The Holy Qur’an and Science Conference 2018

Baitul Hamd Mosque - November 25th

The Holy Qur’an and Science Conference highlights novel research carried out on the Holy Qur’an to discover the treasures buried in the Holy Book of Muslims. The wide range of subjects that will be covered include Physics, Chemistry, Biology, Astronomy, Medicine & Health Sciences, Engineering as well as other areas of research.

The Conference is being hosted by Ahmadiyya Muslim Jama'at Canada (AMJ).
Session 1

Session Chair:
Dr. Sohail Z. Husain
About the Presenter

Mahmood Akbar

Mahmood Akbar has worked for oil & gas industry for more than 30 years as a petroleum geologist and a multi-physics researcher. Currently he is a petroleum geology consultant to Schlumberger International. Mahmood has published over 40 international papers and Patents. He is a member of American Association of Petroleum Geologists and Society of Petroleum Engineers (International and Canadian chapters).

Abstract

Mountains for Food & Water

In addition to oxygen, every living being and in particular humans, animals, and birds need food and drinkable water to exist in this world. Most food types are derived from varying types of crops (plants and trees), roots, herbs, flowers and so on. But to grow all of them soil and water (directly from rain, rivers and streams, and indirectly from underground fresh water reservoirs) are needed, without which their existence cannot be imagined.

Mineral assemblages comprising the rocks of mountains are the only source for the creation of soil and also the sediments comprising the fresh water reservoirs. It is only in mid-19th century, when geoscientists started acquiring the understanding of the chemical and physical disintegration processes that transform minerals and rocks into soil for the growth of food providing crops. But Allah had revealed this information in the Holy Qur'an more than 1400 years ago. It is mentioned in its chapter 16, verse 16:

“He placed mountains in the earth so that they provide you food, rivers and routes so that you may find the way to your destination”

(Translation by Hazrat Mirza Tahir Ahmad – Allah’s blessing be upon him).
In conclusion; if there were no mountains, there would have been no vegetation (vegetables, grains, flowers, fruits...) of any sort and, there would have been no river / drainage system and fresh water reservoirs. So, mountains are Allah's great blessing for all living creatures of this world.

This presentation is first of its kind that will elaborate the above-mentioned Qur‘anic foreknowledge using the most recent (May 2018) volcanic eruptions of Hawaii as an example.
About the Presenter

Dr. Altaf Qadeer

Dr. Altaf Qadeer is a Member of ESERA (European Science Education Research Association). He has served as the Adjunct Professor and Site-Coordinator at York University (for teacher practicum's). He is also a researcher with YCAR at York University. He has made contributions as a researcher at the Department of Science Education, Faculty of Educational Sciences, Granada University, Spain. He has worked as an educator for a long period in various parts of the world, including his long work in Canada. He is a member of Partnership Advisory Committee (PAC) at OISE, University of Toronto. He is also a member of ICDE (which is a key partner with UNESCO). He has a variety of scholarly interests, including his research about multiple-nets, creativity, lexicography, Urdu creative writing, pioneering research journals for children, designing and testing teaching tools & media related work. One of his researches is included in the book: The Languages and Linguistics of South Asia- A Comprehensive Guide. Dr. Altaf Qadeer has recently written two books: Living in Multiple Nets - Pathways to empower creativity. Another book in Urdu: Husn Ta’leem Hr Dil Kay Liyay (The Beauty of Education for Every Heart). He has presented at various conferences and has delivered lectures on a range of
topics. He is also a member of Review of Religions Research Canada (RORRC).

Abstract

Human Creativity and the word of the Creator: Insights from the Holy Qur’an—The word of Allah to inspire human creativity, empower understanding, sequence learning, revelation and rationality

Insights from the Holy Qur’an: the word of Allah, to inspire human creativity, empower understanding, sequence learning, revelation and rationality

Recent research in the field of sequence learning, cognitive sequencing, order and sequence of texts, its influence on learning along with the ways to inspire human creativity is gaining scholarly interest. Holy Qur’an provides multitudinous insights to inspire human creativity and multiple forms of understanding with revelation and rationality along with a highly insightful way of its presentation. In the light of Holy Qur’an and other related subjects, some frames of human understanding and creativity are explored.
About the Presenter

Maleeha Qazi

Maleeha Qazi completed her Hon. B.Sc degree from McMaster University, majoring in Biochemistry and Biomedical Sciences Co-op. She completed her Co-op positions at The Hospital for Sick Children and in the Department of Surgery at McMaster University. She then started her graduate studies at McMaster University in Biochemistry with a focus on brain cancer stem cell biology, and plans to defend her thesis in the Spring of 2019.

Abstract

Therapeutic targeting of tumorigenic EphA2+/EphA3+ brain tumor initiating cells with bi-specific antibody in human glioblastoma

Surah Al Mumin of the Holy Quran describes the early development of the human fetus in detail that can be verified with modern scientific advances (Chapter 23, Verses 13-15). The study of human embryogenesis has led to a better understanding of congenital disorders, cellular regeneration, and cancer. In this study, we describe the role of Ephrin receptors, a family of cell-surface receptor tyrosine kinases implicated in the regulation of human embryonic development, in the context of human glioblastoma, the most common and aggressive brain tumor.

Introduction: Human glioblastoma (hGBM) carries a dismal prognosis and inevitably relapses despite aggressive therapy. Many of the 14 members of the Eph receptor tyrosine kinase family are expressed in hGBM initiating cells (GICs) and constitute potential molecular targets. We hypothesize that multiple members of the EphR family play a critical role in hGBM recurrence.

