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PRINCE EL HASSAN BIN TALAL URGES DIGITIZATION OF ARAB ARCHIVES TO PRESERVE IDENTITY*

HRH Prince El Hassan on Thursday, 16 July 2026, visited the National Library Department, where he was briefed on its efforts to preserve Jordan's documentary and cultural heritage, safeguard the Kingdom's national memory and document the country's history for future generations.

National Library Director-General Firas Darabah highlighted the department's efforts to preserve books, manuscripts and official records, while advancing digital archiving and documentation to safeguard Jordan's national heritage, the Jordan News Agency, Petra, reported.

Prince El Hassan said the National Library is more than a repository of books and documents, describing it as the nation's memory. He stressed that protecting heritage in the age of artificial intelligence requires ensuring Arab heritage is represented in digital databases, rather than leaving the region's history and identity to be shaped by global platforms and algorithms.

He noted that national memory encompasses documents, books, maps and the collective memory of cities, villages and local communities, warning that modern conflicts increasingly target history, identity and historical narratives, as well as land and people. Prince El Hassan also referred to the concept of "memoricide", describing it as the deliberate erasure of history, identity and collective memory through practices such as renaming places, seizing cultural artefacts and documents, or replacing one historical narrative with another.

"Young people today need the ability to distinguish between information and knowledge and to analyse information critically, alongside access to information," he added.

Prince El Hassan said that strengthening and digitising Arab data would help ensure artificial intelligence systems draw on reliable regional sources when generating knowledge about the region.

He called for a comprehensive framework to preserve, digitise and make Arab archives and documents accessible to future generations.

The visit concluded with a tour of the National Library's Centennial Exhibition, which chronicles the establishment and development of the Jordanian state over the past century.

* *Sources:* https://jordantimes.com/news/local/prince-el-hassan-urges-digitisation-of-arab-archives-to-preserve-identity

THE IMPORTANCE OF INFORMATION TECHNOLOGY IN THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

ADNAN BADRAN FIAS, FAAS
President, Islamic World Academy of Sciences
and President, Arab Academy of Sciences

Artificial intelligence today is not merely an emerging technology; it is an integrated system that is reshaping the economy, education, healthcare, security, and even patterns of thinking and decision-making. However, this system would not have emerged or developed without the solid foundation provided by information technology.

Information technology constitutes the vital infrastructure upon which artificial intelligence is built. It enables the collection, storage, and processing of data at massive speeds, and it provides the digital networks and platforms that allow algorithms to learn and evolve. Without big data and the ability to analyze it efficiently, artificial intelligence cannot fulfill its role or realize its potential.

From this perspective, the relationship between information technology and artificial intelligence is one of integration, not separation. As computing technologies advance, such as cloud computing and high-performance computing, the capacity of AI systems to perform deep learning, handle complex decision-making, and make more accurate predictions continues to grow.

Investing in information technology is no longer an option; it is a strategic necessity for countries seeking to build a knowledge-based economy.

In this context, the importance of building human capacity capable of engaging with these technologies becomes evident. The human element remains the cornerstone, as developing artificial intelligence requires qualified professionals in computer science, data analytics, and software engineering, alongside a deep understanding of the ethical and social dimensions of these technologies.

Information technology also plays a pivotal role in making artificial intelligence accessible to all through digital applications and e-government services, thereby enhancing institutional efficiency and improving quality of life.

However, this progress does not come without challenges, foremost among them issues of data protection, privacy, and information security, in addition to the digital divide between countries and societies. Therefore, the development of sound national and regional policies to manage these transformations has become critically important.

The future will belong to those who can responsibly and sustainably harness information technology in the development of artificial intelligence. These technologies are not an end in themselves, but a means to achieve comprehensive development, foster innovation, and build more efficient and equitable societies. Building a strong information technology ecosystem is the true gateway to creating effective and impactful artificial intelligence, capable of addressing the challenges of our time and shaping a better future for generations to come.

TASAWAR HAYAT FIAS … AS I HAVE KNOWN HIM

ADNAN BADRAN FIAS, FAAS
President, Islamic World Academy of Sciences
and President, Arab Academy of Sciences

Prof. Tasawar Hayat is a distinguished Pakistani mathematician and internationally recognized scholar in mathematical sciences and fluid mechanics. He is a Distinguished Tenured Professor of Mathematics at Quaid-i-Azam University (QAU), Islamabad, Pakistan, and has made pioneering contributions to the mathematical modeling of complex fluid flows, nonlinear differential equations, physiological systems, wave phenomena, and related applications in engineering and the natural sciences.

Prof. Hayat completed his undergraduate and postgraduate education at Quaid-i-Azam University, receiving his PhD in Mathematics in 1999. He subsequently undertook postdoctoral research in Germany, including an Alexander von Humboldt Fellowship at the Technical University of Darmstadt. He became the first Pakistani mathematician to receive the prestigious Alexander von Humboldt Fellowship, an important distinction reflecting the international recognition of his research.

