*. We carried out heterologous expression of aspyridone PKS-NRPS encoding gene *apdA* and enoyl reductase encoding gene *apdC* in different combinations with aspyridone tailoring genes in *A. oryzae*. The heterologous expression produced eight different compounds (**1-8**) in addition to aspyridone A 2. Our study showed: that the cytochrome P450 encoding gene, *ApdE* catalyses oxidative ring expansion from preaspyridone A 1 to form 2; tetramic acid benzylic hydroxylation in 6 and an exclusive dephenylation activity 3; that *ApdB*, a second cytochrome P450 enzyme in the *apd* cluster catalyses an unusual *N*-hydroxylation of dephenylated 2-pyridones to form 4 and 5; that *ApdC* enoyl reductase perform different stereoselectivities during different cycles of polyketide chain synthesis. We did not observe any apparent role for *ApdD* and *ApdG* and our heterologous expression of *apd* genes did not produce aspyridone B, one of the previously reported final products of the *apd* pathway. This

study unveiled the high biosynthetic potential of the apd pathway and diverse chemical capabilities of cytochrome P450 enzymes in this fungus.

Conclusions: This study unveiled the high biosynthetic potential of the apd pathway and diverse chemical capabilities of cytochrome P450 enzymes in this fungus.



Scheme: Production of new compounds from heterologous expression of apd genes in *A. oryzae*

IMRC-NS-32 – Poster Presentation

A study of Adsorptive Efficiency of TiO₂ Nano-particles for Removal of Ramazole Brilliant Blue R - An Organic dye entering to the Aquatic environment from textile industries

Kinza Fatima¹, Muniba Zaheer¹, Ashfaq A. Khan¹ and M. Arshad²

¹Department of Chemistry, Govt. Postgraduate College, Haripur, KP, Pakistan

²Institute of Environmental Science and Engineering (IESE), National University of Science and Technology (NUST), Islamabad, Pakistan

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Abstract

The great environmental concern regarding the pollution of water bodies having effluents from textile industries containing reactive and recalcitrant dyes like Ramazole Brilliant Blue R (RBBR) commonly and largely used in the textile industries in Pakistan and other countries of the world. They are carcinogenic, produce allergies and responsible for several hazards to aquatic life, animals, human and agriculture. Several studies about the ill effects have been conducted and these dyes in water have been proved fatal for the animals for induction of chronic diseases. The degradation of such dyes in water is very slow or some time takes long time to go down to the natural earth strata and usually contaminated water get consumed by fish, human, animals and plants. Different methods for the treatment of water containing such dyes have been used. However, efficient methods for the removal of these dyes are being practiced nowadays by their effective adsorption on surfaces of the nano-particles (NPs) like ZnO, TiO₂, magnetic Iron oxide and bone charcoal. During the present study NPs of TiO₂ have been used for the adsorption of RBBR. The standard solutions of RBBR were made by series of dilutions and then their absorbance were read spectrophotometrically for the construction of calibration curve ($R^2 = 0.998$) for finding the unknown concentrations of RBBR in the test solutions. An amount of 27.58 mg/L of RBBR was used as initial concentration in the test solution (at ambient pH). Treatment of test samples with different doses of NPs for fixed time intervals and using different time intervals for a fixed dose of NPs for adsorption were carried out. Throughout, the test solutions were illuminated with a UV light (6 w) for the used time intervals. During this treatment, RBBR degraded and fixed to the surfaces of NPs and got removed from water. The remaining dye in the solutions was

determined with help of absorbance read out for monitoring of its removal after each treatment. The results showed that optimum conditions for the dye removal up to 90 % achieved by the use of dose of TiO_2 (NPs) of 50 mg/L for the contact time of 24 h from the initial concentration (27.58 mg/L).

Key words: Ramazole Brilliant, aquatic environment, removal, textile effluents, Pakistan



6th International Multidisciplinary Research Conference

Global Prosperity through Research and Sustainable Development

IMRC-NS-33 – Poster Presentation

Development of a Valid Method for the Analysis of a Combination of Sacubitril -Valsartan medication with help of RP – HPLC Technique

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Abstract

Method development and validation for pharmaceutical drugs is very important task for the analyst and regulators to achieve the health care standards for the public. A Combination medication of sacubitril with valsartan has been approved by FDA as first line treatment of chronic heart failure resulting from hypertension. Due to its importance, valid and robust method for the analysis of this combination is very essential. For this purpose, a chromatographic separation was achieved using a column of Agilent C18 (250 × 4.6 mm × 5μ), a flow rate of 0.1ml/min, Mobile Phase (Potassium phosphate buffer (pH 3) / Methanol (30:70) and a UV detection wavelength 252 nm. Retention time of sacubitril and valsartan was found to be 6.6 and 11.9 min respectively. LOD and LOQ were found for sacubitril (0.544% and 1.648%) and valsartan (0.386% and 1.169%). Linearity was observed In the range 40-120 μg/ml, the linearity data was determined for Sacubitril and Valsartan and R^2 was found to be 0.998 showing the best-fit. The method was found to be precise as indicated by the repeatability analysis, showing % RSD ≤ 2. All statistical data proved the validity of this method and hence has the potential to be used for routine analysis of pharmaceutical dosage form.

Keywords: Method validation, Drugs, Sacubitril-Valsartan combination, RP - HPLC

Assessment of Anti-Inflammatory, Antioxidant and Antidiabetic Potentials in *Apes Mellifera* Honey of District Bunir

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Abstract

Background: Inflammation is thought to be a root cause of many diseases, it amplifies the production of electrons that results in higher production of oxygen reactive species. As a result of this Chain reactions takes place which aids to the causation of a huge number of diseases such as diabetes, cancer, cardiovascular problems. Inflammation and oxidation are thus known to be causative phenomenon that are first needed to be resolved.

Purpose: Selecting natural substances that have antioxidant and anti-inflammatory potentials can help eliminating these kinds of processes in our bodies. Natural substances are way better than using pharmaceutical drugs as they many side effects along curative properties. Out of these metabolic disorders, diabetes was found to be the commonest. Such substances that have anti-inflammatory, antioxidant and antidiabetic properties can treat diabetes better than any medicine that is only antidiabetic.

Methods: Honey from Bunir area of KPK Pakistan was chose to be tested, it was from Beri trees (*Zyzypus jujube*), and specie of the rearing honeybees was *Apis mellifera*. It was selected due to composition and healing properties used over the years. Honey's extract was investigated for its anti-inflammatory properties by Egg Albumin protein denaturation assay, membrane stabilizing assay of red blood cells and heat induced hemolysis assay, IC-50 values for these three assays were found to be 33.05, 30.08 and 30.59 respectively.

Results: Significant activity was shown by honey from Beri. The lab works out for determining the antioxidant potentials was done by DPPH and Hydrogen peroxide radical scavenging assays,

it was proved that this honey has highly antioxidant compounds giving 75% inhibition at 90µl by scavenging DPPH and 80.64% at 50µl by scavenging Hydrogen peroxide. and the main goal of the study was to look for anti-diabetic potentials in our local honey. In spite of the fact that numerous researches performed on treatment of diabetes, no medicine can cure it hundred percent. Honey was checked by performing three types of lab assays Yeast uptake assay (73.63% at 80µl) Alpha glucosidase assay (81.57% at 120µl) and glucose adsorption assay (57.36% at 100mM/L), each one of which gave substantial results providing the importance of this honey therapeutically.

Conclusions: Much more studies and research are needed in this aspect, to look for medicinal properties in our local substances and find out the hidden treasures of substances used traditionally over the years.

Key words: *Apes Mellifera*; Antidiabetic; Antioxidant; Anti-inflammatory; in vitro assays.



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IMRC-NS-37 – Poster Presentation

Antibacterial activity of Silver Nanoparticles synthesized from *Arisaema dracontium* against MDR strains of Bacterial pathogens

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ABSTRACT

Objective: Main objective was to develop nano particles from *Arisaema dracontium*, effective against MDR strains of *E.coli*, *P.aeruginosa*, *S.epidermidis*, *S.typhi* and *S.aureus*.

Methodology: *Arasiaema dracontium* was collected from District Khyber, Pakhtunkhwa (KP) and was shade dried by the method used by Shalini *et al.*, 2012. Extracts were obtained by method prescribed by Alipour *et al.*, 2011. For assessing antimicrobial activities, Multi Drug Resistant (MDR) strains from clinical isolates were used (Parekh *et al.*, 2006). Nano particles were synthesized and assessed through UV spectroscopy, Energy Dispersive X-ray, Scanning Electron Microscopy, Transmission Electron Microscopy and Fourier Transform Infrared Spectroscopy. Antibacterial activity of both, extracts and nano particles were analysed against the MDR pathogens.

Results: It was noted that the tested sample absorbed energy and generated a characteristic peak at 250 nm. EDX analysis confirmed the presence of AgNPs by producing the elemental peak of silver at Ke V. The graph also displayed some peaks of other elements. Through SEM, particles size in the range of 50µm at magnification 500X and 1µm at a magnification of 10,000X were observed. FTIR analysis showed amines, alkyl halides, aromatics, and amides, ether or ester, Carboxylic acid, nitro Compounds, Esters, Ketones, Aldehydes, and alcohol or phenol. XRD showed crystalline nature and the spectrums observed were good agreement of silver nanoparticles. Chloroform n-hexane and Ethyl acetate extract of *A. dracontium*, revealed 10mm inhibition zone against *E. coli*, *P. aeruginosa*, *S. epidermidis*, and *S. aureus*. While Methanol and

Ethyl acetate extract revealed 11mm inhibition zone against *E. coli*. *P. aeruginosa* respectively. Aqueous, methanol, chloroform and n-hexan extract revealed 12mm inhibition zone against *E. coli*, *S. typhi*, and *S. aureus*. While aqueous extract revealed 18mm inhibition zone against *E. coli* and 14 mm zone of inhibition against *S. epidermidis*. AgNPs were tested against the pathogens and zones of inhibition observed were 24.66mm, 14.66mm, 19.33mm, 18.33 mm and 17.33 mm against *E. coli*, *S. typhi*, *P. aeruginosa*, *S. epidermidis* and *S. aureus* respectively.

Conclusion: AgNPs were effective against MDR strains and can be used in future.

Key Words: silver Nano particles, *Arisaema dracontium*, Multi Drug Resistance, Plant Extracts, Antimicrobial.



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IMRC-NS-38 – Poster Presentation

Response of botanical plants extract against population dynamics of Jassid on brinjal crop in Lahore Division

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Abstract

Vegetables are grown all over the world including Pakistan and available in the market throughout the year. Among vegetables, Brinjal (*Solanum melongena* L.), is an economically important vegetable crop with respect to human diet. There are many pests that attack on brinjal and cause many yield losses but jassid is the important pest of brinjal. Different groups of synthetic pesticides have been used to control Brinjal pest complex. Conversely, they are partly operative or become unworkable after sometime due to pest resistance, resurgence and very severe damage to the human beings as well as the environment. A field study was conducted to evaluate the efficacy of different botanical pesticides such as Neem, Moringa, Eucalyptus, Ginger, Garlic and Keekar against insect pests of Brinjal. Seeds of Brinjal crop were planted in randomized block design with 3 replications and 7 treatments including an untreated control. The results indicate that all botanical pesticides reduced the population of jassid but Neem significantly decreased the jassid population followed by Moringa, Eucalyptus, Ginger, Garlic and Keekar. So, it is recommended for the farmer to use botanical pesticide especially Neem when the pest is at ETL in order to reduce the pest attack. The statistical data were analyzed for analysis of variance to determine the significance of treatments. The means were compared by Duncan's Multiple Range Test (DMRT) at $P = 0.05$. IBM compatible computer was used for analyzing the data, with M-State package.

IMRC-NS-39 – Poster Presentation

Microbiological Analysis and Antibiotic Susceptibility of Ascitic Fluid drained from Spontaneous Bacterial Peritonitis patients

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Abstract

Spontaneous bacterial peritonitis (SBP) is a common and frequently fatal bacterial infection of ascites occurring in patients with cirrhosis. Ascites refer to the pathological assemblage and collection of fluid in peritoneal cavity. The aim of the present study was to investigate the causative agents of ascitic fluid drained from SBP patients and to check antibiotic susceptibility of bacterial isolates. Ascites can be a difficult diagnostic issue. SBP might vary in individuals with or without underlying malignancies. In recent study twenty five confirm SBP patients (cancerous and non cancerous origin) were prospectively studied. The ascitic fluid was inoculated in to conventional bacterial culture media and blood culture bottles. Among all tested bacterial species *E. coli* was the most isolated bacteria present in 23 samples out of 25. The percentage presence of *E. coli* was 92% followed by *Shigella spp* (72%), *Salmonella spp* (68%), *Enterobacter spp* (60%), *K. aerogenes* (52%), *S. aureus* (32%), *S. epidermidis* (30%), *A. israelii* (28%), *P. aeruginosa* (24%), *C. freundii* (20%) and *S. marcescens* (08%). A total of six antibiotics were used to check antibiotic susceptibility pattern of bacterial isolates. The used antibiotics were Meropenem, Moxifloxacin, Ciprofloxacin, Ceftriaxone, Cefixime and vancomycin. Among six antibiotics Meropenem showed maximum effect against all tested bacterial species. The maximum zone of inhibition against *S. aureus* (34mm), followed by *A. israelii* (33mm), *P. aeruginosa* (32mm), *C. freundii* (31mm), *S. marcescens* (28mm), *S. epidermidis* (27mm), *E. coli* (26mm), *Salmonella spp* (23mm), *K. aerogenes* (21mm), *Enterobacter spp* (21mm) and *Shigella spp* (15mm). It is concluded that gram positive and gram negative MDR bacteria were the most common cause of SBP in cancerous and non-cancerous patients.