Methods: Using a highly specific human EphR antibody panel, we identified differential expression of EphRs in recurrent hGBM (rGBM). We further characterized EphR co-expression using mass cytometry. Using in vitro and in vivo assays, we identified multiple EphRs that mark
the GIC population in rGBM. We tested the therapeutic potential of co-targeting multiple EphR using a bispecific antibody (BsAb) and identified the mechanism of action.

**Results:** Here we show that EphA2 and EphA3 co-expression marks a highly tumorigenic cell population in rGBM with higher in vitro and in vivo self-renewal and proliferation capacity as compared to EphA2+/EphA3-, EphA2-/EphA3+ or EphA2-/EphA3- cells. Knockdown of EphA2 and EphA3 blocks this self-renewal and proliferation capacity. We find that EphA2+/EphA3+ also express multiple GIC markers. We generated a BsAb that co-targets EphA2 and EphA3. In vitro treatment of rGBM with BsAb led to phosphorylation of EphA2 and EphA3, eventually leading to receptor internalization and degradation. The cellular effect of EphA2/A3 blockade was mediated through the down regulation of Akt and MAPK. Intracranial treatment of immune-deficient mice harboring hGBM with BsAb resulted in non-invasive and significantly smaller tumors.

**Conclusion:** EphA2 and EphA3 co-expression marks a previously unknown GIC population in rGBM. Co-targeting of both EphA2 and EphA3 may serve as a potential therapeutic strategy for rGBM, leading to improved patient survival.
Session 2

Session Chair:
Dr. Zahid Khan
About the Presenter

Suleman Ahmad

Suleman Ahmad is in the final year of medical school with an avid interest in clinical research. He is currently working as a research assistant at the Department of Nutrition, University of Toronto where is exploring the association between lifestyle behaviors and risk of cardiovascular disease.

Abstract

Low Risk Lifestyle Behaviors and Risk of Cardiovascular Disease: A Systematic Review and Meta-analysis of Prospective Cohort Studies

OBJECTIVE: Holy Qur'an recommends physical activity, eating healthy, and avoiding addictive substances. All these recommendations are part of what is known as low-risk lifestyle behaviors in modern medicine and have been associated with reduced risk of cardiovascular mortality in individual studies. We conducted a systematic review and meta-analysis to quantify the association of all-cause mortality with adherence to multiple low-risk lifestyle behaviors.

METHODS: Searches in Medline, EMBASE, and Cochrane (through June 14, 2017) were conducted. Prospective cohort studies reporting association between multiple-lifestyle behaviors (at least three low-risk lifestyle behaviors including healthy diet) with risk of all-cause mortality were included. Low-risk lifestyle behaviors were defined as healthy body weight (minimum BMI <25kg/m2), healthy diet (minimum daily intake of vegetables), regular physical activity (minimum ≥20min/day, 3 times/week), smoking cessation (minimum >12months), and moderate alcohol consumption (up to 30g/day). Two independent reviewers extracted the data and assessed study quality (Newcastle-Ottawa Scale). Risk estimates of extreme comparisons were pooled using inverse variance random effects models. Inter-study heterogeneity was assessed (Cochran Q statistic) and quantified (I2 statistic). The overall
The overall certainty of evidence was assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.

RESULTS: 21 cohort comparisons (696,476 participants, 69,679 all-cause mortality cases) were eligible. Adherence to all possible low-risk lifestyle behaviors compared to none was associated with a 55% lower incidence of cardiovascular disease (risk ratio, 0.45 [95% confidence interval, 0.37 to 0.55]). The overall certainty of the evidence was graded as “high” using the GRADE system owing to upgrades for a large magnitude of effect and significant dose-response gradient in the absence of any downgrades.

CONCLUSIONS: Pooled analyses showed that the combination of low-risk lifestyle behaviors that include achieving and maintaining a healthy body weight, healthy diet, regular physical activity, smoking cessation, and moderate alcohol consumption are associated with significantly lower incidence of all-cause mortality. (Note: Islam prohibits the consumption of alcohol) Further research is unlikely to change our confidence in the risk estimates. Protocol registration: ClinicalTrials.Gov identifier NCT03234101
About the Presenter

Dr. Karim Sharif

Karim A. Sharif had the privilege to receive his early education from Ta 'lim-ul-Islam High School and Ta 'lim-ul-Islam College, Rabwah, Pakistan. Later, he attended the Govt. Forman Christian College, Lahore for his bachelor’s degree which he completed at the Hunter College of the City of New York. He obtained his Ph.D. degree from the City University of New York in 1996 and joined the Comprehensive Cancer Center of the Albert-Einstein College of Medicine as a post-doctoral research fellow where he performed research on the mechanism of drug uptake in human breast cancer cells. Karim accepted a research associate position at the Weill Cornell Medical College, New York where he continued his scientific research using transgenic mouse models of kidney cancer. His research also focused on the regulation of laminin B1 transgene expression in various parts of brain involved in memory. In 2007, Karim accepted a position of Assistant Professor of Biology at the LaGuardia Community College, New York. Currently he is a Professor of Biology at the Massasoit Community College, in Boston area. His research involves comparative genomic analyses of Drosophila (Fruit fly) species. He has authored several scientific papers in peer-reviewed journals. In the past, he had the honor to serve different offices in the Ahmadiyya Muslim Community at the local and National level. He continues to serve in various capacities including Vice President of Boston Jama’at, Qaid Ta’lim Ansarullah and Vice president AAMS. He is also a poet in Urdu language. His inspiration to promote science comes from Hazrat Khalifutul Masih III (may Allah be pleased with him) who had the great vision to promote science and education in the community.
Abstract

The Genomics Education Partnership: Assessing and Improving a Course-based Undergraduate Research Experience (CURE)

The Genomics Education Partnership (GEP http://gep.wustl.edu) started in 2006 with 16 member institutions interested in providing genomics research experiences for their upper division students. Over 10 years, GEP has grown to a consortium of faculty from over 100 colleges and universities that provide a course-based undergraduate research experience (CURE) in genomics and bioinformatics to students at all levels.