His research focuses on non-Newtonian fluid mechanics, magnetohydrodynamics, peristaltic flows, nonlinear mathematical modeling, biomechanics, heat and mass transfer, nanofluids, wave motion and environmental and energy-related problems. His work has helped develop mathematical models relevant to physiological processes such as blood circulation as well as problems in engineering, renewable energy, climate change and environmental systems.

Prof. Tasawar Hayat has received more than 130,000 citations and an h-index of 145, according to Scopus, placing him among the world's most highly cited researchers in the mathematical and engineering sciences.

His scientific achievements have been accompanied by extensive international recognition. Among his major honors are the Abdus Salam Prize in Mathematics, the TWAS Young Scientist Prize, the Alexander von Humboldt Fellowship, the Khwarizmi International Award, the ISESCO International Prize, and Pakistan's civil honors, including the Sitara-i-Imtiaz and Hilal-i-Imtiaz. He has also received numerous national and international scientific awards and honorary and visiting professorships.

Prof. Hayat is a Fellow of the Pakistan Academy of Sciences, The World Academy of Sciences (TWAS), and the Islamic World Academy of Sciences (IAS). He was elected a Fellow of the IAS in 2011. He was subsequently elected to the Council of the Islamic World Academy of Sciences, where he currently serves as Secretary General for the 2023-2027 term.

Beyond his research, Prof. Hayat has played an important role in scientific capacity building and international research collaboration. He has supervised numerous doctoral and postgraduate researchers, collaborated with scientists around the world, served on editorial boards of international journals, and contributed to the organization of scientific conferences and research networks. His career combines high-level mathematical research with a sustained commitment to developing scientific talent and strengthening international cooperation in science.

PROF. YARUB DOURI FIAS
AWARDS

The Islamic World Academy of Sciences is delighted to congratulate Prof. Yarub Al-Douri, FIAS, on being awarded the **NCPD International Prize 2025**, presented by Saudi Arabia's National Center for Palms and Dates.

This international prize recognizes excellence in research, innovation, and technology in the palm and date sector, promoting sustainability and food security at a global level. Al-Douri is an internationally recognized scientist in nanotechnology, renewable energy, and materials science, with an exceptional academic and research career spanning Europe, the Middle East, and Asia.

Prof. **Yarub Al-Douri**, has also been honored with the esteemed **Khalifa International Award for Date Palm and Agriculture** Innovation in the UAE 2024.

Al-Douri's illustrious career spans over 27 years of teaching, 33 years of research, and 13 years of administration across three continents - Asia, Africa, and Europe. His extensive list of accolades includes prestigious awards such as the OeAD Award, Austria 2020, Japan Society for the Promotion of Science (JSPS) Award 2019, and the TWAS-UNESCO Associateship Award, among others. Al-Douri's contributions to Physics, Materials Science, and Renewable Energy are truly remarkable.

As a Fellow of IAS, Al-Douri continues to inspire and lead in his field, embodying the spirit of excellence and innovation that we champion. His dedication to disseminating knowledge and fostering collaboration transcends borders, enriching scientific communities worldwide.

It is also a pleasure to share that Prof. Dr. **Yarub Al-Douri**, has been awarded the **Obada Prize** 2025 under the category "**Distinguished Scientist**".

The Obada Prize is the highest honor in science, engineering and technology, recognizing individuals whose research contributes to global progress and innovation.

HALODULE UNINERVIS ETHANOLIC EXTRACT REDUCES INFLAMMATION IN LPS-STIMULATED RAW 264.7 MACROPHAGES VIA NF-κB, STAT3, AND MAPK MODULATION*

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Wehbe, N., Badran, A., Abdallah, R. *et al. Halodule uninervis* ethanolic extract reduces inflammation in LPS-stimulated RAW 264.7 macrophages via NF-κB, STAT3, and MAPK modulation. *Sci Rep* (2026). https://doi.org/10.1038/s41598-026-56808-8

Abstract

Medicinal plants have been used since ancient times for the treatment and prevention of various diseases. Plant-derived compounds offer a promising alternative to synthetic anti-inflammatory drugs, with potent activity and reduced toxicity. The seagrass *Halodule uninervis* exhibits several pharmacological properties due to the presence of various bioactive metabolites. However, its anti-inflammatory activity is not yet explored. In this study, we investigated the anti-inflammatory potential of an ethanolic extract of *H. uninervis* (HUE) in lipopolysaccharide (LPS)-stimulated RAW 264.7 macrophages by assessing its effect on the expression and activation of different inflammatory mediators. Our results revealed that HUE inhibited the LPS-stimulated inflammatory response in macrophages by downregulating the expression of iNOS and COX-2 and reduced the expression of NO and pro-inflammatory cytokines, IL-6 and TNF-α. Moreover, the anti-inflammatory potential of HUE was associated with reduced cellular migration and the suppression of the NF-κB, STAT3, and MAPKs pathways. Altogether, *H. uninervis* exhibits anti-inflammatory activity in vitro and may contribute to the modulate of inflammatory responses.