Comparison of different regiments in the treatment of covid-19 in KPK.

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Abstract

The COVID-19 pandemic broke out in December 2019 because of SARS – cov. As of November 24, 2020 more than 59 million cases were accounted in all over the world, causing more than one million passing. Covid 19 is portrayed by incendiary disorder such as fever, coughing, breathing problems, agony and weariness. 32,110,656 cases were accounted for around the world, and infection caused 980,031 passing representing 3.05% of the tainted populace as of September 25, 2020. The purpose of this study was to determine that which treatment was used. Data collected about comparison of different regiment in the treatment of covid 19. in this treatment remdisivir injection is better for effected patients. And then we studied the comparison of these treatments. In these studies, many medical treatments (Remdesivir, Claxcane, Dexa, Azithromycin) But the remdesivir is 85% better than other medications. Data was collected from “KHYBER TEACHING HOSPITAL PESHAWAR” from 146 patients during three month “December 2020-February 2021 “through questioner. Most of the aged peoples above 50 years were suffering from COVID-19 “about 48%”. The percentage of different symptoms were observed among COVID-19 patients like fever 75%, coughing 88%, sore throat 26%, tiredness 4%, diarrhea 4%, taste disorder 48 %, B+ Blood group patients were common among in COVID-19. 70% patients belonged to the middle-class family. in data collection and reviews in Peshawar we observed that the Remdesivir injection, Dexa injection and azithromycin tablets are better for recovery from covid 19. Remdesivir is better than the different medication in shortening the opportunity to recuperation in group up who’s were hospitalized with COVID-19 and had proof of lower respiratory tract infection. We have featured here the current status of the remedial devices utilized in the fight against covid-19.

Key words: Covid-19 , Remdisivir , injection , recovered, infection.

IMRC-NS-43 – Poster Presentation

Adaptation and High yield performance of Honglian type hybrid rice in Pakistan with excellent agricultural traits

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Abstract

Honglian type cytoplasmic male sterility (CMS) is one of the three known major CMS types of rice (*Oryza sativa* L.), which has been commercially used in hybrid rice seed production. Hybrid rices generated by the Honglian type CMS are a special group of hybrid rice having distinct agricultural characteristics i.e. high yielding, high adaptability, high quality, high fertility rate, high nitrogen use efficiency, high standing ability, high tillering ability and excellent heat tolerance.

Objectives: The main objective of the study was to screen out the honglian hybrid rice varieties on the basis of desirable traits. Three Honglian type hybrid rice varieties i.e. HP1, HP2 and HP3 were tested locally in different locations of Pakistan on the basis of various genotypic and phenotypic traits. All the varieties performed well, had better agricultural traits and showed high yield potential over the check variety.

Methods: Different qualitative and quantitative traits were studied. Nine selected polymorphic SSR markers (RM-219, RM-236, RM-274, RM-253, RM-424, RM-567, RM-258, RM-481, RM-493) showed genetic variations among Honglian hybrid rice varieties through PCR analysis.

Results: In 2019 and 2020, the increment of yield potential of HP1, HP2 and HP3 was better (+43.90%, +35.44%, +37.13% and +30.91%, +33.37%, +33.62% respectively in both years) than the check variety KSK-133. Forty-eight SSR markers were used to study genetic diversities of the hybrids. NUYT and DUS trials are being conducted under the supervision of National Coordinated Rice (NCR) and Federal Seed Certification and Registration Department (FSCRD), Government of Pakistan. In 2020 trial, the average yield of hundred rice varieties were 8608 kg/ha; HP1, HP2

and HP3 (8709 kg/ha, 8833 kg/ha, 9338 kg/ha respectively) were all higher than the average yield as well as over check varieties (CKD-3185, CKD-3188, CKD-3274, CKD-3275).

Conclusion: It was also observed that under higher temperature, the performance of Honglian type hybrid rice was stable and considerably better, which suggests that cultivation of Honglian type hybrid rice varieties in Pakistan is less risky under the scenario of climatic change and global warming.

Keywords: *Rice, Honglian, Hybrid, CMS, Yield traits*



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IMRC-NS-46 – Poster Presentation

***Hymeneae coubrail* resin mediated silver nanoparticles for dyes degradation and colourimetric detection of antibiotics**

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Abstract

Toxic and hazardous dyes from industries into ground water, lakes, and rivers has become a consequential issue, which contributes to raise their pollution levels seriously. Traditional water treatment methods are insufficient to remove these dyes. Thus, there is a dire need to establish more effective methods of effluent treatment. Here, we describe a cost-effective, high-efficient and facile method for the synthesis of silver nanoparticles using *Hymeneae Coubrail* resin extract as reducing and capping agent. The influence of different parameters including temperature, pH, concentration and time were studied to reach optimum conditions. The synthesized AgNPs were characterized using UV/Vis, XRD, SEM and FTIR analysis. The synthesized AgNPs in presence of sunlight catalyzed the degradation of organic dyes including rhodmine b (RhB), Methyl orange, Congo red, *para*-nitrophenol, and methylene blue (MB) with percent degradation of 60% to 78%. The *H. coubrail* mediated AgNPs were evaluated for their potential in dyes reduction and degradation, and antibiotics detection in water and biological samples. The current findings will greatly help the specifically treatment of textile effluents and pharmaceutical analysis.

Key words: *Hymeneae Coubrail*, silver nanoparticles, organic dyes, sunlight, water

Prevalence, Histopathology and Associated Risk Factors of *Helicobacter pylori* Among Dyspeptic Patients of Peshawar.

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Abdul Wali Khan University Mardan

Abstract

Helicobacter pylori (*H. pylori*) area highly alarming and most frequent gastrointestinal-associated Gram-negative bacterium that cannot be easily eliminated from the body. *H. pylori* has always been related to acute or chronic gastritis, stomach cancer, duodenal and peptic ulcers, and mucosa-associated B cell lymphoma (MALT). Worldwide prevalence of *H. pylori* is high. In Pakistan, the majority is between 50 % to 90%. Various testing strategies and populations can be used because of this vast variation in prevalence.

Methods: 135 chronic dyspeptic patients underwent endoscopies. Biopsies from the antral and corpus region of the stomach were collected in Eppendorf tubes containing formalin. The samples were processed in the pathology department, Khyber Medical College, Peshawar, for histological examination for *H. pylori* infection. Hematoxylin & eosin (H&E) were employed for identification, and where required by Giemsa staining.

Results: In 116 (85.9%) biopsies, *H. pylori* was identified by histology; 71 had mild, 20 of them had moderate, and 25 had severe gastritis. 83 (61%) patients had atrophic changes; 55 had mild, 22 moderate, and 6 patients in severe condition. Intestinal metaplasia was observed in 12 (8.8%) patients; including 8 mild and 4 moderate patients. In 70% of patients, gastric atrophies were also observed; therefore, the severe atrophic changes could be 22%.

Conclusion: It is concluded that gastritis is the major gastrointestinal problem in patients having a dyspeptic disease. Moreover, *H. pylori*'s low prevalence in aspect to severe atrophy and intestinal metaplasia suggests low risk of gastric mucosal cancer.

Keywords: *H. pylori*; Histopathology; dyspeptic patients; intestinal metaplasia; endoscopy; prevalence; gastritis

IMRC-NS-55 – Poster Presentation

***Zizipus numalaria* mediated chromium (iii) oxide nanoparticles and their biological evaluation against skin infections**

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Abstract

Green chemistry is the development of alternative sustainable technologies, is an area of chemistry and chemical engineering that focuses on the arrangement and composition of products, manufacturing and processes of advance actions that lessen the applicability and formation of unsafe and risky substances.¹ Chromium (III) Oxide nanoparticles were prepared using fixed ratio of plant extract which contain reducing sugars as reducing agent and potassium dichromate solution. The applications of Cr₂O₃ nanoparticles against different human pathogens were investigated. The synthesized nanoparticles were characterized with different characterization techniques which are UV, XRD, SEM and FTIR. Through UV characterization we confirm the initial spectra of Chromium (III) Oxide nanoparticles. The broad absorbance λ were observed in the range of 310 to 500nm and high absorbance at 410 nm confirmed the synthesis of chromium (III) oxide nanoparticles. The nanoparticles were found to have the size i.e 35 nm according to XRD. All the desired peaks were also present in FTIR spectra. SEM shows particles are irregular in shape and poly dispersed. To know about the antifungal activities the plates were incubated at 28 °C for 48h, and after this period fungal growth inhibition zone were measured.² It was found that these NPs have shown good antifungal and antibacterial activities against different pathogens.

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UNTAPPED POTENTIAL OF FOOD WASTE DERIVED BIOCHAR FOR THE REMOVAL OF HEAVY METALS

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Abstract

Globally, the organic fraction predominantly of food waste (FW) is the mainstream of municipal solid waste (MSW) that accounts from 30 to 60% of the total MSW. Being the easiest way, all the collected waste is disposed of untreated in the dumpsites or landfills with no material recovery. The landfill disposal of the massive amount of FW without treatment is resulting in several public and environmental health concerns. There are several techniques in practice worldwide for waste processing into value-added products including compost, biogas, animals feed and chemicals. Furthermore, a significant portion of FW could be efficiently converted to biochar as a potential value-added product for several environmental applications. This study aimed to (1) convert FW to biochar through pyrolysis at different temperatures, (2) examine its physiochemical characteristics, and (3) investigate its potential for the removal of heavy metals from wastewater. The produced biochar at 250, 350, and 450 °C showed a wide range of mineralogical composition, high porosity, thermal stability, and alkaline pH that make biochar suitable for the removal of selected heavy metals (lead, cadmium and arsenic) from water. Results showed that all the produced biochar effectively removed the selected heavy metals from the wastewater however the highest removal capacity was observed for the biochar produced at 450 °C. The high potential towards the removal of heavy metals by biochar produced at elevated temperature was credited to the alkaline nature, negatively charged biochar active sites due to O-containing functional groups and swelling behavior. The swelling of biochar at high temperature opened the closed pores and hence enhanced the adsorption capacity by providing more internal surfaces. Hence, one step

conversion of FW to biochar offer the sustainable management of such waste by converting them to valuable product that could be effectively used for environmental remediation.

Keywords: Food Waste, Pyrolysis, Biochar, Heavy Metals, Adsorption



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CATALYTIC AND SENSING PROPERTIES OF GOLD NANOPARTICLES SYNTHESIZED VIA *MICROMERIA BIFLORA* HERB

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Abstract

Nanoparticles (NPs) are nanorange (1-100 nm) materials performing significant role in industries, medical sciences, medicine, house ware production, and drug development and delivery. *Micromeria biflora* belonging to Labiatae family is traditionally used in treating nosebleed, wounds, and sinusitis. Due to the medicinal importance and lack of nanoparticles study on *M. biflora*, the current study was designed to synthesize gold nanoparticles (MBAuNPs) using its ethanolic extract under various conditions. The synthesized nanoparticles were characterized by FT-IR, SEM, and TEM analysis. The synthesized MBAuNPs were evaluated for their catalytic potential in nitrophenols and dyes degradation, and heavy metals sensing. The results have shown significant AuNPs production under the sunlight in the ratio of 1:5 (extract:salt). Determining the catalytic activity, the subject AuNPs effectively degraded Congo red, methyl orange, *ortho*-nitrophenol, and *para*-nitrophenol in real water samples. Furthermore, the AuNPs also showed good sensing properties towards targeted heavy metals (Pb, Hg). From the results, it can be concluded that the subjects NPs will greatly help specifically in the effluents from industries.