The GEP CURE is a cutting edge lab experience that can be implemented at any post-secondary institution, even at schools that have limited laboratory capabilities. The objectives of the Genomics Education Partnership are four-fold:

1) Provide professional development in genomics for college and university faculty.
2) Develop genomics curriculum for a variety of educational settings, from small group seminar courses to large introductory courses.
3) Assess student gains in knowledge of genomics and attitudes toward research.
4) Accomplish research into genome structure and evolution.

The partnership engages approximately 60 faculty and 1000 students per year in the manual sequence improvement and gene annotation of selected genomic regions from different species of fruit flies (Drosophila spp.). Students are guided by their instructors on how to use genomics databases (e.g., FlyBase, NCBI) and bioinformatics tools (e.g., UCSC Genome Browser, BLAST) while learning about gene structure, chromosome organization, evolution, programming, and other topics, depending on the level and the focus of the course. GEP students have improved the quality of the DNA sequence and annotated the genes and other features of interest (e.g., transposons, non-coding RNAs) from the euchromatic Muller D element and the heterochromatic Muller F element of several Drosophila species. The results of this comparison reveal that F elements have greater transposon density, and their genes have larger coding spans, more coding exons, larger introns, and lower codon bias than the euchromatic reference regions from the D element (Leung et al. 2015 G3 5: 719 and ongoing research). Regardless of the implementation strategy (i.e. short lab modules, stand-alone research courses, computer science/biology hybrid courses, or independent research projects) the students participating in the GEP show learning gains on attitude and knowledge assessments; these gains correlate with the amount of time invested in the project. Faculty assessment shows that some barriers to the implementation of a research-based curriculum (e.g., campus acceptance of this pedagogical approach, availability of IT/computer services, faculty expertise) can be alleviated through a central core facility that provides curriculum materials, computational resources, collaborative pedagogy development, and a supportive community. We are currently focused on developing new curriculum for beginning students, including students at community colleges. Small working groups, alumni workshops and webinars keep the momentum going and sustain this large community. The consortium is actively recruiting faculty interested in developing course-based research experiences for first and second year students.
About the Presenter

Dr. Ali Al-Buraki

Previously Professor at Damascus University, Faculty of Agriculture, Dr. Ali Al-Buraki holds a PhD. degree in Life Science, Biology and Apiculture from Franche-Comté University, Besançon, France; an M.Sc. in Neurosciences and Behaviour from the University of Franche-Comté, Besançon, France; and a B.Sc. in Agricultural Sciences from the Damascus University of Agriculture, in Syria.

Dr. Ali Al-Buraki’s research covers:

- Supervising and directed 8 Master and PhD. students till graduation.
  Publishing more than 50 Scientific Articles and Reports in Arabic French and English.
- Author of 3 Books in Apiculture (Beekeeping) in Arabic, Wildbees and Entomology, Writer of many journal articles.
- Teaching: Entomology, Insects Ecology, Apidology (Apiculture), beekeeping skills...

Dr. Ali Al-Buraki’s experience includes:

- President of Syrian Beekeeper's Association (benevolent work) for 10 years which had 13 Branches in mains cities in Syria.
- Chairman: Presiding 3 National and One Regional Conferences.
- Expert in Medicinal Plans and Honey "Committee in Productive projects Administration. Syria, Damascus.
- Expert in Beekeeping and Practice Training in Arab countries.
- Apiary owner (Beekeeper) for 30 years. Keeping more than 100 beehives. Syria, Damascus.
- Practicing Beekeeping in the USA and Canada.
- Responsible of the Beekeeping, Research and Training Project, in Education Department Ahmadiyya Muslim Community-Canada.

Abstract
Is the real drink of different colors which exists from the bee’s bellies means only the Honey, and what are the meaning of bellies?

The aim of this research in Qur’an’s Tafseer “Interpretation” in Arabic language is to shed the light upon the eventual new tafseer to the two Verses from Alnahl Surah in the Holy Qur'an, which would come in concordance with the new discoveries in many science branches related to the honey bee life and Anatomy.

The verse is:

(There coms forth from their bellies a drink of varying colour “hues”).

(3:111)
Bellies: "بطون" Belly, Cavities and glands.

Drink: "شراب" Liquid, Syrups, any liquid secretion by the several glands in the body of a honey bee like: royal jelly (bee milk), Mandible and Labial glands secretion’s, Bee Venom: acid and alkaline glands secretions. Wax Glands secretions, salivary “Saliva” glands secretions. All those secretions are liquids and vary in color, they are composed from many substances or elements that we can call them “Sharab” which mean in Arabic terminology “Liquid”, we can obtain them pure or some of them are mixed with the honey and the other hive products: Propolis, Pollen etc., and become elements from their structure.