Keywords: *Halodule uninervis*, anti-inflammatory, NF-κB, STAT3, MAPKs

* https://www.nature.com/articles/s41598-026-56808-8

GREEN *ZIZIPHUS NUMMULARIA* GOLD NANOPARTICLES: ANTIOXIDANT AND ANTICANCER ACTIVITY IN TNBC*

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Abdallah, R., Abdel-Rahem, R., Badran, A. *et al.* Green *Ziziphus nummularia* gold nanoparticles: antioxidant and anticancer activity in TNBC. *Sci Rep* (2026). https://doi.org/10.1038/s41598-026-62225-8

Abstract

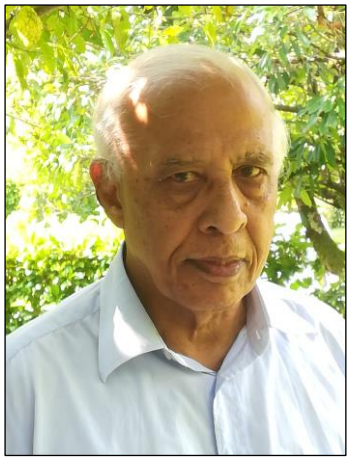
Triple-negative breast cancer (TNBC) remains one of the most aggressive breast cancer subtypes with limited targeted therapeutic options, highlighting the need for innovative, biocompatible treatment strategies. Plant-mediated green synthesis offers a sustainable route for gold nanoparticle (AuNP) fabrication with enhanced biological functionality. In this study, Ziziphus nummularia ethanolic extract (ZNE) was employed as a reducing and capping agent to synthesize stable, crystalline, and predominantly spherical gold nanoparticles (ZNE-AuNPs). Comprehensive physicochemical characterization confirmed successful nanoparticle formation and phytochemical capping .Importantly, this work provides novel biological and mechanistic insights into the anticancer effects of ZNE-AuNPs specifically in TNBC. ZNE-AuNPs exhibited notable antioxidant activity and significantly reduced the viability of MDAMB-231 TNBC cells in a concentration- and time-dependent manner. For the first time, the anticancer activity of ZNEAuNPs in TNBC was mechanistically linked to the suppression of cellular proliferation (decreased Ki-67), induction of apoptosis (modulation of BAX, BCL-2, and caspase-3), and inhibition of ERK phosphorylation, implicating the MAPK/ERK signaling pathway. Taken together, these findings support Ziziphus nummularia-derived AuNPs as a sustainable nanotherapeutic platform and establish their previously unexplored mechanistic relevance in TNBC.

Keywords: Triple-negative breast cancer, *Ziziphus nummularia*, gold nanoparticles, Apoptosis, ERK

* https://www.nature.com/articles/s41598-026-62225-8

ANTARCTIC CIRCUMPOLAR CURRENT (ACC)

MUHAMMAD ASGHAR[1] FIAS



Abstract: This note presents the Antarctic Circumpolar Current (ACC), its role in the oceans and consequences for life, its slowing in future due to climate change.

The Antarctic Circumpolar Current (ACC) is an ocean current that flows clockwise from west to east around Antarctica, Fig.1. An alternative name for the ACC is the West Wind Drift. The ACC is the world's only global current, flowing eastwards around Antarctica in a closed circulation with its flow unimpeded by continents. It is the strongest ocean current on the planet. It's five times stronger than the Gulf Stream and more than 100 times stronger than the Amazon River.

It forms part of the global ocean "conveyor belt" connecting the Pacific, Atlantic and Indian oceans. The system pumps water, heat and nutrients around the globe. But fresh, cool water from melting Antarctic ice is diluting the salty water of the ocean, potentially disrupting the vital ocean current. This current has a profound influence on the climate, food systems and Antarctic ecosystems.

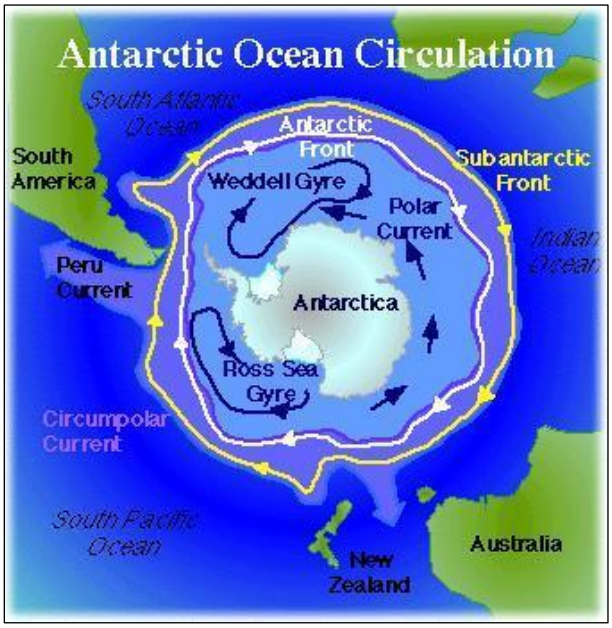


Figure 1. The ACC Ocean Current flows clockwise from west to east around Antarctica **(1).**