Key words: *Micromeria biflora*, gold nanoparticles, sunlight, water, methyl orange

IMRC-NS-62 – Poster Presentation

Antibacterial and Catalytic Biosynthesized Silver Nanoparticles using *Lespedeza juncea*

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Abstract

Lespedeza juncea belongs to family Fabaceae (Leguminosae) and is widely distributed in Swat, Kurram agency, Orakzai agency, and Kashmir. It is a rich source of flavonoids, protochechuic acid, catechin, and alkaloids, and traditionally used as anthelmintic, depurative, and tonic. Its decoction is used in tuberculosis, hernia, dental caries, snakes and dog bites, ulcer, and dysentery. The present research work describes the synthesis of silver nanoparticles using aqueous extract of *L. juncea* (LJAgNPs) under the condition of stirring, sunlight, stirring+heating and incubation. In addition, the catalytic and antibacterial activities of the synthesized LJAgNPs were evaluated in dyes degradation and bacterial strain including *Staphylococcus aureus* and *Escherichia coli*. The subject LJAgNPs were very efficient in catalytic reduction of dyes such as methylene blue, Congo red, and methyl orange. Furthermore, the LJAgNPs were also potent inhibitors of the tested bacterial strains. These results conclude that the said AgNPs could be used in the removal of dye pollutants from wastewater and against infectious bacterial diseases

Keywords: *Lespedeza juncea*, silver nanoparticles, methylene blue, *Escherichia coli*

Global Prosperity through Research and Sustainable Development

Erosive Effects of *Punica granatum* stem against Teeth

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Abstract

The supreme mineralized tissue of the human body is tooth enamel consisting of 96% inorganic constituents and 4 % organic material along with water while dentine consists of 70% inorganic materials. In the current study, pomegranate (*Punica granatum*) belonging to family *Punicaceae* was used to determine its erosive effect on teeth. Aqueous extract of *P. granatum* stem was evaluated for phytochemicals, and gravimetric analysis. In phytochemical analysis, pomegranate stem extract showed the presence of saponins, terpenoids and flavonoids. Gravimetric analysis was carried out in which tooth was treated with plant extract, soft drinks and combined effect of these two solutions were also checked in order to find out the erosive effect on tooth. From the results, it was deduced that the effect of plant extract and soft drink are erosive for tooth, respectively reducing the weight of tooth sample. Furthermore, when both of them were combined, results showed that the plant extract combined with soft drinks protects tooth instead of decaying. Hence, it is clear that plant itself is toxic for tooth because it degrades tooth sample, but combined sample protects the tooth decay as compared to soft drinks and reduces the degradation ratio of soft drinks up to some extent.

Keywords: Pomegranate stem, Gravimetric, SEM, Silver nanoparticles.

Global Prosperity through Research and Sustainable Development

Antioxidant Activity of *Moringa oleifera* Mediated Nickel Nanoparticles

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Abstract

In recent years, nanotechnology has become one of the most interesting and developing field in many research areas. It is the study of science that deals with the handling, synthesis, and use of nanoparticles having sizes of 1-100 nm. Due to their unique shape, size and higher surface to volume ratio, they wide range of applications in drug delivery, as a catalyst, electronics, biosensors, water purification, antioxidant, antimicrobial, optical, and magnetic properties. Development of nanoparticles through chemical and physical methods are harmful, expensive and not eco-friendly. There is a need to develop nanoparticles that turned the focus towards green chemistry. Green synthesis involves the use of biological compounds which act as stabilizing as well as reducing agent. Phyto-nanotechnology is much quicker, harmless as compared to microorganism. *Moringa oleifera* (Miracle Tree) belonging to *Moringaceae* family has significant nutritional and medicinal properties. In this study, novel nickel nanoparticles (MOSNiNPs) were synthesized through green route, using aqueous extract of *M. oleifera* seeds with NiCl₂. Optimization of time at different intervals and salt concentration for different ratios i.e., 1:1, 1:9, 1:10 with different conditions were carried out. The synthesized MOSNiNPs were characterized by UV-Vis and FT-IR spectroscopic techniques. The UV-Vis spectrum showed absorbance peak in the range 230-400 nm indicating the reduction of metal salts. The FT-IR spectrum showed that different groups are responsible for the reduction and formation of NiNPs. Besides, the antioxidant activity of the synthesized NiNPs was carried out by using DPPH free radical scavenging assay. The results showed that MOS-NiONPs (IC₅₀ 0.67, 0.71, 0.72 and 0.76) for different ratios have higher antioxidant activity as compared to the MOS-AE (IC₅₀ 1.01) and the inhibition of DPPH by MOS-NiNPs was found to be dose dependent. Thus, it is effective, simple, and inexpensive method for the synthesis of ecofriendly NPs by using plants as reducing agent.

Key words; Nanoparticles, *Moringa oleifera*, characterization, antioxidant.

A SYSTEMIC ANALYSIS OF THE POST-COVID-19 PANDEMIC IN PAKISTAN

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Abstract

SARS-COV-2 caused a lethal COVID-19 disease that took millions of innocent lives. It first egressed from China province Hubei in December 2019. The name of the disease, Covid-19 was given by the World Health Organization (WHO) on February 11, 2020. The WHO declared it as a pandemic on 11, March 2020; when it caused over 4000 deaths in infected countries. The current article describes the effects of the Covid-19 pandemic in Pakistan. Over 500 research articles from the database of Elsevier, Springer, and WHO (World Health Organization), were surfed for collection of information. The molecular analysis revealed that coronavirus belong to the ‘*Coronaviridae*’ family. It is an RNA containing virus. It has crown-like spikes on the outer surface. The size of the coronaviruses is 65-125 nm in diameter. The subgroups of Covid-19 are known as Alpha, Beta, Gamma, and Delta. The Sars-CoV-2 can be detected through collection of nasopharyngeal swab. The diagnosis are based on Real-Time PCR (Polymerase Chain Reaction) and Rapid Antigen Test. The pandemic spread to the whole country, and soon all the regions had an increased number of patients. The maximum positive cases are in the Sindh (463000) followed by Punjab (436000) and Khyber Pakhtunkhwa (KP) (176000) while Baluchistan has least number of cases (33076) so far. The rate of mortality is higher in Punjab (12785) followed by Sindh (7497) and KP had 5645 deaths. The Baluchistan had only 350 deaths so far. Scientists are working to discover the treatment yet but no conclusive drugs are available. Despite this fact certain antibiotics are prescribed to the patients like Remdesivir (GS-5734), Favilavir, Chloroquine and Lopinavir. The Sars-CoV-2 has a global impact on the health, economy and social sectors. It shattered Pakistan’s poor health and education system. Its severity is declining however, prevention is still required.

Key words: Sars-CoV-2; Pandemic; Lockdown; Coronavirus; Treatment

Synthesis and Application of Silver Nanoparticles using *Clematis Grata*

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Abstract

Clematis grata is a plant species, which belongs to family Ranunculaceae and commonly known as dhund. *C. grata* in dried form is traditionally used for numerous skin diseases such as carbuncles, eczema and warts. Several studies reported its antioxidant, anticancer, antimicrobial, antibacterial, and antidiabetic activities attributed to bioactive compounds such as flavonoids, triterpenoids and saponins. *C. grata* crushed leaves are used as a paste for the. The current study gives an overview of synthesis, characterization, and application of silver nanoparticles synthesized via *clematis grata* (CGAgNPs) aqueous extract. The synthesized CGAgNPs were evaluated for their sensing properties in heavy metal (Pb) detection in real water samples (tap and Indus river water), and dyes and nitrophenols (methylene blue, Congo red, methyl orange, rhodamine B, *ortho*-, and *para*-nitrophenols) degradation. From the results, we found that stable and well-defined CGAgNPs were formed in 1:9 ratio characterized by UV-Vis (ultra-violet-visible) for conjugation, FTIR (Fourier-Transform infrared), and SEM (scanning electron microscope) techniques. Regarding its application, CGAgNPs displayed significant reduction of methyl orange, Congo red, and *ortho*-, and *para*-nitrophenols. Furthermore, they also performed potent sensing property in Pb detection. Hence, we conclude that the subject AgNPs could help in environmental pollution remediation.

Keywords: *Clematis grata*, AgNPs, dyes, *para*-nitrophenols, Pb

IMRC-NS-68

Dyes Degradation Property of *Buxus semperviren* Silver Nanoparticles

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Abstract

Buxus semperviren belonging to Buxaceae family is an evergreen plant widely distributed in Asia, Europe, and Africa. It is traditionally used to treat fever, gout, rheumatism, urinary tract infections, chronic skin problems, and hemorrhoids. The leaves of boxwood contain essential oil, tannins, alkaloids, flavonoids, lignin, resins, and minerals such as potassium, magnesium and phosphorus. This study reports the synthesis of AgNPs using aqueous extract of *B. semperviren* (BSAgNPs) at the conditions of sunlight, stirring, incubation, and heating plus stirring. Well-defined and stable BSAgNPs were significantly produced using a ratio of 1:13 for aqueous extract and salt, respectively in sunlight as evidenced by the intense SPR absorption band. The produced AgNPs also demonstrated excellent catalytic activity in the degradation of methyl orange, methylene blue, and Congo red. Hence, from the results, it could be conclude the subject AgNPs might have application in the treatment of waste water specially textile industries effluents.

Keywords: *Buxus semperviren*, silver nanoparticles, sunlight, Congo red

Research Conference

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IMRC-NS-69

Synthesis and Applications of biosynthesized Gold Nanoparticles using *Polygonum afghanicum*

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Abstract

Polygonum afghanicum is a specie belonging to family Polygonaceae. It is a rich source of biologically important secondary metabolites such as acetophenones, chalcones, coumarins, flavonoids, lignans, triterpenoids, stilbenoids and tannins. This study describes the synthesis of gold nanoparticles (PAAuNPs), and their potential in degradation of dyes (methyl orange, methylene blue and rhodamine B), and detection of antibiotics (amoxicillin, levofloxacin, and doxycycline) in aqueous media. The synthesized AuNPs were characterized by UV, FTIR, and TEM techniques. In the results, it was observed that the formation of AuNPs of *P. afghanicum* was significant using 1:5 ratio of aqueous extract and gold salt solution by the condition of sunlight. In the application, the synthesized AuNPs significantly degraded the dyes. Furthermore, the tested antibiotics were also detected through the subject AuNPs in water samples. Hence, the synthesized AuNPs might help in managing environmental pollution related to dyes and antibiotics.

Keywords: *Polygonum afghanicum*, gold nanoparticles, dyes, antibiotics

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Seroepidemiological Study of Crimean Congo Hemorrhagic Fever Virus (CCHFV) in Human and Livestock Population in District Mardan

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Abstract

Background: Crimean Congo Hemorrhagic Fever (CCHF) is a viral zoonotic tick-borne disease mainly caused by CCHF virus and massively circulating in domestic and wild animals. The virus is transmitted to livestock population via bite of Hyloma ticks and to human through direct contact with blood of verimic animals or body fluid.

Objectives: In the present study, seroprevalence of IgG antibodies to CCHF in human and livestock's population and risk factors associated with CCHF among both populations were determined.

Method: A total 72 households/ Farms were visited in district Mardan in which 534 serum samples from livestock, and 70 serum samples from farmers were collected. All farmers were extensively interviewed to identify major risk factors. A total 447 serum samples were tested on Indirect Elisa (ID Screen) to determine the IgG antibodies in both Populations.

Results: A total 13% (n= 59) prevalence was recorded in livestock population. Highest ratio were detected in buffalo (19.3%) followed to Cow (15%), Sheep (15%) and goat 10.9% respectively. While no positive sample were detected in farmers (n=0). Tehsil Takht Bhai was highly exposed to CCHF having 15% prevalence. Lowest rate were detected in Tehsil Mardan (11.2%). Among the major risk factors of CCHF, it was observed that Hyloma ticks being circulating in all households (91%) is on the top. All individual were in closed contact with livestock. Most of the participants (92.8%) were unaware of CCHF and its transmission which increased risk of CCHF.

Conclusion: On the basis of above facts it is concluded that there is a high ratio of CCHF in livestock population, although these cases are present sporadically. Adoption of proper preventive measures and awareness campaign are need, otherwise it may cause severe mortality in livestock's which will directly affect country economy.

Keywords: Crimean Congo Hemorrhagic Fev

PREVALENCE OF ESBL-PRODUCING *KLEBSIELLA PNEUMONIAE* ISOLATED FROM MASTITIC MILK IN PESHAWAR

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Abstract

Background: *Klebsiella pneumoniae* is a gram negative opportunistic bacterium which drives a number of diseases in both animals and humans including mastitis. Mastitis is the inflammation of mammary gland of animals. A major problem that is increasing day by day is the frequency of resistance produced by extended spectrum beta lactamases (ESBLs) producing-*K. Pneumoniae* all over the world, due to ESBL-producing gram negative bacteria these B lactam antibiotics have no affect and become antimicrobial resistant especially in bovine mastitis.

Objectives: The main objective of this study is to isolate and identify the *K. pneumoniae* from mastitis milk and also to find out the molecular frequency of ESBL genes.

Methods and Results: We isolated a total of 100 milk samples from animals having mastitis from different areas of district Peshawar for screening of *K. pneumoniae*. Firstly 23(23%) *K. pneumoniae* were recovered after that ESBL resistance were checked among which 13 (56%) samples were confirmed as ESBL producing *K. pneumoniae*. The confirmed ESBL resistant *K. pneumoniae* were further checked for their antibiotic sensitivity against various classes of antibiotics. That showed highly resistance to Ampicillin, Vancomycin and Fusidic acid was (100%), while highly susceptibility was found to Amikacin, Azithromycin (100% each), Chloramphenicol (85%) and Tetracycline (80%). Also the ESBL positive *K. pneumoniae* were checked through PCR for the genes responsible for ESBL resistance that is blaCTX-M, blaSHV and blaTEM. All the three genes were detected in our isolates, According to our findings the percentages of these genes were blaCTX-M (24%), blaSHV (61%) and blaTEM (40 %) respectively. Conclusion: So in our study it is concluded that selective pressure for propagation as well as the occurrence of resistant isolates is applied due to the prolonged and common use of antibiotics.