In conclusion I meant that the word “Sharab” conclude all the honey bee gland’s secretions in a character of liquid pure or mixed with the other products: Propolis or Pollen during the collection in filed, and of course the honey in different color which is mentioned in the traditional Tafseer as the unique meaning of Sharab that is not the whole reality. We can also understand easily now that the term “Butoniha” is not only the parts of stomach of a honey bee female, but all the cavities or the scientifically called “glands” which excrete all those liquids substances known tell now in the field of research on honey bee in Apidoloy and other scientific fields. We can say while trying to think deeply in those few Arabic words revealed in the Holy Qur'an that they are keywords for Oceans and Oceans of secrets and scientific facts that have taken the Humanity centuries and centuries to discover.
About the Presenter

Dr. Zia H. Shah

Zia H Shah MD is a physician practicing in Upstate New York. He is the Chief Editor of the Muslim Times, which has more than 42,000 followers in Twitter. He is also Chair of Religion and Science for the Muslim Sunrise, the longest running Muslim publication in North America. He has authored more than 400 articles on Islam, Christianity, Secularism and Religion & Science. Follow in Twitter: @The_MuslimTimes

Abstract

Human Soul and the Holy Qur’an

Artificial intelligence could be "billions of times smarter" than humans in near future, the experts are predicting. Many popular movies are suggesting that at some point robots may also develop a soul. The speaker believes that humans will never have such mastery of soul, as this will create a serious challenge to the religious understanding of accountability and Afterlife.

Almost a billion, according to a BBC report, are suffering from anxiety and depression. There is an epidemic of drug abuse in US and other countries. The speaker believes that understanding of human psychology is not only absolutely necessary for our worldly survival but also our salvation in the Hereafter.


**About the Presenter**

**Dr. Marya Ahmed**

Dr. Marya Ahmed obtained her PhD from University of Alberta in Chemical Engineering. As a PhD student from University of Alberta, her research was focused on the synthesis of carbohydrate-based polymers for gene delivery. She went to California Institute of Technology to acquire her first postdoctoral fellowship (PDF) on the topic of antibody conjugated nanoparticles for cancer treatment. Her second PDF at University of Toronto was focused on the synthesis of peptide drug conjugates to treat drug resistant bacterial infections. She joined University of Prince Edward Island in Dec. 2016 as an Assistant Professor in Chemistry and Engineering. She is actively working on the field of biomaterials to treat emerging drug resistant anomalies in humans. She has published more than 30 peer-reviewed manuscripts and 10 book chapters on this topic.

**Abstract**

**Synthetic Biomaterials for Health Applications**
The advances in the material science and engineering has enabled the development of innovative biomaterials for the range of health applications such as drug delivery carriers for drug resistant disorders, engineering of tissue constructs and for water purification technologies. The physiochemical properties of synthetic biomaterials are well-known to impact their biological applications. The tailor–made biologically inspired biomaterials provide an excellent platform to tune the biological properties of synthetic materials, as a function of their physiochemical characteristics such as molecular weight, architecture, and composition. The research program in Ahmed group is focused on the development of novel, biologically inspired materials (polymers, nano particles, composites and hydrogels) for health applications. We are specifically working on the synthesis of vitamin B5 functionalized polymers, peptides, nano particles and hydrogels and are investigating their antifouling and antibacterial efficacies to overcome drug resistant bacterial anomalies in vitro. Other research projects in Ahmed laboratory focus on the synthesis of polymeric hydrogels and composites for water purification and water retention applications and ensure the availability of clean water supply for arid regions.
About the Presenter

Shehla H. Mirza

Shehla H. Mirza completed BA (Hons.) and MA in international Relations from Karachi University. She then continued her education and completed child day care management diploma and Business Management Diploma. She has worked as Secretary Ta’lim (Montreal in 1996 and Brampton), General Secretary Lajna (Peace Village, 2001-02) and Coordinator of Waqfe Nau (Peace Village and National from 2000-2008). She served as volunteer in the office of General Secretary Jama’at after dedicating her life in January 2003 in the blessed period of Hazrat Khalifatul Messiah the 4th (rh) as a first Waqifa in Canada. She also Coordinated Canada Day events of Jama’at (from 2001-2008). She worked as teacher and coordinator of MTA children class, and head of MTA production group for PVE in 2006 for several years. In October 2016 Syedna Huzoor Anwar (aa) appointed her as the Principal of Aisha Academy Canada.

Abstract

The Holy Qur’an: The Cure for Ailments (Ponder, Practice and Prevention)

The Rahmaniyyat of our Perfect God did not leave the human being without the cure for its ailments at any time. His Grace pointed out the formation of the humans and set the right path explained clearly by the prophets of Allah. Hazrat Promised Messiah as wrote “Pure life is a brilliant Ruby”. A sin free life reduces the everyday problems like anxiety, tension and more. This presentation will deal with what promised Messiah (as) meant by refereeing pure life with Ruby. Ponder and Practice to prove Prevention is better than the cure.
Session 3

Session Chair:
Dr. Zia H. Shah
**Abstract**

**Deciphering the mechanisms underlying ASNase-associated pancreatitis (AAP)**

Pancreatitis is a life-threatening inflammatory disorder of the pancreas, and drug-induced pancreatitis is an important iatrogenic contributor to the problem. The drug asparaginase (ASNase) is a cornerstone therapy for leukemia, but about 10% of patients taking the cancer drug develop the complication of pancreatitis. Furthermore, discontinuation of ASNase due to pancreatitis leads to a suboptimal duration of ASNase treatment, and this shortfall tends to jeopardize event-free survival from leukemia. Thus, the goal of our proposed work is to address the major unmet need of deciphering the mechanisms underlying ASNase-associated pancreatitis (AAP). This is in order to come up with strategies that will predict who is at high risk for developing pancreatitis and, more importantly, to devise rescue therapies that will subvert the problem altogether. We hypothesized that patients who succumb to AAP have baseline metabolic alterations that predispose them to the development of pancreatitis. The specific aims of the proposal are thus to examine whether patients who succumb to AAP manifest at baseline (i.e. before receiving ASNase) metabolomic changes in comparison to matched control patients at baseline who did not develop pancreatitis with ASNase. In the current study, we will present preliminary findings from a metabolomic profile we performed from a case-control group of AAP and non-AAP patient plasma samples. The significance of the findings is that they will offer novel insight into devising rational diagnostic tools and rescue therapies to prevent the problem of AAP. On a broader level, the work will provide a framework to harness pharmaco-metabolomics, using AAP as a prime example, for designing personalized approaches to optimal drug selection and patient care.
About the Presenter