The ACC is not well understood due to its remote location, which makes obtaining direct measurements difficult. However, recent model-based research carried in Australia, suggests ACC will be 20 % slower by 2050 as the world warms, with far reaching consequences for life on Earth **(2).**

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ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)

MUHAMMAD ASGHAR FIAS

Abstract: This note presents the flow course of the Atlantic Meridional Overturning Circulation, and the possible consequences of its slowing down.

The AMOC is a system of ocean currents that circulates water within the Atlantic Ocean, bringing warm water north and cold water south as shown in Fig.1, where the reddish belt represents hot water flowing towards the North Pole, and the blue belt represents the cold water flowing towards the South.

Figure 1. The global conveyor belt, shown in part here, circulates cool subsurface water and warm surface water throughout the world. The AMOC is part of this complex system of global ocean currents **(1).**

The ocean's water is constantly circulated by currents. Tidal currents occur close to shore and are influenced by the sun and moon. Surface currents are influenced by the wind. However, other, much slower currents that occur from the surface to the seafloor are driven by changes in the saltiness and ocean temperature, a process called thermohaline circulation. These currents are carried in a large "global conveyor belt," which includes the AMOC.

The AMOC circulates water from north to south and back in a long cycle within the Atlantic Ocean. This circulation brings warmth to various parts of the globe and carries nutrients necessary to sustain ocean life.

The circulation process begins as warm water near the surface moves toward the poles (such as the Gulf Stream in the North Atlantic), where it cools and forms sea ice. As this ice forms, salt is left behind in the ocean water. Due to the large amount of salt in the water, it becomes denser, sinks down, and is carried southwards in the depths below. Eventually, the water gets pulled back up towards the surface and warms up in a process called upwelling, completing the cycle.

The entire circulation cycle of the AMOC, and the global conveyor belt, is quite slow. It takes an estimated 1,000 years for a parcel in this domain of water to complete its journey along the belt. Even though the whole process is slow on its own, there is some evidence that the AMOC is slowing down further. NOAA funds research to better understand this potential slowing, as well as to investigate the AMOC's role in coastal sea level changes and its relationship to extreme events.

Is the AMOC slowing down?

As climate continues to change, is there a possibility that the AMOC will slow down, or come to a complete stop? Work in this domain shows it has been weakening over the past century, whether it will continue to slow or stop circulating completely remains uncertain. If the AMOC does continue to slow down, however, it could have far-reaching climate impacts. For example, if the planet continues to warm, freshwater from melting ice at the poles would shift the rain belt in South Africa, causing droughts for millions of people. It would also cause sea level rise across the U.S. East Coast **(1).**

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TRUTH: A BRIDGE TO PEACE AND EMPATHY

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Professor, University of Tehran

From the dawn of history, humanity has faced fundamental questions: Where do we come from? What is the purpose of life? Is death the end of the road or the beginning of another stage? These questions have occupied minds across the East and West—from scientists to mystics, philosophers to poets—leading to diverse philosophical, religious, mystical, and scientific traditions.

Every civilization and culture has sought answers to these questions through reason, faith, experience, or intuition. Despite differences in methods, they pursued an understanding of humanity, the world, and truth. In this writing, we draw on the thoughts of several philosophers and poets-from Socrates and Aristotle to Rumi and Hafez-to show that "truth" transcends geography and academic disciplines.

Many religions and schools of thought consider the ultimate truth to be singular and unique; however, humans perceive truth from different angles. Differences in perspective do not signify a negation but instead reveal variations in one's way of seeing, as well as in one's intellectual capacity and depth. In this essay, we define absolute truth as a constant and unique reality that, from an Islamic view, is rooted in "*Haqq*" (literally: "truth")—that is, God—and, from other philosophical views, is recognized as the ultimate reality or the fundamental order of existence. This truth is like a light that shines upon humanity through various windows of reason, experience, intuition, and revelation, and everyone, depending on their characteristics, absorbs, transmits, or reflects that light. In fact, the variation in the degree of absorption, transmission, and reflection pertains to human understanding, not to the multiplicity of truth itself.