Key words: *Klebsiella pneumoniae*, Prevalence, ESBL, Mastitis, AMR

IMRC-NS-72

Phytochemical analysis and medicinal potential of selected plants against multidrug resistant bacterial pathogens

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Abstract

Background: Therapeutic plants are rich source of traditional herbal medicine. Most of the plant's medicinal properties are due to the presence of secondary bioactive compounds. Numerous plants phytochemicals can also be used directly for the production of novel effective medicines. Some Indigenous plants were collected and used.

Objective: The main objective of the research was to determine the phytochemicals and to evaluate selected plant HPLC fractions against MDR pathogens.

Methods: High Pressure Liquid Chromatography (HPLC) fractions of selected plants extract (ethanol, methanol, aqueous) was used against the MDR bacteria by well diffusion method.

Results: Phytochemical analysis of plants showed the presence of some important secondary metabolite. Plants crude extracts were used against selected MDR bacterial pathogens. The most effective and maximum zone of inhibition was exhibited by aqueous extract. HPLC fractions were obtained from indigenous plants extracts. All the fractions showed best activity against selected MDR bacterial pathogens.

Conclusion: This study will be helpful for future to isolate and use the bioactive compounds of selected plants for therapeutic activity in pharmaceutical industry against MDR bacterial pathogens.

Key words:

Crude extract, High performance liquid chromatography (HPLC), Anti MDR activity.

MOLECULAR STUDY OF MULTI-DRUG RESISTANT *ESCHERCHIA COLI* IN MASTITIC MILK SAMPLES RECOVERED FROM DISTRICT SWAT

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Abstract

The current research is carried out to find out the multi drugs resistant (MDR) *E. coli* isolated from mastitic milk samples in district Swat. We collected 70 milk samples from dairy cows and buffaloes infected with mastitis from various parts. The samples were streaked on Macconkey agar and then for morphological confirmation sub cultured on Eosin methylene blue (EMB) media is performed. After confirmation of *E. coli* through biochemical tests and PCR the isolated colonies were then cultured on muller Hinton agar to test against different antibiotics and to confirm MDR *E. coli*. These *E. coli* strains were tested against 10 to 17 different antibiotics including ciprofloxacin, ampicillin, cefotaxime, tetracycline, norfloxacin, chloramphenicol, meropenem etc. The isolates showed high resistance to cefotaxime (100%), cefaclor (92%) and to ampicillin (88%). High susceptibility rate shown to meropenem (100%). PCR was carried out to study the genome. Overall, 16 samples out of 70 were confirmed as ESBL producer *E. coli*. Three types of ESBL producing genes were found i.e CTX-M, TEM and SHV. Nucleotide analysis showed that CTX-M gene of ESBL was found maximum having frequency of 9/16 (56%), followed by TEM having frequency 6/16 (37%) and SHV having frequency 4/16 (25%). In our study we concluded that CTX-M is the most frequent gene encoding ESBL enzyme followed by TEM and SHV. So the prevalence of these resistant genes in milk producing animals is increasing at alarming rate which is a serious issue to our health. There is dire need of effective measures to control this serious issue.

Key Words: Mastitis, E.Coli, MDR, ESBL, Milk

Designing and Molecular Docking Study of Azo Quinoline Derivatives as Antibacterial Agents

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Abstract

Antibacterial resistance continues to be a growing threat to human health worldwide. The developing resistance of bacterial species to the synthesized antibiotics makes it obligatory to endure the exploration of more potent antibacterial agents. Heterocyclic nucleus plays an essential role in the development of various therapeutic mediators including broad range antibacterial drugs. Computational approach is frequently used in search of prospective therapeutic entities. Molecular docking study is performed to determine the interaction of drug-like molecules with target receptors. Three azo quinoline derivatives were designed and investigated for their antibacterial potency using a molecular docking approach. The design was based on the structural resemblance to these compounds with the co-crystallized ligands and expected interaction of the ligands with the amino acid residues in the active sites of the bacterial proteins. All the ligands were found to have minimum binding energies (from -2.17 to -8.45 kcal.mol⁻¹) during their interactions with the target receptors. The findings of the molecular docking analysis showed that the designed compounds can be further optimized in the search of potent lead compounds.

Keywords: Quinoline; Docking; Binding energy; DNA Gyrase.

Urease Inhibition Activity of Azo Pyrimidines

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Abstract

Pyrimidine derivatives are among prominent therapeutic agents which have shown anti-bacterial, anti-inflammatory, anti-oxidant and anti-diabetic properties. Various pyrimidine derivatives have been reported as urease inhibitors. Three azo pyrimidine derivatives were examined for their urease inhibition activity. The design was based on the structural resemblance of these compounds with already reported urease inhibitors. Molecular docking study was executed to examine the probable binding mode of pyrimidine derivatives with Jack bean urease receptors. The docking results indicated that all the ligands have displayed strong interactions with the target receptors. The binding energy was found in the range of -4.96 to -8.05kcal/mol⁻¹. Based on the binding affinity it is assumed that the designed compounds may show good urease inhibition activity in their in vitro and in vivo studies.

Key Words: Pyrimidine, Urease, Molecular docking, Urease inhibition

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Photocatalysis with Noble Metal-Loaded and Metal Oxide coupled g-C₃N₄ based Semiconductors for Energy Production and Environmental Remediation

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Abstract

Energy crises and environmental pollution have contributed a lot to make the life miserable in the last few decades. The burning of hydrocarbon fuels with emission of carbon dioxide and unrestricted release of many gaseous, liquid and solid organic and inorganic pollutants to the environment have changed the global temperature drastically and poisoned the water and atmospheric environment significantly. In order to cope with these issues, chemistry presents an everlasting green solution. Semiconductor photocatalysts capture atmospheric carbon dioxide to form energy rich compounds and reduce the effect of global warming. At the same time, it removes many hazardous pollutants from the atmosphere with the aid of plenty available solar energy. Many photocatalysts such as TiO₂, SnO₂, ZnO, Fe₂O₃, g-C₃N₄, BiVO₄ etc have shown remarkable services in this area. However, many of these mentioned photocatalysts have some inherited issues such as low visible light absorption and highly fast recombination of excited electrons and holes. In order to overcome these shortcomings, we have introduced gold nanoparticles on the surfaces of TiO₂, SnO₂ and g-C₃N₄ and purchased some excellent activity in terms of hydrogen production from water and pollutants degradation. The fabricated samples were characterized with XRD, UV-Visible absorption spectroscopy, XPS, FTIR, TEM, HR-TEM. The amount of produced hydroxyl radicals and the PL study indicated that the improved photoactivities are related to the extended visible light absorption and enhanced charge separation. We believe that our work will play a dominant role in the eradication of pollutants and will also provide green energy on demand.

Medicinal activity of selected plants and its chromatographic fractions against skin MDR bacteria

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Abstract

Background: Medicinal plant species have significant role in traditional herbal treatments and have made an exceptional position in its origin and evolution. Plants with medicinal properties were held in the highest esteem in indigenous medicine systems all over the world.

Objectives: The purpose of this study was to look at phytochemical screening, antibacterial activity, and High-Pressure Liquid Chromatography (HPLC) fractions of selected indigenous plants against skin Multidrug-Resistant Bacteria (MDR).

Methods: Plants native to the area were collected and used. These plants extract and its HPLC fractions were used against skin MDR bacteria through well diffusion method.

Results: The crude aqueous extract of the plants were the most efficient and exhibited the maximum inhibition zone against *S. aureus* and *P. aeruginosa*. All the HPLC fractions of plants extract performed best activity against skin MDR bacteria.

Conclusion: This study will aid in the separation and application of bioactive compounds from specific plants for therapeutic purposes in the pharmaceutical sector against skin MDR bacteria.

Keywords: phytochemical screening, antibacterial activity, HPLC fractions, MDR, *S. aureus* and *P. aeruginosa*.

Detection of *Helicobacter pylori* Through Microscopy and PCR in Gastric Biopsies

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Abstract

Objective: *Helicobacter pylori* infection is most prevalent in developing countries. It is an etiological agent of peptic ulcer, gastric adenocarcinoma, and mucosal-associated lymphoid tissue (MALT) lymphoma. Despite the development of different assays to confirm *H. pylori* infection, the diagnosis of infection is challenged by precision of the applied assay. Hence, the aim of this study was to detect *H. pylori* in the gastric biopsy specimen from patients having gastric complications through microscopy and PCR Methods. Method: A total of 32 patients with gastric disorders underwent gastrointestinal endoscopy with biopsy. *H. pylori* infection in gastric biopsies was identified after examination by microscopy and 16S rRNA species specific PCR. The agreement between two test results were analysed by McNemar's test and Kappa coefficient. Result: *H. pylori* infection was confirmed in 7 (21.8%) patients by both assays, 15.6% in antral gastritis, 26% in gastric ulcer, 100% in gastric ulcer with duodenitis, 56% in gastric ulcer with duodenal ulcer, and 35 % in severe erosive duodenitis with antral gastritis. Out of 7 *H. pylori* infection confirmed patients, 2 patients were confirmed by microscopy and 5 patients by PCR. In case of two patients, both microscopy and PCR assay confirmed the *H. pylori* infection. The agreement between two test results was 88.45% and disagreed by 11.55% (p value > 0.05). Conclusion: We found that PCR assay to detect *H. pylori* is more sensitive than microscopy. However, we advocate for the combination of both assays to increase the strength of diagnostic accuracy due to the absence of the gold standard assay for *H. pylori* infection.

Key Words: *H. pylori*, MALT, PCR, Microscopy

Characterization of blood borne *Salmonella typhi* from North-West Pakistan: Drug resistance signature and differential proteome

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Abstract

Background: *Salmonella typhi* is the causative agent of typhoid fever. Recent emergence of drug resistance among *S. typhi* is a global health concern. Proteomic tools are getting greater attentions to understand the molecular mechanism of drug resistance. The undertaken study was designed with the aim to elucidate the differentially expressed proteins in drug resistant *Salmonella typhi*.

Methods: A total of 100 blood samples were collected from suspected typhoid patients. These samples were processed through blood culturing, biochemical analysis, 16S rRNA gene sequencing and phylogenetic analysis for the identification and characterization of *S. typhi*. The identified samples were checked for their antibiotic susceptibility pattern, categorizing the isolates into drug resistant (DR) and drug sensitive (DS) isolates. Total cell proteins from both categories were equally extracted by 6X Leammli buffer protein extraction protocol, measured via nano-drop spectrophotometer and confirmed on 1D SDS PAGE. Gel-free proteins digested in trypsin were further processed for mass spectrometric analysis via LC-MS/MS and searched in ProteinPilot® coupled with UniProt *S. typhi* proteome database. For group comparison, the data was processed in Skyline software and SWATH data processing to check the expression pattern of proteins between drug resistant and drug sensitive isolates. Protein-protein interactions were determined via STRING database.

Results: Among 100 collected samples, *S. typhi* were identified and characterized in 43 samples. In drug susceptibility profile, 95.3% (41/43), 80% (35/43), and 70% (30/43) resistances were

observed was against nalidixic acid, ampicillin and chloramphenicol respectively. No resistance was observed against imipenem and azithromycin while only 11% (5/43) isolates were found resistant to ceftriaxone. Mass spectrometric differential analysis of proteins extracted from DR and DS isolates resulted in 23 up-regulated proteins in DR as compared to DS isolates. Proteins found up-regulated in DR were those involved in virulence (vipB, galU, tufA and lpp1), translation (rpsF, rpsG, rplJ and rplR), antibiotic resistance (zwf, phoP and ompX), cell metabolism (metK, ftsZ, pepD and secB), stress response (ridA, rbfA and dps), housekeeping (gapA and eno) and hypothetical proteins i.e. ydfZ, t1802 and yajQ. Protein-protein interactions were found significant among them in STRING database.

Conclusion: In this study, 23 proteins identified as up-regulated in DR isolates were of diverse nature and functions but highly interconnected involved in virulence, drug resistance, stress responses, translation and cell metabolism. These proteins can be useful for future studies to investigate their associated pathways and/or mechanisms and for the drugs development approaches.

Key words: *S. typhi*, Drug Resistance, Differential Proteomics, Up-regulation, Protein-protein Interactions

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Genetic Characterization of Colistin Resistant *Escherichia coli* Recovered from Milk from District Mardan

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Abstract

Background: *Escherichia coli* is a gram-negative motile bacterium, have its place to the family *Escherichia*. *E. coli* are prevalent in different environments including animal excreta, uncooked meat, unpasteurized milk, vegetables, waste water and fruits. A major problem that is increasing day by day is the resistance of *E. coli* to various antibiotics. The current research was premeditated to determine the colistin resistance pattern of *E. coli* in dairy milk. The main objective of this study is to isolate, characterize colistin resistant *E. coli* and investigate the genes responsible for the resistance i.e *mcr1-mcr5*.