Ahmad Zeeshan Bhatti

Ahmad Zeeshan Bhatti is a seasoned Water Manager with more than 13 years of experience in fast-paced research for development world. He possesses water project design and implementation skills and has track record of achieving exceptional results in irrigation water management and research dissemination. Mr. Bhatti is enrolled in the Ph.D. program for Environmental Sciences from the University of Prince Edward Island; he holds a M.Phil. in Water Resource Management from the University of Engineering & Technology, Lahore, Pakistan; and a B.Sc. in Agricultural Engineering from the University of Agriculture, Faisalabad, Pakistan. He has published several papers in various scientific journals.

Abstract

Irrigation Advisory Services for Farmers of Pakistan Science in Service of Mankind

The Holy Qur'an highly stresses upon the need to serve humanity in all possible ways. Describing the characteristic and superiority of a Muslim, the Holy Qur'an says,

“You are the best people ever raised for the good of mankind because you have been raised to serve others; you enjoin what is good and forbid evil and believe in Allah”

(3:111)
Similarly, the Holy Prophet Muhammad (PBUH) repeatedly stressed upon doing good to the humanity irrespective of the race, religion and color. He promoted kindness, gratitude and doing good to develop a harmonious and peaceful society. As per the golden footprints of his master the Promised Messiah (PBUH) has had a great compassion for mankind. He said,

"Sympathy for all mankind is a moral obligation and a duty; a religion is no religion which does no inculcate sympathy, nor does that man deserve to be called a man who does not have sympathy in him (message of peace)."

The obligation of scientists and engineers greatly increases in this fast commercializing world, where research is mostly done for the sake of research, earning IF instead of making an impact on the society and mankind. There are always means and ways by which scientific research can actually benefit mankind. Irrigation Advisory Services (IAS) launched by Pakistan Council of Research in Water Resources (PCRWR) is a similar endeavor, which is now improving livelihood of a common farmer in Pakistan.

More than 90% of the agriculture value added of Pakistan comes from irrigated agriculture. However, farmers are facing acute water shortage during the last couple of decades. The
present irrigation water deficit of about 15% is expected to increase to 30% by 2025. A major portion of irrigation water losses (40%) takes place in fields because of over-irrigation due to an outdated mindset of farmers that more water would produce more yields. This takes toll in terms of groundwater mining as farmers over-irrigate in pursuit of increasing production.

Irrigation scheduling is the art of applying right quantities of water at the right time. However, knowledge of crop water requirement (CWR) is necessary. A simplified approach to estimating crop water requirements (ETc) is linking it with reference evapotran spiration (ET0) by a crop coefficient (Kc). PCRWR has determined Kc of all the major crops through lysimetric studies, which is the most reliable method. On the other hand, remote sensing techniques have made it possible to estimate real time ET0 of the recent past. Numerical weather prediction (NWP) based weather forecasting can also forecast ET0 and rainfall for the short-term future. These two techniques were recently developed for PCRWR, in collaboration with University of Washington, Seattle, USA to estimate weekly crop water requirements of different crops.

PCRWR launched the Irrigation Advisory Services for farmers of different agro-climatic zones through cell phones. Initial SMS operations started with 700 farmers in 2016. Given the success, the service was expanded to 10,000 farmers in 2017 and to 20,000 in 2018. The message contained how much water has been (or will be) used by its crop (inches) during the last (next) week, excluding effective rainfall in order to replenish the same through irrigation like, “Dear farmer friend, this is to inform you that between 21 and 28 July in your area (Bahawalnagar), the crops used this much water (cotton 1.6 inch, sugarcane 1.7 inch). Next week, 0.5 inch rain is predicted in some parts of your region. Therefore please irrigate your crops accordingly. For further assistance please call 03459213698. Thanks”.

An impact assessment survey was conducted to determine the efficacy of the system. It was found, that more than 80% of farmers were receiving messages on weekly basis and half of them were making use of it in terms of optimizing their irrigation schedules to minimize waste, maximize efficiency and crop production. In 90% cases the PCRWR rainfall forecast proved right and farmers did skip irrigation particularly in the groundwater irrigated areas, where irrigation costs too high. Water saving estimation ranged from 15 to 20%, a couple of individualistic success stories are:

Muhammad Ashraf, Hayatabad, Sargodha, recorded his feedback on 11 May 2017 as, “I had grown wheat on my 12 acres land this season and continuously received irrigation advisory
messages from PCRWR, so keeping in view the advised water consumption and rainfall forecast, I only applied 3 irrigations, whereas my neighboring farmers applied 6 to 7 irrigations. I have recently harvested my crop and got 48 maunds/acre [4,742 kg/ha] yields, whereas my neighbors could get 42 maunds/acre [4,149 kg/ha]. I am thankful to PCRWR for their advice, which not only let me get better yields but the irrigation cost was substantially reduced.”

Haji Nazeer Ahmad Qazi, Makhdoom, District Sargodha recorded feedback on 28th March, 2017 as, “I had grown wheat on 10 acres. I received a PCRWR message that 0.5 inch rainfall is expected in the upcoming week. Keeping in view of the expected rainfall and last week water consumption I skipped my last irrigation for wheat and used the same for leguminous crop. The rainfall forecast proved right, which not only saved me irrigation but protected wheat from lodging as his nearby farmers suffered”.