In other words, if we consider the ultimate truth as T, each human school of thought or idea only receives a portion of it (t_i), such that the collection of these portions brings us closer to the complete truth, and it can be metaphorically written as:

$$T = \sum_{i=1}^{n} t_i$$

This mathematical illustration helps us understand why no one alone possesses the entirety of truth and why we all need each other's puzzle pieces. Values such as freedom, ethics, justice, love, and knowledge are signs of human proximity to this truth. Of course, not every claim holds a share of truth, and the path to it requires purifying thoughts through the test of reason, ethics, and human conscience.

"Freedom" in this sense is not liberation from every constraint, but the ability to think and choose consciously—liberation from fear, ignorance, and imitation—so that humans may find the path of truth with their minds and hearts. When freedom serves wisdom and ethics, it becomes not only compatible with faith but also a bridge between the seeking human and the truth that calls them. We believe that although the ultimate truth is one, humans journey toward it through various paths: Socrates through thought, Saadi through love, Attar through spiritual quest, and Rumi through mysticism.

Socrates said: "The unexamined life is not worth living," and Saadi sang:

"*To travel the desert is better than sitting idle / And if I don't achieve my goal, I'll strive to my utmost capacity.*"
In this view, both Socrates and Saadi see human worth in seeking, not in stagnation. Plato also believed that drawing closer to truth removes

worldly sorrow from a person. Nietzsche states that truth reveals only a corner of itself to everyone, and Rumi considers truth a mirror that fell from the sky, shattered, and everyone picked up a piece and saw themselves within it. Various cultures consider virtue, balance, and humanism to be sources of happiness. These values, though different in language and form, are all branches of the tree of truth in their essence.

Science has unveiled many secrets of nature, but the questions of meaning, ethics, and the purpose of life still connect humans to philosophy and faith; as Saadi said:

"*The green leaves of trees, in the eyes of the discerning / Each leaf is a ledger of the Creator's knowledge.*"

Many thinkers, including Carl Jung, believe that suffering should not make humans despair, but rather make them more aware. Saadi also considers suffering a ground for growth and awakening:

"*Without enduring hardship, treasure cannot be attained / He who worked, brother, received his reward.*"

The perspectives of Western and Eastern philosophers on self-knowledge point to a "borderless truth-seeking." For example, Hafez sees self-knowledge as a bridge to truth:

"*For years, my heart sought the Jam-e Jam from us / While it longed for what it already had from strangers.*"

In conclusion, despite apparent differences, many ideas emphasize common values such as truth-seeking, ethics, justice, love, and human responsibility. Our aim here is not to equate all beliefs but to remind ourselves that geography, time, and place have not hindered humanity's paths toward truth. Perhaps humans cannot provide definitive answers to all the mysteries of existence, but they can build their lives on knowledge, ethics, and love.

If peace, ethics, and spirituality hold a high place in the thoughts of great figures from all lands, then we can nurture future generations with a spirit of empathy and build bridges between cultures—bridges where dialogue, moderation, and mutual respect are fundamental. Let us, instead of negating one another, rely on human commonalities so that the seeds of peace may flourish; as Hafez says:

"*Come, let us scatter flowers and pour wine into the cup / Let us tear open the sky's roof and cast a new design.*"

VISITORS OF THE ISLAMIC WORLD ACADEMY OF SCIENCES

Dr. Mustafa Hamarneh, President of the Jordanian Academy for Government Administration, with Prof. Adnan Badran, President, IAS.

Prof. Yarub Al-Douri FIAS with Prof. Adnan Badran, President, IAS.

Eng. Ibrahim Khalil Al-Salem, Professional Design Architect with Prof. Adnan Badran, President, IAS.

OIC-COMSTECH TRAINS 5,000 SCIENTISTS ACROSS 54 COUNTRIES ANNUALLY*

The OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH) extended its scientific and educational programmes to 54 countries during 2025, training 5,000 scientists and researchers and offering 759 scholarships and fellowships, according to its recent annual report for the year 2025.

The Islamabad-based international body undertook 174 projects and initiatives during the year, awarded 52 research grants and organised 68 training programmes, while expanding its network to more than 80 universities, research centres and academic institutions from OIC member states.

According to the report, scientists, students, researchers and institutions from countries including Algeria, Azerbaijan, Bangladesh, China, Indonesia, Iran, Morocco, Rwanda, Saudi Arabia, Türkiye, Palestine and Yemen, as well as several African states, benefited from the programmes.

The 759 scholarships and fellowships formed a major part of COMSTECH's human resource development efforts, providing students and young researchers with opportunities for higher education, research and specialised training at universities and partner institutions in Pakistan and other countries.

The report said 5,000 scientists and researchers received training through 68 programmes covering the use of advanced scientific equipment, biotechnology, health sciences, vaccine technology, information technology and other emerging fields.

Another 52 research grants were awarded to support young and women scientists in biotechnology research, international scientific collaboration and research-related activities. The grants were aimed particularly at researchers in developing countries, where limited access to funding often restricts scientific work.