Method: A total of 120 milk samples (60 healthy and 60 mastitic) were collected from different areas of district Mardan for screening of colistin resistant *E. coli*. The positive samples were tested against specific antibiotics to determine their resistance, susceptibility and intermediation. Polymerase Chain Reaction (PCR) was executed for detection of colistin resistance genes.

Results: A total of 40 colistin resistant *E. coli* were isolated. Highest resistance was found to Vancomycin (90%) while least to Chloramphenicol (15%). While Meropenem, Ciprofloxacin, Chloramphenicol, Cefipime, and Trimethoprim sulfamethoxazole presented highest susceptibility (100%) while Ampicillin (50%) presented least. Polymerase Chain Reaction (PCR) presented three genes *mcr-1* (20%), *mcr-2* (10%) and *mcr-3* (5%). The rest genes i.e., *mcr-4* and *mcr-5* were not detected.

Conclusion: It is determined from the current work that colistin resistance genes are highly prevalent in the dairy products. Antibiotic resistance genes can disseminate to environment and other bacterial species via animal products. Growing resistance presents high threat to animals and humans globally.

Key words: Colistin, Resistance, Antibiotic and Milk



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Jurisprudence renewal about working with the principle of precaution in order to leave the suspicion things: A comparative, analytical and jurisprudence study

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Abstract

In the current era, work has increased on the principle of precaution to leave suspicious things after increasing the doubts in contemporary matters. So, the question is that, is it necessary to leave all suspicious matters acting upon precaution principle or not? Therefore, it is necessary to search for jurisprudential judgment in these suspicions matters. But when we read the opinions of the jurists in this regard, we find that some of them allowed working with it and some of them prohibited working with it. As for this paper, it makes comparison between these two opinions discussing their evidences. Further, it also clarifies this principle position in these suspicious matters. So, by studying this paper scholars will be able to apply it on contemporary suspicions matters without exaggeration or negligence.

Keywords: Jurisprudence renewal, Precautionary Principle, Suspicious Things, Al-Ḥalāl, Al-Ḥarām.

المستخلص

إن العمل بمبدأ الاحتياط قد كثر لأجل سدّ الذرائع بعد ازداد المشتبهات في عصرنا الحاضر، حتى مثلاً عندما نسأل عن أية مسألة توجد فيها شبهة فيحصل لنا الجواب: أنه غير جائز، فلذلك وقعت الحاجة إلى البحث عن الحكم الفقهي حول هذه الشبهات ولكن عندما نبحث عن آراء الفقهاء حول العمل بمبدأ الاحتياط لأجل سدّ الذرائع فنجد أن بعضهم ذهبوا إلى جواز العمل به وبعضهم منعوا عنه، فأما هذه الورقة تناقش أدلتهم وتصل إلى الرأي المتوسط حول العمل به، وكذلك أنها تذكر أصول العمل به لأجل سدّ الذرائع حتى يسهل للعلماء المعاصرين استخراج أحكام المشتبهات المعاصرة بدون غلو أو تقصير في الدين.

الكلمات المفتاحية: العمل بمبدأ الاحتياط، سدّ الذرائع، المشتبهات، الحلال، الحرام.

د ضلع مردان د زنداني ادیبانو او شاعرانو د زنداني ادبي خدماتو جائزه

نورالبحر امن¹

مردان چې په خېبر پښتونخوا کښې دویمه د زیاتې آبادۍ ضلع ده². مردان د دارالخلافي او مرکزي ښار پېښور نه په پنځوس مېله کښې شمال مشرق طرف ته پروت دے. مردان ته په ۱۹۳۷ کښې د جدا ضلعي حبثیت ورکړې شوې دے³. دا وخت مردان په څلورو تحصیلونو مردان، تخت بهائي، کاتلنگ او رستم مشتمل دے. لکه څنگه چې د مردان زمکه د کرکروندې د پاره زرخېزه ده دغه شان د تهذيب و ثقافت، هنرونو، شخصياتو او ادبياتو د پاره هم زرخېزه ده. په مردان کښې داسې شخصيات تېر شوي او موجود دي چې هغوي د ژوند په هر ډگر کښې خپل خدمات تر سره کړي دي. مردان په ادبي لحاظ سره هم ډېر زرخېزه دے. د مردان ادیبانو شاعرانو ادب له په هر صنف کښې په زرگونو کتابونه ورکړي وي. دا خبره هر څوک مني چې د مردان خاوره د گردې پښتونخوا د ادب مرکز دے او دا خاوره په دې هم خوش بخته ده چې په هر دور کښې یې د شعر و ادب په حواله ډېر نابغه خلق پېدا کړي دي⁴. په دې کښې داسې ادیبان او شاعران هم دي چې هغوي په څه و جوهاتو د قېدو بند د مرحلو نه تېر شوي دي خو په قېد کښې د هر قسمه سختیو او پابندیو باوجود یې هم خپل قلم او د لیک لوست صلاحیتونه زنگ کېدو ته نه دي پرېښودے او ښه معیاري زنداني ادبي تخلیقات یې کړي دي. د زنداني ادیبانو شاعرانو او د دوي د تخلیقاتو فهرست خو ډېر اوږد دے خو په دې کښې چې کوم مشهور شخصيات دي په هغو کښې خدائي خدمتگار قاضي عطاءالله خان، خان مېر هلالی، مولانا عبدالسلام رستمی، شیر علي باچا، ډاکټر اسرار، مولانا اسم خان⁵ وغېره شامل دي. په دې مقاله کښې به د دې او ورسره د نورو شاعرانو د ژوند او زنداني ادبياتو څېړنه وړاندې کولې شي.

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² ضیاء الله جیون "مردان کی وجه تسمیه" روزنامه مشرق پشاور، سنځه میگزین، ۲۲ فروري ۲۰۲۰، مخ ۶

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⁴ سلیمان کامل "خدا یه څه شو هغه ښکلي ښکلي خلق" مجله مرکه مران جنوري، مارچ ۲۰۰۲، مخ ۱۴

⁵ امن، نورالبحر "د پښتو زنداني ادب" پښتو څانگه پېښور پوهنتون ۲۰۱۳

SHAKHSI JARGA AND EVERYDAY PEACE: A GROUNDED THEORY APPROACH

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Abstract

Jarga is respected institution in Pukhtun culture, and has been kept in high regard by Pukhtuns all the way through their history. It works both horizontally and vertically. In Pakhtun society majority of the interpersonal conflicts are transformed to a peaceful situation by the intervention of informal justice institutions where *Shakhsi jarga* is one of them. The present study examines how *Shakhsi jarga* establishes everyday peace between individuals and families during and after interpersonal conflicts. The current study is designed with a constructionist paradigm and qualitative in nature. How *jarga* plays its role in Peacebuilding is explored through interviewing the people who are involved in the process such as *jargamar*, disputants, and community *Masharan*. A total number of 15 interviews and 3 FGDs are conducted in district Mardan. The study uses grounded theory approach for data collection and analysis. The findings show that *Shakhsi Jarga* works in everyday peace by healing the social wounds and re-establishing the social interaction and social relations that damaged due to interpersonal conflicts and disputes. Through this way, the social degradation caused by interpersonal conflicts like trust deficit and break-up of social relations, is transformed to social cohesion and everyday peace. It is recommended that government needs to take into consideration the vital potential of *Shakhsi Jarga* in establishing everyday peace and should give it legal place in state institutions.

Keywords: *Jarga*, *Shakhsi Jarga*, Everyday Peace, Conflict, Grounded theory, Mardan.

Sino-Russian Convergence and Divergence of Interests in Central Asia

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Abstract

Sino-Russian relations over the span of time have witnessed many ups and downs. Since the fall of the Soviet Union their relations have reached to an unprecedented level. They are closer than ever having signed lucrative deals on oil, gas, currency, and other key arrangements related to fostering bilateral as well as multilateral trade. However, the Sino-Russian relationship is not as rosy as it looks. As China begins to translate its economic influence in Central Asia into political influence, Russia feels uneasy about losing its traditional hold on the region which it considers part of its 'Near-Abroad.' This soon became evident when President Xi announced 'One Belt One Road' (OBOR) initiative in Kazakhstan back in 2013, his Russian counterpart, President Putin announced the formation of the 'Eurasian Economic Union' (EAEU) in 2014. Many observers argue that this was a calculated geopolitical decision on the part of Russia to counter China's growing economic ambitions and to reestablish its influence in an attempt to rescue Central Asia from falling entirely into the Chinese orbit. Nonetheless, in the twenty-first century, the world is experiencing a major geopolitical wind as Euro-Asia replaces the Euro-Atlantic space, thanks to the relative decline of the United States and the rise of the rest. Against this backdrop, as Russia and China carve out mutual spheres of influence in Central Asia, the regional order invites a deep sense of mistrust as there is this lack of realization on the part of both nations as to where one's limits end and other's begin. But the equation changed dramatically after West's attempt to isolate Russia in the wake of the crisis in Ukraine in 2014, which fortunately for some and unfortunately for others, resulted in the strategic realignment of Russia and China. Therefore, it is in the light of these developments that the study is inspired and has made an attempt to find answers as to what are the areas of convergence and divergence; how did China alleviate Russia's fears which somehow tempted the latter to come to a modus vivendi with the former in Central Asia; and most importantly, why Russia is allowing China to expand its influence in Central Asia despite the growing economic asymmetry between them.

Keywords: *Central Asia, China, Russia, Sphere of Influence, Ukraine Crisis*

Pakistan's Next Industrial Revolution: A study of Hazara Division

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Abstract:

Objective: This research paper aims to identify the major hurdles in the industrial development of Pakistan. Hazara division being located on China Pakistan Economic Corridor (CPEC) route is one of the important hubs and is, therefore, the universe of this study.

Method: The relevant data needed for the research was collected from Abbottabad and Haripur industrial estates using snowball sampling. In-depth personal interviews with seven industrialists in the targeted area were conducted to get an insight into the underlying causes of industrial sickness. Interviews were recorded using smartphones, were then transcribed and analyzed. The themes were deduced after listening to the recording multiple times.

Result: The themes we deduced from the interviews were Location Disadvantage and Supply Chain disruptions, Technological backwardness and low-skilled workforce, Complicated System of Taxes, Inefficient and unhelpful governmental policies, power shortage, and Threats from Cheap Chinese Goods.

Conclusion: Based on the findings of this research it is concluded that the government needs to revise its policy making it more supportive for industrial development. Concrete power supply policy and preparing skilled laborers will enhance industrial development. Similarly, the industry needs to adopt a proactive policy and introduce a collective solution rather than working individually as a unit. A university-industry collaboration is needed to be developed for ensuring the technical and skilled workforce as well as keeping in pace with the advanced countries.

Key Words: 4th Industrial revolution; Industry 4.0; Industrial hurdles; University-Industry Linkages; Industrialization

مہکتی دھرتی سلگتی سانسیں کا مطالعہ ملی و قومی شاعری کے تناظر میں

ڈاکٹر بسمینہ سراج

صدر شعبہ اُردو شہید بے نظیر بھٹو خواتین یونیورسٹی پشاور

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Abstract

A sensitive poet is known for expressing his era's thoughtful and emotional sentiments in his poetry besides his personal feelings and beliefs. Human's desire freedom as it is their natural instinct. In the modern era, patriotic song writers are hard to find. Patriotic poetry has been limited to only radio and television poetic contests but Dr. Shahida Sardar is one such poetess from KPK who has published her patriotic poetry. Following is an analytical review of her patriotic poetry.



6th International Multidisciplinary Research Conference

Global Prosperity through Research and Sustainable Development

IMRC-SS-13

Urban Development and Town Pattern in Lahore

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Abstract

Big town always indicate developed and polish life style. Big towns associated other towns within city, locality setting, all impart the authorized pattern according to living standard. City setting, settlement design. City chains divided unit allocated sides town localities. Street residence address town design indicated points routes, park markets, Telecommunication grid setting other facilities are focusing considerable impressions Movement design link with other town within big city through link routes/ roads all present established hierarchy system of town Residents of a house and their demographic picture with age wise distribution, their marital status and Socio economic impressions affiliated with town settlers financial capacities of people residing in a house along with financial chart and other biological Factors are all important. Pull Factors always encourage positive matter. Better job opportunities improved living condition medical educational facilities always indicate affordable dynamics. These factors comprise good outer impressions and overall established set up. This paper focuses on Town pattern and multi setting according to modern and developed style and are Focusing considerable impressions and established hierarchy system

Keywords: Analysis, techniques, metropolitan, hierarchy

Research Conference

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IMRC-SS-14

Semiotic analysis of English books of Khyber- Pakhtunkhwa Textbook Board (Pakistan) with Gender Lens: Exploring the gender sensitization level of Khyber- Pakhtunkhwa Textbook Board officers

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Abstract

Visual literacy has occupied a pivotal position during various developmental stages of a child since his or her birth. This visual literacy has become an indispensable aspect in the process of learning and teaching. Along with other social aspects of a society, gender representation is currently tried to learn through these visual images, for which the most accessible way is the school textbooks. Depiction of gender with the help of visual literacy is the most contemporary and arguable social issue in the modern world. In English textbooks of Khyber--Pakhtunkhwa, though the text is supplemented with illustrations but with inappropriate gender representation. In order to know the level of sensitization of the officers of Khyber—Pakhtunkhwa textbook board, interviews were conducted through which it is find that majority of them were unaware of the true sense of gender and keep on understanding it in traditional way. These interviews revealed that many social, religious and financial factors are involved in the repetition of this stereotypical visual representation of gender.