Articles on the success stories of the initiative have been published in EoS magazine of the American Geophysical Union, Voice of America Magazines on 21st and 26th June, 2017, respectively (https://eos.org/project-updates/growing-more-with-less-using-cell-phones-and-satellite-data, https://www.voanews.com/a/pakistan-farmers-get-tips-via-text/3917603.html) and later by NASA. The PCRWR’s IAS is an embodiment of the fact that science can and meant for benefiting a common man as per the teachings of the Holy Qur’an.
About the Presenter

Dr. Tauseef Khan

Dr. Tauseef Khan is an Epidemiologist by training and is presently working as a 3D Post-Doctoral Fellow in the Department of Nutritional Sciences at the University of Toronto. His current research is on understanding the association between sugars including honey, low-calorie sweeteners and other important foods on cardio-metabolic risk and outcomes (coronary heart disease, stroke, obesity and diabetes). His work mainly involves undertaking systematic reviews and meta-analyses of controlled trials and prospective cohort studies. While the field of nutritional epidemiology is fraught with much debate and emotion, his aim is to sift the data for a deeper understanding of the association between what we eat and drink, and our health. In addition, he also focuses a large part of his research on the effect of honey on health.

Abstract

Hormesis - Surely, there is ease after hardship

Hormesis is an adaptive dose-dependent response of cells and organism to moderate stress through which the system improves its functionality and tolerance to more severe stress. This process is integral to all biological systems and is the driving force behind evolution, aging and health. The hormentic principle provides a fundamental explanation for the effect of fasting, exercise, diet, acupuncture, herbal medicine, radiation, and possibly homeopathy on human health. The principle of hormesis, if harnessed correctly, can remove the current roadblocks in the fields of nutrition, chronic disease, and aging. I will present the history of hormesis, its development, its physiological and toxicological underpinnings and the wide scope of its effect. Most importantly, I will present the clear verses of the Holy Qur’an that present the principle of hormesis, which also offer guidance for future research.
About the Presenter

Dr. Hameed A. Mirza

Dr. Hameed A. Mirza has a Ph.D. in Metal-Organic Chemistry from University of Western Ontario, London. He then moved to McGill University and did post-doctoral fellowship in Protein Engineering Center of Excellence at Pulp and Paper Research institute Canada.

Since 2004, he is teaching at the Department of Chemistry at York University. Dr. Mirza is also involved in the applied research in the area of Pharmaceutical Chemistry at the A.S. Chemical Laboratories Inc. as Chief Scientific Officer. He has published over 45 research papers in the peer reviewed international Journals and made over 50 presentations at regional, national and international conferences. He also sits as the board of directors at the NAPIT. Dr. Mirza is Adjunct Professor at the International Center of Chemical and Biological Sciences at the University of Karachi, Pakistan. Currently, Dr. Mirza is also serving as the National Secretary Ta’lim (Education) at the Ahmadiyya Muslim Jama’at. He is also serving as the President of Ahmadiyya Muslim Scientists Association Canada.

Abstract

Recent Advances in Trace Element Analysis, Food Safety and its Impact on Our Lives

“And the earth brings forth her burdens.”

(99:3)

Holy Qur’an mentioned many elements with some uses. It also points out that at the time of the second coming of the Messiah as more of these elements and their uses will become known to people. Out of these elements some are known
as essential elements for life while other elements are classified as toxic. This presentation will give a general overview of the elements, their classifications, uses and will focus on recent advances in analytical techniques that have resulted in determination of parts per trillion level of these elements in food samples and human subjects.
About the Presenters

Rumsha Baig

Rumsha Baig graduated from the University of Toronto with a degree in Honors Bachelors of Science in November 2018. She has double majored in Biology for Health Science and Psychology. Currently she is conducting research on Black Seed under the supervision of Dr. Tauseef Khan at the University of Toronto.

Saniya Ahmad

Saniya Ahmad is a second year student studying Kinesiology and Health Science at York University. While being enrolled in various interdisciplnary courses she is also a research volunteer under the supervision of Dr. Tauseef Khan at St. Michael's Hospital/ University of Toronto.

Abstract

The effect of *Nigella Sativa* on Cardiometabolic Outcomes: A Systematic Review and Meta-Analysis of Controlled Trials

Objective: *Nigella Sativa*, commonly known as Blackseed, has been mentioned in the Hadith as a cure for all diseases except death. In the past Black seed has been used as a treatment for a number of medical conditions including infections and headaches. Recently studies have been performed to evaluate the medicinal properties and therapeutic potential of Blackseed. We conducted a systematic review and meta-analysis of controlled trials to assess the effect of Blackseed on cardiometabolic outcomes.
Methods: MEDLINE, EMBASE, and The Cochrane library were searched through September 2017. Randomized and non-randomized controlled trials of ≥1-week duration that assessed cardiometabolic risk factors in participants from all health backgrounds were included. Two independent reviewers extracted relevant data and assessed risk of bias (Cochrane Risk of Bias tool). Data was pooled using random effects inverse variance method and expressed as mean differences (MDs) with 95% confidence intervals (CIs). Heterogeneity was assessed (Cochran Q) and quantified (I² statistic).

Results: We included 15 trials (n=1,010, median length = 8 weeks). The blackseed dose ranged from 150mg to 2g/day or 2.5ml to 5ml/day. Regular blackseed intake reduced systolic blood pressure (MD= -7.59 mmHg [95% CI, -10.61, -3.45]), diastolic blood pressure DBP (MD= -3.49 mmHg [95% Cls, -5.67, -1.30]), LDL-Cholesterol (MD= -4.40 mmol/L [95% Cls, -5.83, -2.98]) and increased triglycerides (MD= 6.48 mmol/L [95% Cls, 2.65, 10.31]) but it had not effect HDL-cholesterol. Regular blackseed intake had no effect (p>0.05) on glycemic markers (fasting blood glucose, HbA1c), liver enzymes (AST, ALT and GGT), inflammatory and renal markers (uric acid, blood urea nitrogen), or adiposity (weight, weight circumference, BMI).
Conclusion: Pooled analyses show a modest beneficial effect of blackseed intake on blood pressure, and a varying effect on lipid markers. There is a need for larger, longer and higher quality trials, as our confidence in the results is low.