The report showed that COMSTECH's activities covered a broad range of sectors. These included 17 initiatives in health and biological sciences, 15 in education, 13 in research, 11 in environment, climate change and water, nine in information technology and nine in development-related fields. Several programmes were also undertaken in agriculture, food security, biotechnology, engineering, humanitarian assistance, energy and science diplomacy.

Moreover, according to the report, COMSTECH conducted free medical and relief camps in flood-affected areas of Punjab during 2025, providing medicines, medical assistance and food rations to around 5,000 affected people in southern Punjab and Chiniot district.

In another major health initiative, COMSTECH, in partnership with the Islamic Development Bank (IsDB), LRBT and Al-Shifa Trust, launched an eye surgery campaign across Africa in collaboration with the OIC General Secretariat. The programme provides free cataract and retinal surgeries while also building the capacity of local healthcare professionals through advanced training.

One of the report's major features was the expansion of a network of more than 80 universities and research institutions. The network is being used to facilitate joint research, training, exchange of expertise and academic linkages across OIC member states and beyond.

The report reflects the growing role of the Islamabad-based COMSTECH Secretariat in connecting scientists, students and institutions across the Muslim world and beyond through research, higher education, capacity building and science diplomacy.

♣ *Source: https://www.app.com.pk/national/oic-comstech-trains-5000-scientists-and-researchers-from-54-countries-during-2025/*

AQABA MARINE RESERVE INSCRIBED ON UNESCO WORLD HERITAGE LIST♥

Jordan celebrated the inscription of the Aqaba Marine Reserve on the UNESCO World Heritage List, following official adoption by the World Heritage Committee during its 48th session held in Busan, Korea.

The reserve was inscribed under World Heritage natural criteria nine and ten in recognition of its exceptional ecological processes, unique marine biodiversity, and globally significant contribution to protecting threatened marine species and ecosystems, the Aqaba Special Economic Zone Authority (ASEZA) announced in a statement on Saturday. This inscription represents international recognition of one of the most critical marine ecosystems in the northern Red Sea.

It also highlights the global importance of the Gulf of Aqaba's coral reefs, which exhibit high climate resilience due to their tolerance to rising sea temperatures, giving them growing scientific and environmental significance amid global climate challenges.

The ASEZA noted that this national milestone reflects ongoing efforts driven by the directives of His Majesty King Abdullah, with direct follow-up from HRH Crown Prince Hussein, placing the establishment and protection of the Aqaba Marine Reserve among the Kingdom's top environmental priorities.

♥ *Source:* https://jordantimes.com/news/local/aqaba-marine-reserve-inscribed-on-unesco-world-heritage-list

It also crowns years of dedicated work by the government, ASEZA, national institutions, researchers, local communities, and conservation partners.

The ASEZA Chief Commissioner Shadi Majali said that the inscription is a source of national pride and underscores Jordan's commitment to safeguarding a globally vital marine ecosystem for future generations.

Located at the northernmost point of the Red Sea, the reserve protects shallow and mesophotic coral reefs, associated habitats, and seagrass meadows. It hosts over 150 species of hard corals, more than 500 fish species, and nearly 1,000 mollusk species, alongside numerous endemic, rare, and endangered species, making it one of the most biodiverse marine areas regionally and globally.

Majali emphasised that this achievement marks the beginning of a long-term commitment to preserving this global natural treasure. He reiterated Jordan's full adherence to the World Heritage Convention and its intention to implement the committee's recommendations by enhancing the reserve's legal & administrative framework, advancing scientific research, supporting environmental monitoring, managing visitor traffic sustainably, and involving local communities in protection efforts.

Looking ahead, focus will shift towards executing the second Integrated Management Plan for the Aqaba Marine Reserve (2027-2030), alongside expanding monitoring programmes that track water quality, pollution, desalination discharge, sea surface temperature, salinity, turbidity, sedimentation, underwater light intensity, and noise pollution to ensure long-term preservation.

Majali welcomed the World Heritage Committee's emphasis on boosting regional cooperation, adding that Jordan will continue working with international and regional partners to safeguard the Gulf of Aqaba and the Red Sea, while exploring opportunities to protect transboundary marine ecosystems.

He expressed the Kingdom's gratitude to the World Heritage Committee, UNESCO, the World Heritage Centre, the International Union for Conservation of Nature, Korea for hosting the 48th session, and all experts involved in preparing the nomination portfolio, reiterating the Kingdom's commitment to protecting the reserve as a national legacy and global natural asset.

EARTH'S OCEANS ARE RAPIDLY LOSING OXYGEN. IT COULD DESTABILIZE THE PLANET*

Oxygen, the element that sustains nearly all multicellular life on Earth, is disappearing from the world's aquatic ecosystems. In a new review, scientists warn that this rapidly escalating, human-driven crisis threatens to upend the biosphere.