Key words: Visual literacy, Gender, Textbooks, English, Khyber Pakhtunkhwa

Global Prosperity through Research and Sustainable Development

IMRC-SS-16

Social Issues and Environmental Justice: An Ecocritical Study of Amitav Ghosh's *The Hungry Tide*

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Abstract

Nature and humans are interconnected and they both are related on the basis of continuous exchange of resources and services to each other. Issue arises when one is harmed because of the other; may it be nature getting affected because of human or humans because of nature. The presenter aims to investigate the social issues in the communities living on the margins of societies outside of towns and big cities. Taking the theoretical perspective of Susan L. Cutter and Schlosberg, the researcher explores the areas of environmental and ecological justice with reference to Amitav Ghosh's *The Hungry tide*. These social problems will be investigated in terms of the reluctance of the State to provide environmental and social justice to the local communities living in natural environments away from the cities. The study also enunciates the consequences of environmental and social injustices upon the natural surroundings as well as on the native inhabitants.

Keywords: Nature, Environmental justice, social issues, exploitation, marginalized societies.

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IMRC-SS-17

A Feminist Stylistics Analysis of Rupri Kaur's Poetry Collection, *home body*

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Abstract

Feminist stylistics is an emerging area of literary and linguistics exploration. This study attempts to analyze Rupri Kaur's poetry collection, *home body* (2020), using Sara Mills' model of Feminist Stylistics (1995). The study aims at exploring gender biases in *home body*, examining the words and sentences in the poems of the collection through the aforementioned model of feminist stylistics. The style and/or linguistic structure of Rupri Kaur's poetry in her collection *home body* is suggestive of the writer's bold stance on the issues relating to the female body and her concerns on the gender discrimination and biases generally prevailing in the contemporary societies all over the world. Foregrounding that Kaur's poetry is structured in a unique way, the study focuses on the poet's aim of writing, highlighting how the female issues mostly regarded as taboos have dominated the poet's bold stance. Employing Kaur's use of metaphors and euphemisms, the study analyzed the poet's feminist perspectives, transcending the traditional approach towards the female body and female experience

Key Words: feminism, gender biases, female body, female experiences, and style.

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IMRC-SS-18

A Critical Analysis of Ecofeminist Issues in *Mother!*

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Abstract

Gender and the degradation of nature are intricately related because the patriarchal practices of society perpetuate their mutual exploitation. The screenplay, *Mother!*, depicts various mind-probing scenarios related to the character Mother and her symbolic association with the natural world. The researcher analyzes Darren Aranofsky's screenplay, *Mother!*, from an ecofeminist perspective to explore the relationship between gender subjugation and environmental exploitation. This study follows textual analysis by incorporating McMahan's close reading tools along with Catherine Belsey's Textual Analysis as a Research Method. The researcher deconstructs the script's text by laying bare the themes of ecofeminism and the relation of gender and nature. Mother, being the symbolic representation of mother earth, is deprived and degraded throughout the screenplay. She has no rights over her body and house. Her husband makes her home as the guest house of his admirers, without her will and then the people at home also kill her child. The house remains in chaos with the guests and their disputes. The researcher recommends that the screenplay, *Mother!* be analyzed from a biblical allegory perspective to bring forth more themes relating to gender and nature exploitation.

Keywords: Ecofeminism, Gender, Nature, Exploitation, Close Reading

Global Prosperity through Research and Sustainable Development

A Study of Seeking Possibilities of Integrating Technical Education at School Level

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Abstract

Drop out from schools, particularly at grade 6 – 10, is quite higher in the local context. One of the major reasons of drop out is the need of students to participate in earning livelihood. Due to poverty or to reduce personal labour, many parents want their children's contribution in their local business rather than in getting education, which is considered something extra. Students, who give off their education, mostly join workshops to learn certain technical skills in a non-formal mode of education. These workshops are run by mostly illiterate people. They solely emphasize the learning of technical skills by their students and ignore their personal and cognitive competencies. This study is focused to seek the possibilities of integrating technical education at school level to provide technical education in a proper right from school levels. This study adapted a qualitative phenomenological approach of investigation. The data were collected through interviewing six expert of education. The data were gathered and transcribed. The emergent codes were categorized to develop themes. The outcomes of the study revealed that it is hard but not impossible to integrate or run side by side technical education along with the formal education at school level, probably from grade 6 or grade 7. It may also address the issue of drop outs and child labour. However, there may be issues of framing policies, developing a sound curriculum, availability of resources and personnel. It was recommended that the higher authorities may develop plan and policy to integrate technical and formal education at school level. Similarly, education at school level may have two streams: one may have conventional education and the other may be devoted for technical education. In addition, they may propose an integrated curriculum of students of technical stream which may contain diverse technical skills in accordance with development stages. Further, it may be initiated in some model schools as trails. Finally, researches may be conducted to assess the possible benefits, limitations, problems and solutions of this proposed model.

Keywords: Technical Education, Formal Education, Integrated Curriculum

Changing Facets of Regional Politics and Challenges to CPEC: An Analysis of Trepidation and Opportunities for India, Afghanistan and Iran

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Abstract

Structural Change can be felt at the global political chessboard with the abrupt emergence of China in the Asian continent and her political and economic expansion towards the South West and the Middle East is unbridled. This embryonic shift on one side is creating opportunities for Pakistan under the banner of China-Pakistan Economic Corridor (CPEC) while on the other hand evolving new trends and concerns for the regional countries especially for India, Afghanistan, and Iran. It is deviously calculated by the regional countries that the growing investment of China in the CPEC will ultimately change the status quo in the region which may offer opportunities to Pakistan but will retard the progress of the regional countries. So, the paper intends to explore the viability of CPEC in the context of Pakistan's immediate neighbors i.e. Afghanistan and Iran. Although, India also articulates CPEC as a source of competition in the Indian Ocean, therefore, it has developed close nexus with the US to slow down China's rise in the region and political and economic interests can strategically be secured. In this research work, qualitative and thematic methods have been applied in which already available facts and information about the contents are used and critically analyzed. In a nutshell, the study highlights that CPEC is a 'flagship project' to ensure regional connectivity and provide win-win opportunities to all the regional stakeholders who want to become a part of this project. Trepidations of India, Afghanistan, and Iran regarding CPEC are hypothetical and far from the "Grounded theory" of international relations.

Keywords: CPEC, Security Environment, India, Afghanistan, Iran, Hegemony.

Masculinity Versus Femininity: A Dichotomy in Tehmina Durrani's Autobiographical Narrative, *My Feudal Lord*

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Abstract

Tehmina Durrani, an audacious Pakistani feminist writer comes into sight with her seemingly controversial autobiographical narrative, *My Feudal Lord*. This research attempts to explore *My Feudal Lord* from the standpoint of gender dichotomy, highlighting the variant between men and women in scrutiny immensely affecting the relationship of the narrator and her husband. Tracing the split between masculinity and femininity and highlighting a distressed marital relationship under a clash of interests in spouses, the study strongly accentuates the variance of mental, emotional, socio-cultural, and religious chasms of the psyches of men and women by grounding the arguments on the theorizations of masculinity and femininity as contended by Todd. W. Reeser, Linda Mcdowell, R. W. Connell, and feminism as argued by Stephanie Hodgson-Wright, Valerie Sanders, Sue Thornham, and Sophia Phoca. Foregrounding individual and collective tussles of personalities informed by the gender issues, the study explores *My Feudal Lord* that hassles the sheer dissimilarities between powers and deteriorates swaying between the duality of reason and feeling. Spotlighting the marked traits labeled as masculine and feminine, the thesis attempts to illuminate the attributes illustrating manhood and womanhood, privileges men have had over women, resulting in the gender and social dichotomies between men and women.

Keywords: Masculinity, femininity; social and gender dichotomies; *My Feudal Lord*

Regional security and cooperation; A critical appraisal of Pak-Russia relations on the eve of twenty first century

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Abstract

Globalization of the modern world has prompted the socio-economic competition that has challenged the security, prosperity, and peace of the struggling nations. South Asia has gained much concentration due to ideological and cultural discrepancies that has influenced many parts of the world as a rejoinder of the weak nations in shape of terrorism and extremism. Pakistan and former Soviet Union bilateral relations went through phases of ups and down during the cold war (1945-1990) in different periods. In the 1970s the relations improved in Zulfikar Ali Bhutto regime but again in the 1980s declined due to Russian aggression of 1979 in Afghanistan. Pakistan played a vital role against the Soviet Union by supplying ammunition and help by men and materials as a result Soviet Union was disintegrated and the Soviet Union troop withdrawal from Afghanistan. Due to the fall of communism Russia- Pakistan relation began to normalize. In April 1999 prime minister of Pakistan Nawaz sharif paid an important visit to Moscow that was the first trip of Pakistani prime minister in twenty-five years. Russia also welcomes Pakistan in the Lahore declaration but strongly criticized Pakistan for holding it responsible for the outbreak of Indo-Pak war of 1999. Russia played an important role for peace during the Kargil war condemning Pakistan. Russia evidently proved herself as a major player for democracy and peace cooperation by condemning the coup d'état against Nawaz Sharif removal in 1999 from Prime Minister Ship. Russia also supported Pakistan in its struggle against the Taliban militant. The Russian Prime Minister Mikhail Fradkov officially visited Pakistan in 2007. He was the first Russian Prime Minister in the past 38 years to visit Pakistan and discussed various affairs of mutual interests with President Pervez Musharraf and Prime Minister Shaukat Aziz to strengthen the relations between Russian Federation and Pakistan. This paper aims to discuss the role of both states in regional cooperation through sustainable relations and explore the supportive evidence of barriers in their

consensual relations. Constraint and tension in the Pak-Russia relations has proved detrimental for the peaceful cooperation not only among the South and Central Asian states but also for the rest of the world affairs especially major powers of the surroundings countries of China, India, Saudi Arabia and Iran on the problem of Afghanistan and its aftershock.



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The War-on-Terror and The Spatial Predicaments of Pashtuns

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Abstract

Introduction: The decade-long war-on-terror had extraordinary socio-cultural, socio-political and socio-economic effects on Pashtuns of Khyber Pakhtunkhwa. The narratives of the ordeals of the war-on-terror have been studied from multiple dimensions that centres on the themes of terrorism, displacement, identity crisis, and Pashtun nationalism etc.

Objectives: The present study aims to revisit the war narratives from the perspective of spatiality to understand the spatial predicaments that Pashtuns endured during the dark epoch of terrorism. The study includes fictional and nonfictional narratives from and across the Western border of Pakistan that records the traumatic experiences of Pashtun individuals and communities.

Method: The study employs Tim Cresswell's theoretical formulations of in-placeness and out-of-placeness, and Edward Casey Ralph's notion of existential outsidership to understand Pashtuns' experience of spatiality.

Results: The present study maintains that the war-on-terror engendered an acute sense of existential outsidership among the Pashtuns of Khyber Pakhtunkhwa.

Conclusion: The study concludes that the war-on-terror had caused a socio-spatial crisis that posed challenges and threats to Pashtun identities. In the wake of the establishment of a new government in Afghanistan, the Pashtuns on both sides of the borders are yet again confronted with the same socio-spatial crisis that needs to be addressed instantly.

Key Words: War-on-terror, Pashtun Spatial Experience, Existential Outsidership, Out of placeness, Pashtun Culture

A study of self-efficacy belief of secondary school teachers of district Peshawar

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Abstract

Self-efficacy of teachers plays an important role in learning process and learning outcomes. The present study was conducted to investigate the secondary school teachers' (SSTs) self-efficacy beliefs with respect to gender, type of school and subjects (Urdu and English) taught at secondary school level. Using random sampling technique, a sample of 120 SSTs (male 60 and female 60) were selected from secondary schools of district Peshawar. Descriptive survey study design was used to investigate the problem. A standardize tool Teachers' Sense of Efficacy Scale (Tschannen-Moran and Woolfolk-Hoy, 2001) was used to collect data from the participants. The outcome demonstrated that overall female teachers had higher level of self-efficacy than that of male Secondary school teachers. The difference between the cohorts was significant for each of students' engagement and instructional strategies, and classroom management. It was further found that the self-efficacy belief of teachers serving at private schools was better than their counter parts in public schools. There was a significant variation among three factors i.e. students' engagement and instructional strategies, and classroom management on Teachers' Sense of Efficacy. The findings revealed significant difference between the groups on the basis of subjects taught (Urdu and English). Teachers teaching Urdu (National language) reported better sense self-efficiency than English (Second/Foreign language) teachers. The findings of the study have implications for the researchers, School authorities, teacher educators, and curriculum developers for teacher education programmes.

Key Words: Self-efficacy, Secondary school teachers, private schools, public schools, Urdu teachers, English teachers.