About the Presenter

Karim Aziz

Karim Aziz belongs to a family who migrated from Hyderabad Deccan to Karachi in 1950’s. Mr. Aziz completed his Graduation from Karachi and then pursued Chartered Accountancy from AF Ferguson & Co. (PWC). After completion of his CA, he joined Standard Chartered Bank, Pakistan and served them in Bahrain, Dubai, Indonesia and Pakistan. After 12 years, with the Grace of God, he served a Saudi Arabian Bank to in Riyadh as Head of Compliance for 10 years.

Presently, he resides in Canada with his family. He worked for the Royal Bank of Canada on a contract basis for one year and since then he has his own business in hospitality and accounting consultancy.

God Almighty has given Mr. Aziz the opportunity to serve the Jama’at as:

- Bahrain - Member Majlis-e-Amla
- Sharjah - Member Finance Committee and Sadr Halqa (4 years)
- Karachi - Member Majlis-e-Amla Defence Society
- Riyadh - Member Majlis-e-Amla and Internal Audit. Appointed External Auditor for 2012-2013
- Canada - Richmond Hill Jama’at, volunteer for Tabligh since 2014. Also was a Shura member in 2015. Served Ansar Ijtema and Jalsa Salana teams for cleanliness.
- Humanity First - Serving as a volunteer for Finance since July 2017

Title

Fruits mentioned in the Holy Qur’an
Session 4

Session Chair:
Dr. Hameed A. Mirza
About the Presenter

Dr. Zahid Ahmad Khan

Dr. Zahid Ahmad Khan is a Dental Surgeon. He graduated from UCL, University of London. He is in private practice in the UK. Born in Africa he returns there to serve the people of Africa through his humanitarian services. He has served the Ahmadiyya Muslim Association UK in various capacities, at present he is the President of Darul Qadha UK, the Arbitration Council for Ahmadis. He is a regular panelist on MTA, Faith Matters program, and has spoken at the Annual Convention of UK.

He is an examiner at the Institute of Theology and Languages in Surrey UK, and also a member of the Medical Board UK.

Abstract

From the macro to micro evidence of existence of God

The Holy Qur’an is a living miracle, which presents proof of the existence of the All Powerful Creator. The claims are now backed by scientific research. From the orderly and balanced universe to the single cell organisms. The precise calibration of the laws governing the universe and the unraveling of the forces and interactions points to a single entity at its inception. Scientific advancements that impact on our life which were predicted centuries ago also lend support to the existence of the Creator. Belief in the unseen and the elusive jinn also direct our attention to the Creator.
About the Presenter

Mohammad Shahab Khokhar

Mr. Mohammad Shahab Khokhar holds an M.Sc. in Physics with specialization in Theoretical Physics. His area of interest is Gravitation and Cosmology. Mr. Khokhar has a keen interest in the study of the Holy Qur’an especially with respect to science. Mr. Khokhar’s articles have been published in different newspapers and publications including Dawn, Karachi and Review of Religions, UK.

Abstract

Fine Tuning and the Holy Qur’an

Over the last few years the concept of “Fine Tuning" of the Universe has been generally accepted. This proves that certain laws and physical constants are so finely tuned that even a very small alteration in the values will make the Universe impossible to sustain.

This has, perhaps for the first time, put atheist on the defensive. The fine tuning points to an intelligent designer of the universe who made sure that the laws and the rules are created to make the universe last long enough and have the right kind of environment for intelligent life.

To counter this overwhelming evidence some scientists have come up with the concept of the multiverse, arguing that our big bang was not the only one and an infinite amount of other universes are created and that we are just lucky to be living in a universe that meets the conditions for our survival.

The paper looks at the phenomenon of fine tuning form the Qur’anic perspective and argues that the multi-verse concept does not solve any problems. The paper also discusses what role Qur'an will play in how this debate shapes up.
About the Presenter

Dr. Qasim Hersi Farah

Dr. Qasim Hersi Farah was born in Somalia in 1969 and lives in Canada in Exile. Dr. Farah holds a Ph.D. in Marine Environmental Policy on Sustainability from the York University, Canada; a Ph.D. in Environmental Law from the University of Malaya in Malaysia; an LLM. Degree in Environmental Law and Policy from Kuala Lumpur in Malaysia; an M. A. Degree in Comparative Law (Sharia and Western Legal Theories) from Kuala Lumpur in Malaysia; a B. A. Degree in Islamic Studies (Jurisprudence), from Somalia. He is also a Hafiz Al-Qur’an with Tajwid. He has undertaken Parenting Training (COPE), Family Service Association, in Toronto.

He has been employed:

- As Permanent Secretary, Ministry of Environment and Natural Disaster in Somalia;
- As Lecturer, University of Mogadishu in Somalia;
- As Teacher, College of Toronto; and most recently
- As Teacher, York University in Toronto.