The paper, published June 30 in the journal Limnology and Oceanography, argues that aquatic deoxygenation should be added to the Planetary Boundaries framework. First introduced by a group of 28 internationally renowned scientists in 2009, the framework identifies nine ways that humanity is pushing crucial processes that maintain Earth's stability and resilience past their limits. They are climate change, ocean acidification, biodiversity loss, atmospheric aerosol loading, stratospheric ozone depletion, freshwater change, land-use change, chemical pollution, and biogeochemical flows.

"The health and stability of our planet depends on the health and stability of aquatic ecosystems, which need oxygen to function normally," lead author Erica Ferrer, a postdoctoral scholar at the University of California, Santa Barbara's National Center for Ecological Analysis and Synthesis, aid in a statement. "This study is designed to elevate the profile of aquatic deoxygenation as a global threat and show that it does not operate in isolation".

How humanity is draining oxygen from Earth's waters

Oxygen is a core component of water, represented by the "O" in H2O. But the oxygen bound up in water molecules isn't available for organisms to use in respiration. Instead, they rely on dissolved oxygen, which is literally oxygen gas (O2) dissolved in water.

As carbon emissions drive up Earth's average temperature, oceans, lakes, rivers, and other aquatic ecosystems are warming. Warm water holds less dissolved oxygen than cold water because the higher the temperature, the less soluble oxygen becomes. At the same time, warm surface layers prevent oxygen from mixing into deeper waters.

Then there's nutrient pollution. Agriculture, wastewater discharge, stormwater runoff, and other industrial processes are dumping too much nitrogen and phosphorous into Earth's waters, fueling massive algal blooms that ultimately decompose, consuming oxygen. Warming and excess nutrients also stimulate microbial oxygen consumption, leading to further reductions.

Globally, the ocean has lost roughly 2% of its dissolved oxygen since the 1950s, and scientists expect it to lose another 1% to 7% by the end of the century, according to Copernicus, the European Union's Earth observation and environmental monitoring initiative. While that may not sound like a significant reduction, it doesn't take much to deprive organisms of the oxygen they need and upset delicately balanced aquatic ecosystems.

The case for a tenth planetary boundary

The Planetary Boundaries framework is designed to help humanity understand and operate within safe limits for human pressure on nine critical Earth processes. We've already breached seven of them, namely climate change, biosphere integrity, land system change, freshwater use, biogeochemical flows, pollution, and ocean acidification.

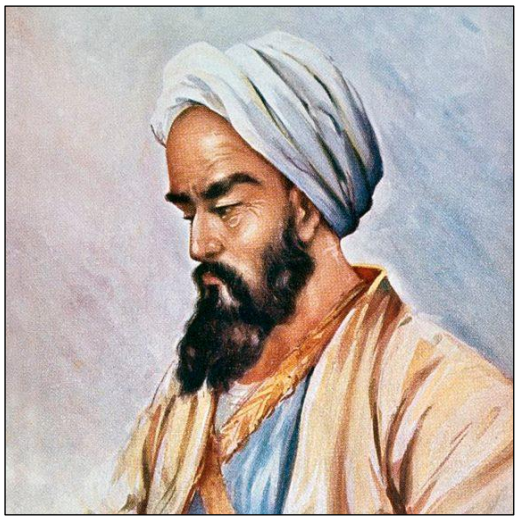
In this review, Ferrer and her colleagues synthesize "important, in some cases poorly understood" interactions and feedbacks between deoxygenation and all nine of the established planetary boundaries. They concluded that deoxygenation "interacts with and extensively modulates other boundary processes, including climate change, nutrient loading, biodiversity loss, and aerosol loading".

"Given these interactions and current rates of oxygen loss, we argue that aquatic deoxygenation is approaching an 'unsafe space,' with Earth-system impacts that are likely to be irreversible in our lifetimes," the study states.

The researchers propose four indicators that scientists can use to assess the status of aquatic deoxygenation and eventually define a global boundary for it within the framework. Those indicators are dissolved oxygen concentration (and the prevalence of extremely low or negligible levels); how close the water is to its dissolved oxygen capacity; changes in oxygen-sensitive plants and animals; and a measure called the Metabolic Index, which compares how much oxygen organisms need with how much is actually available.

* *Source: https://gizmodo.com/earths-oceans-are-rapidly-losing-oxygen-it-could-destabilize-the-planet-2000787781*

JABIR IBN HAIYAN*
(DIED 803 C.E.)



Jabir Ibn Haiyan, the alchemist Geber of the Middle Ages, is generally known as the father of chemistry. Abu Musa Jabir Ibn Hayyan, sometimes called al-Harrani and al-Sufi, was the son of the druggist (Attar). The precise date of his birth is the subject of some discussion, but it is established that he practised medicine and alchemy in Kufa around 776 C.E. He is reported to have studied under Imam Ja'far Sadiq and the Ummayed prince Khalid Ibn Yazid. In his early days, he practised medicine and was under the patronage of the Barmaki Vizir during the Abbssid Caliphate of Haroon al-Rashid. He shared some of the effects of the downfall of the Barmakis and was placed under house arrest in Kufa, where he died in 803 C.E.