The impact of Covid-19 Pandemic on Life of Higher Education Students of District Peshawar, Pakistan

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Abstract

The pandemic of Covid-19 unexpectedly and badly affected all walks of life from the decline in industrial production to the re-adjustments in the academic calendar of all educational institutions worldwide. In this scenario, in order to smoothly run the education-oriented activities, the world had no other option but to go for the use of internet technology and start online classes. This study has been carried out with the purpose to assess the satisfaction level of students with the online mode of learning. The study was quantitative and descriptive in nature. In this regard, an online survey was conducted with a view to get the responses of students regarding online learning in Public and Private sector universities of District Peshawar. The results of the survey testified that majority of the respondents were satisfied with carrying out the learning activities in this pattern by Institutions of Higher Education. However, few challenges were also identified which will help the higher education management to devise effective strategies regarding the implementation of online learning for all students.

Key Words: Pandemic, Covid-19, Higher Education, Online Learning

Global Prosperity through Research and Sustainable Development

ریاست کے شہریوں کے معاشی تحفظ کے لیے جامع اسلامی خاکہ

An Inclusive Islamic Scheme for the Economic Security of Citizens

ڈاکٹر اسد اللہ^۱

معاشی تحفظ کا مطلب یہ ہے کہ اسلامی ریاست کے ہر شہری کی ضروریات باسانی پوری ہوتی رہیں اور ریاست کے ہر فرد کو یہ ضمانت حاصل ہو کہ ضرورت یا احتیاج کے وقت معاشرے کے دیگر افراد یا خود ریاست آگے بڑھ کر اس کی مدد کرے گی۔ معاشی تحفظ ایک ایسا حق ہے جسے بنیادی حقوق میں ایک نمایاں حیثیت حاصل ہے اور دیگر کئی حقوق سے اس کی اہمیت بہت زیادہ ہے۔ اسلام نے اسے ہر شہری کا بنیادی حق قرار دے کر اس کے لیے ایسا خاکہ اور ڈھانچہ تیار کیا ہے کہ اگر اس پر صحیح طریقے سے عمل ہو تو ریاست کا کوئی شہری ضروریات زندگی کی عدم دستیابی کا شکار ہو کر پریشان اور بد حال نہ ہو۔ یہ ایک ایسا حق ہے کہ شہریوں کی دنیوی اور اخروی فلاح و بہبود کے لیے اس کا وجود ناگزیر ہے۔ اس کی اہمیت اس وجہ سے بھی ہے کہ صحیح طریقے سے اللہ تعالیٰ کی عبادت۔ جو کہ تخلیق انسانی کا مقصد ہے۔ ایک آدمی کے لیے تب ممکن ہے کہ جب اس کی مادی ضروریات آسانی سے پوری ہوتی رہیں، اگر اسے معاشی تحفظ حاصل نہ ہو تو وہ عبادت کی بجائے مادی ضروریات کا انتظام کرنے میں پڑا رہتا ہے اور یوں وہ اپنی مقصد تخلیق کی تکمیل نہیں کر پاتا۔

اس بنیادی حق کے حصول کے لیے اسلام نے کچھ مراحل بتلائے ہیں مثلاً؛ پہلے مرحلے میں انسان کو خود اکتسابی کی ترغیب دی گئی ہے اور دوسروں پر بوجھ بننے سے روکا گیا ہے، اگر اس طرح سے اس کی ضروریات پوری نہ ہوں یا وہ کام کرنے کا اہل نہ ہو تو دوسرے مرحلے میں اس کا نفقہ قرہبی رشتہ داروں پر واجب کیا گیا ہے، تیسرے مرحلے میں زکوٰۃ کے ذریعے اجتماعی کفالت کی سکیم متعارف کی گئی ہے، چوتھے مرحلے میں صدقات نافلہ اور اس کے بعد سرکاری خزانے کی باری آتی ہے، ان مراحل کی تفصیل کیا ہے، اور ان کے ذریعے معاشی تحفظ کو یقینی بنانے کے لیے کن وسائل کو بروئے کار لایا جاسکتا ہے، اور اگر ان مراحل سے گزر کر بھی یہ حق کسی کو حاصل نہ ہو تو اس کے لیے کیا متبادل ذریعہ ہے؟ زیر نظر مقالے میں ان سوالات کا جواب دینے کی کوشش کی جائے گی۔

Keywords: اسلامی ریاست، معاشی تحفظ، کفالت، صدقات، خود اکتسابی

۱۔ پی ایچ ڈی فقہ و اصول فقہ، لکچرار شریعہ، بین الاقوامی اسلامی یونیورسٹی اسلام آباد، Asadullah312@gmail.com

Analyzing the green practices in the hotel industry of KPK through the concept of environmental innovation

Abstract

This study brings forward the environmental issues related to hotel industry. Sustainable practices in tourism industry have got the attention of the researchers but the concept of environmental innovation (EI) is comparatively a new idea which is mainly under consideration in the manufacturing sector. The application of EI in the tourism sector in general and hotel industry in specific has got very little attention of the researchers. This study tries to cover the literature gap by the identification of the drivers of EI in the hotel industry which has never done before. Moreover, previous studies on the sustainable practices in hotel industry were conducted in different context, while this study is primarily focused on the hotel industry of KP. Structural equation modeling is used in order to find the main drivers of EI in the hotel industry of KP. A total of 280 hotels were selected from KP. The study reveals new perspectives that are interesting. First, main driving factors which cause environmental-innovation are technological capabilities, environmental organizational capabilities, command and control tools, a market-based instrument, consumer green demand, and competitive pressure. Second, among the contributing factors, Technological capabilities appeared as a leading driver in bringing environmental innovation followed by customers green demand, market-based instrument, command and control instrument, environmental organizational capabilities and competitive pressure.

Key Words: Sustainable Tourism, Environmental Innovation, Environmental and Economic Performance

Global Prosperity through Research and Sustainable Development

Do hospital and doctors specific factors determine the wellness of the patient?

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Abstract

Most people are interested in achieving optimal health; however, the medical field has been criticized for disproportionately focusing on the elimination of disease rather promotion of health in recent years. Patients view services in terms of their whole experience. Although there is the recognition that health is fundamental human right, there is a denial of this right to millions of people who are caught in the vicious circle of poverty and ill-health. There are factors related to provider and then there are factors related to the patients or health care seeker, both of which significantly affect the demand and the satisfaction of the healthcare seeker. In Pakistan, lack of voice and accountability, government ineffectiveness, low level of transparency and corruption- all are impediments to good governance in this sector. This paper uses the SERVQAUL questionnaire which consists of four dimensions to highlight the determinants of patient's satisfaction while availing the services of a hospital or any doctor. The bulk of literature supported the use of this questionnaire and also highlighted the effect of the items mentioned in it. The sample size for this paper is 398. The study area is the private and public hospitals of Khyber Pukhtunkhwa. The including criteria was of people who have visited any healthcare facility and their experience was recorded keeping their identity anonymous. The technique of Simultaneous Equation Model will be used for the analysis using the software of SPSS.

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Structural Transformation and Political Economy: A New Approach to Inclusive Growth

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Abstract

The "Jobless growth" of Pakistan's economy and its acquaintances with frequent changes in different governments in power (both democratic and military regime) and its influence on economic growth persuades to conduct a qualitative analysis of the structural transformation on the disaggregated level to evaluate the if it has any connection or impact on different sectors of the economy or not. This study's primary aim is to (a) consider how sectoral transformation has pretentious the economic growth and employment, and relationships thus thereof, and (b) to examine how these dynamics have influenced the generation of sustainable employment in the economy. For that purpose, the study took under consideration the sectoral transformation. For that purpose, the study employs the sectoral employment Elasticity approach. Our evaluation findings show that the economy performs better in military regimes than a democratic period. The reason could be anything, but our concern here is to identify the elasticities of employment in Pakistan's various political powers.

Keywords: Jobless growth, Political Economy, structural transformation, sectoral growth, elasticity.

Global Prosperity through Research and Sustainable Development

Measuring pattern of Crop Diversification across Districts of Sindh

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Abstract

Agriculture, food security and economic growth mutually re-inforce each other in the development process. Pakistan is a developing country having world's 6th largest population. Being an agricultural country, it should have achieved self-sufficiency in food production. In spite of all the efforts, its contribution in GDP remains only 21% and is witnessing a dwindling pattern of growth in staple food production. Agriculture growth shows negative trend after every alternate year that has turned the nation into food deficient. Food security is equated with food self-sufficiency and proposed solutions focusing exclusively on agricultural production. Khan and Gill (2009) working on food security indicated that Increased Farm production through crop diversification increases food availability. While Sultana and Kiani (2011) argued that Crop diversity by increasing the household income ensures food security. The impact of crop diversification hence ranges from poverty mitigation to increase education and food absorption. Crop diversification, an opposite to crop specialization, basically means competition among various growing crops for arable land. It improves productivity through intercropping, species richness and abundance and soil fertility with the focus towards high value and high yield crops. The crop diversification, though considered in the literature as a mitigating strategy to cope issue of food security, has not been critically examined. Specifically, how much diversified the agriculture production is, need to be analyzed by giving due consideration to the agro ecological variations. Crop diversification is a flexible tool for a farmer to adopt that crop mix which is based on the principle of profit maximization. Geo-climatic conditions and technological development of a region is usually considered as determinants to diversify. Through it a farmer reallocates his productive resources from a traditional crop mix into a new crop mix due to any definite factors. In the light of the above the study is endeavored to identify the horizontal crop diversification/ specialization pattern across districts of Sindh. In addition, it will also examine the direction of diversification i.e. is the diversification is towards high value (cash crop) crops or farmers are diversifying the production

more towards food crops, in order to remain food sufficient. In order to achieve the objectives i.e. to measure the diversification three different indices will be developed; namely (i) Simpson's diversity index (ii) Bhatia's index and (iii) Jasbir Singh's index. The data source for the study will be agriculture department of Sindh and Development Statistics of Sindh. Furthermore, according to Agriculture department, Sindh has produced 22 cash crops and 46 food crops hence the analysis is based on the above reported data only while ignoring fodder and fruit as these crops are not directly related to food security of masses.



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Global Prosperity through Research and Sustainable Development

Shakespeare in Pakistan

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Abstract

Of all British writers studied in Pakistani Universities, Shakespeare may be the most popular. This paper considers potential influences connecting Shakespeare to the world of University academia in Pakistan, particularly relating to women's justice. Shakespearean studies in Universities are popular to study English language and literature, but may also be an opportunity to discuss contemporary women's issues: Shakespeare takes a more just view of their plight in society. This paper considers the influence of Shakespeare's plays through a short survey of students at Abdul Wali Khan University. Considering a brief history of Shakespeare's introduction to our current educational system through the potential historic influences of two powerful women: Queen Elizabeth I and Queen Victoria; this paper suggests interesting links to potential influences for (1) the public education of women, (2) the current study of English and Shakespeare in all Pakistani University syllabi, and (3) a more favorable view of women within the context of social justice issues. Considering the adaptations of five Shakespearean plays into Urdu, a brief survey suggesting a closer link of the themes of these plays to modern Pakistani society is considered. The Urdu translations in this paper include: *Winter's Tale* as *Fasana e ajaib*, *King Lear* as *Zia Mohiuddin*, *Taming of the Shrew* as *Ilaj Zid Dastyab Hai*, *Measure for Measure* as *Rahm*, and *Macbeth* as *Raees*. This paper concludes that the five Shakespearean plays performed in Urdu portray women favorably and more sympathetically even compared to modern day standards, confirming a rightful and necessary place for Shakespearean studies in present day Pakistani academia. This study is essentially qualitative in nature, using rhetorical analysis and theory of adaptation.

Keywords: Shakespearean studies, social justice, women's studies, Shakespeare in Urdu, Shakespeare in Pakistan.

Dynamics of mushroom growth of private sector schools in district Nowshera, Khyber Pakhtunkhwa

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Abstract

Education is one of the basic and fundamental human rights around the globe. Throughout the globe, there are multiple kinds of education that provide quality education to students. Among those, private and public sector education is universally recognized. The numbers of private schools are increasing day by day due to the provision of quality education in Pakistan. The current study is focusing on the dynamics of mushroom growth of private sector schools at primary level, in Khyber Pakhtunkhwa. The theory of John Maynard Keynes supports the research study, keynesian theory discussed that once the government cannot provide quality facilities to the citizen or government is not able to provide a facility to the citizen, so a new kind of system emerge as privatization. Keynes argues that education is the key determinant of social and economic development and privatization of education enriches both quality and quantity of education leading to knowledge-based economy. For this research study, the researchers used Mixed Method research (MMR), whereas the data was collected from the 270 respondents through interview schedule and in-depth interviews. Quantitative data were analyzed through statistical package for social sciences (SPSS) and qualitative data were analyzed through thematic analysis. Results of the study revealed that it is monitoring system, evaluation system, innovative course curriculum, students care, teaching-learning method, homework, assignment, monthly test and terminal examination of the private schools which ensure quality education at primary level and leads to mushroom growth of private-sector education. The study recommended that private sector education needed a committee from the government side which ensure the job security of the private school teachers and ensure their salaries as per market and their work. It is also recommended that both private and public sector education ensure uniformity of curriculum and examination for further improvement and quality outcomes.