Abstract

Sustainable Development in the Qur’an

Environmental Science/Studies is one of the latest disciplines introduced to our universities, but it has been one of the basic Qur’anic teachings. Out of it, Sustainable Development was founded as a branch of an Environmental Studies (Even though gradually becoming an independent academic course), but it has also been one of the Qur’anic principles.
The Holy Qur’an teaches, commands and recommends all the currently known branches of the Environmental Science, including responsible production and consumption, sustainable resource extraction and consumption, sustainable cities and communities, sustainable industrial innovation and infrastructure, heritage preservation and transformation, clean water and sanitation, etc. This inter-disciplinary subject also addresses the protection of people and planet, peace and partnership, prosperity versus poverty, and problem prevention measures. These components, leading to sustainable development, combine multidimensional concepts of which each keeps the world in balanced objectives targeting successful lifestyle.

This presentation attempts to clarify how the below stated Qur’anic verses teach us land and air sustainable development measures and mechanisms as a part of environmental science.

Verse 16, Sura Al-Mulki supported by Verses 30-32, Al-Baqara teach the real meaning of “land sustainable development and resources management”.

Verses 13-15, Ar-Ra’di supported by Verses 59-63, Al-Waqi’ a teach us “cloud seeding and sky sustainability”.

Holy Qur’an and Science Exhibition
Presenters

Dr. Ali Alburaki and Dr. Hameed A. Mirza

Title

Beekeeping Research and Training Projects
About the Presenter

Shamaila Bajwa

Shamaila Bajwa is an undergraduate student at the University of Toronto. She has an interest in honey research and is exploring how honey can affect risk factors for cardiovascular and metabolic diseases.

Abstract

The Effect of Honey Intake on Cardio-Metabolic Risk Factors: a Systematic Review and Meta-Analysis of Controlled Trials

Honey is referred as “the cure for mankind” in the Holy Qur'an and is a natural sweetener with a lower sugar content that elicits a reduced glycemic response due to its many bioactive compounds that can affect sugar metabolism. Excessive fructose intake has an adverse effect on established cardio-metabolic risk factors when consumed in excess. It is not known if replacing refined sugar with honey, a naturally occurring fructose-containing sugar, would result in a reduction in cardio-metabolic risk factors. We undertook a systematic review and meta-analysis of controlled trials to assess the effect of honey intake on cardio-metabolic risk factors risk factors such as lipids, glycemic control factors, weight, blood pressure and inflammatory markers.
About the Presenter

Usama Ahmed Malik

Abstract

ADHD Cures within Islamic Practices

Attention Deficit Hyperactivity Disorder is a medical condition that causes difficulty in focusing, paying attention, sitting still and other attention and focus related activities. ADHD can continue well into adulthood and cause difficulties for adults who are in high stress careers and demanding work environments. ADHD also causes difficulties in managing multiple tasks and multitasking between home, work and personal time. In this presentation we will investigate how Islamic practices can help with ADHD and other less severe attention and focus related problems in children and adults. We will discuss how the structure and order presented by Islamic activities can help curb the impacts of ADHD. And we will also cover how Islamic scriptures and religious writings have clear outlines on how to maintain higher states of focus and awareness that prevent ADHD.
About the Presenter

Dr. Ijaz Ahmed

Dr. Ijaz Ahmed is currently a Process Chemist at Wave Life Sciences in Cambridge, Massachusetts. He was awarded his PhD in 2015 in the area of Organic Chemistry at Syracuse University, which was followed by a Post-Doc appointment at WPI in Massachusetts. He has worked previously at GlaxoSmithKline and Vertex Pharmaceuticals. His interest is in synthetic organic chemistry and process development of active pharmaceutical ingredients. He received the MKA Talent Award in 2014 for his publication on the rapid synthesis of BINOL derivatives. On a Jama’at level, Dr. Ahmed is blessed to serve as the General Secretary for the Association of Ahmadi Muslim Scientists, USA (AAMS-USA) and also serves as the local Jama’at President of the Fitchburg Jama’at in Massachusetts.

Abstract

Design of Experiments: Using the Fleeting Time Wisely

As scientists, our patience is constantly put to the test. We understand that running experiments and analyzing data takes time.

In this talk, I will discuss the concept of design of experiments (DOE), which is a useful statistical tool for gaining knowledge about a system by varying multiple factors simultaneously. Typical experiments keep everything constant and change one variable at a time. The result is then studied and another experiment is run with a slight change in the conditions. This is not an efficient use of our time.

DOE is a tool that enables one to look at multiple parameters and gain a better understanding of the overall system and how changing multiple factors affects the outcome. This is used quite a lot in industry, but rarely in academia.
POSTER PRESENTATIONS

Salman Ahmed Mirza

The Protected Roof

Abstract: A perfect system is at work high above the Earth. It surrounds our world and protects it against external threats. Scientists only learned about it recently, yet centuries ago, God informed us in the Qur'an of the world's atmosphere functioning as a protective shield. The atmosphere surrounding the earth serves crucial functions for the continuity of life by providing a shield against light rays, ultraviolet rays, harmful cosmic rays, celestial bodies, particles and radiation bombardment. The important thing is that this protection was made known in the Qur'an more than 1,400 years ago.

Aisha Academy Students

Sobia Mahmood, Kanita Tahir, Atifa Tahir, Maryam Malik, Jaziba Malik

The Existence of God

Existence of God is proven through the advent of Prophets, signs and miracles, prophecies, the evolution of the universe, the Holy Qur'an, and Hadith. Does God exist? This is one of the most contradicting question in western society as Atheism continues to prevail. The purpose of our project is to highlight the existence of a Divine Being and to make the audience understand that God's existence is shown through His manifest signs and miracles.
Ms. Sajjal Khokhar

Mountains: Functions and Role in Earth

Relative to the sayings in the Holy Qur'an, Mountains play a key role in the formation and stability of landmass. They also contribute to the stability of the earth's crust which is relatively very thin. Beneath the crust are molten rocks at very high temperature. Qur'anic verses and modern discoveries are in agreement.