Jabir's major contribution was in the field of chemistry. He introduced experimental investigation into alchemy, which rap idly changed its character into modern chemistry. On the ruins of his well-known laboratory remained after centuries, but his fame rests on over 100 monumental treatises, of which 22 relate to chemistry and alchemy. His contribution of fundamental importance to chemistry includes perfection of scientific tech niques such as crystalization, distillation, calcination, sublima tion and evaporation and development of several instruments for the same. The fact of early development of chemistry as a dis tinct branch of science by the Arabs, instead of the earlier vague ideas, is well-established and the very name chemistry is derived from the Arabic word *al-Kimya*, which was studied and devel oped extensively by the Muslim scientists.

Perhaps Jabir's major practical achievement was the discovery of mineral and others acids, which he prepared for the first time in his alembic (*Anbique*). Apart from several contributions of basic nature to alchemy, involving largely the preparation of new compounds and devel opment of chemical methods, he also developed a number of applied chemical processes, thus becoming a pioneer in the field of applied science. His achievements in this field include prepa ration of various metals, development of steel, dyeing of cloth and tanning of leather, varnishing of water-proof cloth, use of manganese dioxide in glass-making, prevention of rusting, letter ring in gold, identification of paints, greases, etc. During the course of these practical endeavours, he also developed aqua regia to dissolve gold. The alembic is his great invention, which made easy and systematic the process of distillation. Jabir laid great stress on experimentation and accuracy in his work.

Based on their properties, he has described three distinct types of substances. First, spirits i.e. those which vaporise on heating, like camphor, arsenic and ammonium chloride; secondly, metals, for example, gold, silver, lead, copper, iron, and thirdly, the category of compounds which can be converted into powders. He thus paved the way for such later classification as met als, non-metals and volatile substances.

Although known as an alchemist, he did not seem to have seriously pursued the preparation of noble metals as an alchemist; instead he devoted his effort to the development of basic chemical methods and study of mechanisms of chemical reactions in themselves and thus helped evolve chemistry as a science from the legends of alchemy. He emphasised that, in chemical reactions, definite quantities of various substances are involved and thus can be said to have paved the way for the law of constant proportions.

A large number of books are included in his corpus. Apart from chemistry, he also contributed to other sciences such as medicine and astronomy. His books on chemistry, including his *Kitab-al-Kimya*, and *Kitab al-Sab'een* were translated into Latin and various European languages. These translations were popular in Europe for several centuries and have influenced the evolution of modern chemistry. Several technical terms devised by Jabir, such as alkali, are today found in various European languages and have become part of scientific vocabulary. Only a few of his books have been edited and published, while several others preserved in Arabic have yet to be annotated and published.

* *Biography, Muslim Scholars and Scientists, Edited by Dr W. Hazmy C.H .Dr Zainurashid Z .Dr Hussaini R.*

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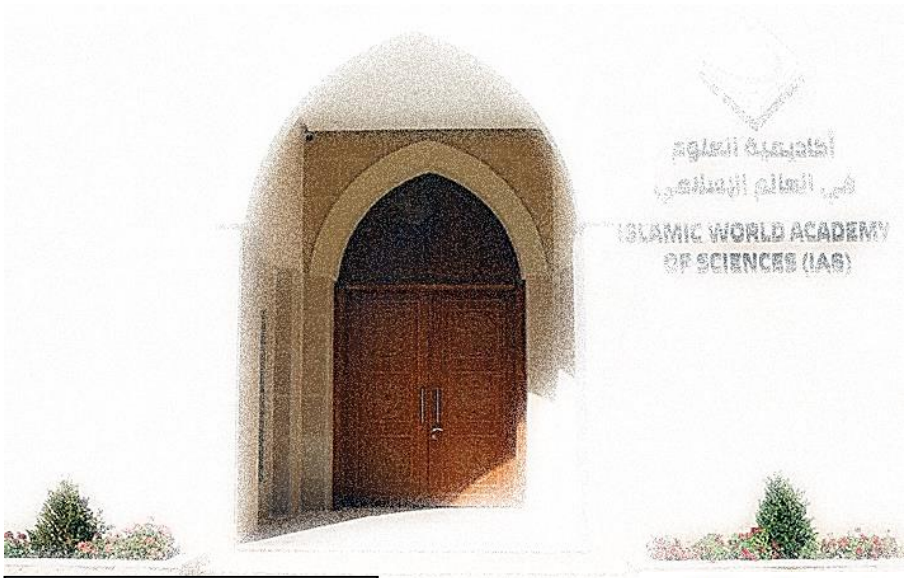

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