Keywords: Education, Quality, Private education, Khyber Pakhtunkhwa

IMRC-SS-55

The representation of Gandhara in Pakistan: Ahmad Hasan Dani's utilitarian approach

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Abstract

Gandhara mesmerized many people due to various reasons. Amongst such people Pakistani academics may particularly be mentioned. Their interest in Gandhara can be viewed as purely academic and historical or nationalist and economic. We can start it from works of Pakistani historian Ishtiaq Hussain Quraishi and can trace either trends in works of scholars of many generations. Works of Professor Abdur Rahman, Farooq Swati, Saifur Rahman Dar etc are more of scholarly nature. Ishtiaq Quraishi, Ahmad Hasan Dani and many others are more inclined towards writing a nationalist historiography. Dani stands unique among Pakistani historians and archaeologists. His works and views about the uses of History and heritage in modern state politics are interesting and vital. This paper attempts to explore his perspectives on Gandhara with a focus on themes such as historical roots of Pakistan, place of heritage in national economy and cultural diplomacy across the entire Asia.

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Orient lists Perspective of Conversion to Islam in India

Motia Bibi

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Abstract

India witnessed a long era of stability and development under the Muslim rule. The Muslims came to India with the expedition of propagation of their religion and rule. They remained successful in both of their quests i.e. the transmission of Islam and the establishment and consolidation of their empire. During the fruitful reign of Delhi sultanate and mighty Mughal Empire, The Muslim rulers made positive contributions to the society in terms of music, art, architecture, and Islamic ideas. Islamic ideas and philosophy got disseminated and ultimately assimilated by the society; and the evolution of Urdu language can be cited as an example for this. Especially the ideas of secularism, tolerance, and universal acceptance of Akbar laid the foundations of current political and social life of Indian society. Furthermore, he formulated a new code of conduct named Din-e-Ilahi. It was essentially a combination of The Hinduism, Zoroastrianism, Buddhism, and Islam. It was a positive gesture to prove his love for his subjects regardless of their religious beliefs. Moreover, Islam provided an alternative that people could retain their faiths by paying poll tax, i.e. jizya. Many Muslim rulers abolished it, Akbar being one of them. For the Muslim rulers jizyawas a source of earning and they would have never tried to put a blockade to their finances by encouraging people to convert to Islam, not to talk about converting them forcefully. The present article is divided into two sections. In the first section the problem of conversion is raised systematically with reference to the three conventional theories of conversion to Islam in subcontinent. In the second section orientalist's views are analyzed critically, so are the limitations of their views regarding conversion. In short, the conventional approaches to conversion to Islam are by no means final and authoritative. Surely, there are other multiple processes that led to the complex phenomenon of conversion. Among those factors is the migration, which occurred from thirteenth century onwards, of tens of thousands of Muslim Afghans, Persians, and Turks to the subcontinent. While the question of conversion of the Hindu elite class of Allahabad, Kashmir, and Lucknow was also no touched in this particular focused chapter. Furthermore, a

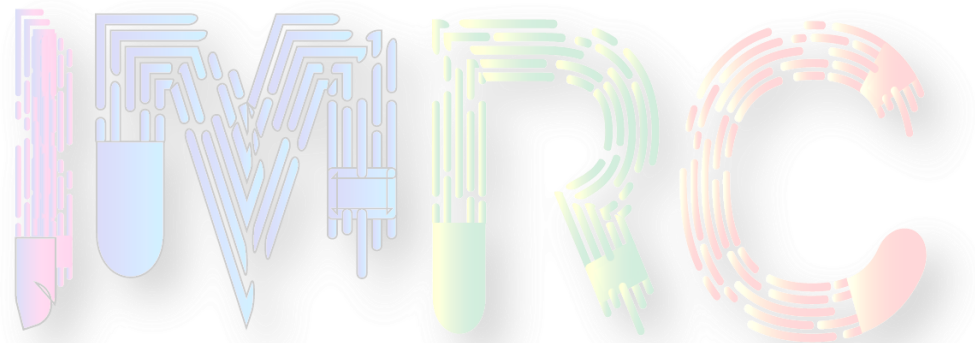
comprehensive study of conversion also encompasses the rational intended, organized and controlled and systematic processes of teachings of Islam. Shi'ida'wa is an example of well-established agent that skillfully integrated Islam into the life of local people. This very organization is the example of disciplined system of conversion.

Keywords: Islam, Conversion, Orientalism, Sword Theory, Libration Theory, Political Patronage theory, Vernacular expressions of Islam.



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IMRC-EN-4

To study the behaviour of fiber reinforced concrete against fire by using SikaFiber®12

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Abstract

Concrete is not good resistant to fire so SikaFiber®-12 (0, 0.4, 0.8, 1.5, 2, 2.5, 3 % by weight of cement) was used as polypropylene fiber with addition of superplasticizer ('Sika Viscocrete 3110' used 0.70% by weight of water for workability) and w/c of 0.45 to cast 60 standard cylinders (150 x 300 mm) of fiber reinforced concrete (M25 Grade) to check compression strength according to ASTM C39 and crack resistance against fire (after cylinders were cured in water for 28 days) for duration of 0.5, 1, 1.5 & 2 hour in gas furnace using infrared thermometer to maintain a temperature of 200, 400, 600 & 700 °C respectively to find optimum dosage of SikaFiber®-12. Six series of concrete mixes (each with 10 cylinders), including five series of SikaFiber®-12 and one series of plain concrete specimens, were tested at an age of 28 days after exposure to fire and cooled down. Reinforcement of SikaFiber®-12 increased compressive strength of FRC cylinders after exposed to fire for 2 hour and minimized splitting and crack width, delaying the appearance of concrete spalling. The addition of polypropylene beyond optimum value decreases the workability of concrete which resulted in rapid compression strength loss. At 1.5% dosage using SikaFiber®-12 increase of 18% compressive strength was obtained.

Keywords- SikaFiber®12, Compression Strength, Fire, Cylinders.

Seismic capacity evaluation of Special Moment Resisting Frame (SMRF) detailed beams

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Abstract

The use of Reinforced Concrete (RC) SMRF structures are increasing significantly. The beam is an essential and significant load-bearing component of SMRF structures. The concrete strength in beams rarely achieved in Pakistan due to the lack of advanced construction equipment. The seismic behaviour of SMRF detailed beams with high and low concrete strengths evaluated by performing a quasi-static cyclic load test. In this study, two cantilever beams had dimensions 18 inches depth, 12 inches wide, 8 feet and 6 inches long. The beam had four #08 bars in the top and four #08 bars in bottom layers along with #03 bars at 4 inches c/c used as a transverse reinforcement designed according to ACI 318. The concrete strengths of 2000psi and 3000psi used for comparison in beams. Primary cracks observed perpendicular to the beam axis, and inclined cracks are also substantial in the former beam of 2000psi strength. The beam had 3000psi strength. The primary cracks observed were also perpendicular to the beam axis, with only a few inclined cracks due to moment and shear forces. SMRF beams in low concrete strength show significant bar slip under cyclic loading resulting in a pinching of cyclic response.

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Impacts of activation energy and entropy generation in peristalsis of Carreau-Yasuda nanoliquid

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Abstract

Objective: The main objective of present research article is to discuss activation energy and entropy generation in peristaltic transport of Carreau-Yasuda nanoliquid. Movement of bolus into digestive tract, chyme movement in gastrointestinal tract, suction pumps in agriculture, water purification pumps in water purification plants, by-pass heart surgery and dialysis machines in medicine and concrete pumps in engineering work through principle of peristalsis. During the motion of heat energy, some additional movements occur like internal displacement, molecular vibration, molecular friction, kinetic energy and spin movement. These additional movements create irreversibilities in system and surroundings e.g. mixing of fluids, electric resistance, chemical reaction, inelastic deformation of solids, unstained expansion, friction and unnecessary heat transfer. This results in loss of some useful energy. Such kind of energy loss cannot be retrieved without doing extra work. Thus entropy is measure of irreversibilities of a system and surrounding. Another important phenomenon during a chemical process is the activation energy. It is defined as the threshold energy required for instigating any chemical, nuclear or physical reaction. This effect is very useful in geothermal engineering; reservoirs of oil and water etc.

Method: The governing problems are numerically solved by using NDSolve command built-in Mathematica.

Results and Conclusions: Graphical results reveal that high activation energy and concentration lead to small reaction rate. Entropy generation and Bejan number are increased for larger Brinkman number. Velocity and temperature in slip case are more whereas opposite trend holds for concentration. An increase in radial magnetic field decreases the velocity and size of trapped bolus.

Keywords: Curved channel; Carreau-Yasuda nanofluid; Entropy generation; Activation energy; Wall properties.



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Covid-19 identification based on symptoms using machine-learning techniques

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Abstract

The novel coronavirus outbreak (COVID-19) is an infectious disease and member of the coronavirus's family, which affects both humans and animals and has recently created a devastating situation across the globe. COVID-19 is spreading very fast and becoming more common in the general population therefore, Covid-19 must be detected accurately and quickly to adequately treat patients and prevent further harm. Traditional methods for detection of covid-19 such as RT-PCR, CRISPR, molecular POC, NGS, and computed tomography, have been used in practise. However, due of the large ratio of false-negative and false-positive results, these are not as efficient and trustworthy as needed. Non-invasive fundamental techniques for detection of COVID-19 patients, such as computational prediction via machine learning, are efficient and reliable when used in conjunction with traditional procedures therefore, this work presents a computational model using machine learning techniques, to predict covid-19 disease. 534 patients from two distinct hospitals (Batkheela and Dargai) in Malakand District, Khyber Pakhtunkhwa Province, Pakistan, were sampled for this study. The data set was reduced to 460 samples after pre-processing, with 230 positive and 230 negative individuals. Further, we used six classification algorithms (DT, ANN, NB, SVM, LR, KNN) to achieve the best accuracy of the proposed model and apply k-fold cross validating techniques to validate the model. Finally, a correlation analysis of different dependent features with independent labels was performed to determine the most influential symptoms related with the infection. The Naive Bayes classifier show the best performance results and obtained 97.28% accuracy which is the highest compared to other classifiers.



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Climate Change Perceptions and Human Wellbeing: A Problem of today and tomorrow

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Abstract

Climate change is happening and it is happening now. Since last two decades there is a lot of speculation around the globe about whether it's a problem of today or tomorrow? There is a growing consent that climate change will hit the developing countries the hardest including Pakistan as its prime location, warm climate and foremost agricultural dependence makes her at forefront of impacts of climate change. Thus, it's a need of the hour to investigate and take actions for active adaptation and mitigation of climate change. Despite the fact that a lot of research has been done on climate change in the last decade, from agriculture to biodiversity, Human health to economic loss and urbanization, it was observed that up till now no research has been done from the aspect of multidimensional awareness, understanding and concern of the general public related to climate. Therefore, this research adds value in terms of taking the general public as the biggest stakeholders, and depicts their perception on the subject to help action taking bodies and policy makers in policy making and to develop suitable and effective strategies for efficient adaptation and mitigation of the phenomenon. The research is exploratory in nature and uses qualitative technique to answer the cause and effects of the phenomenon. A total of 418 responses were received from the twin cities of Pakistan by the application of stratified purposeful sampling and maximum variation sampling. The findings revealed that however the familiarity with the term climate change is fairly prevailing among the respondents and evidences of better understanding of its causes and impacts were exposed, the public understanding of the phenomenon as a whole was substantially outdated. National Climate Change Policy (NCCP) in one of its objectives narrates 'To enhance the awareness, skill and institutional capacity of relevant stakeholders' however, the research revealed that the policy community did not seek the general public accord as the biggest stakeholders. Therefore, this study suggests that for effective and efficient application of the policy and adaptive and mitigation measures needs to have public involvement

and there enhanced awareness and understanding to address the global environmental issue of climate change.

Key words: Climate Change; Climate Change Perceptions; Public understanding of Climate Change, Climate Awareness, Climate Concern.



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IMRC-MS-6

Sustainable development goals (SDG) reporting in Japanese banks

Abdul Basit, Shoukat Bahadur, Muhammad Abbas

Abstract

This study aims is to identify the Sustainable Development Goals SDGs in Japanese banks and financial institutions. Using the top 35 banks of Japan as a sample for this specific study, the scope of SDGs reporting in each bank is examined from 2016 to 2020. Only 17 banks were found to report the SDGs in their annual reports in 2019 and 2020. The study analyzed the SDGs reporting based on the type of banks and financial institutions. The content analysis differentiated the SDGs approach among banks. The results of the study show that type of financial services provider matters in the prioritizing the SDGs. Out of 17 SDGs, the sample banks have prioritized 7 SDGS as the most relevant and significant. The study further shows that banks have a significant role in the implementation of SDGs. The study is helpful for further analysis on Sustainable development goals SDGs.

Key Words: Sustainable Development Goals, SDGs reporting, Japanese Bank.

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