President's Message

PROUD TO LEAD

Dear ATA Members and all Toxicologists,

It takes courage and perseverance to accomplish a life goal. This needs a solid initiative, and that is why a journey of a thousand miles begins with a single step. A significant achievement is made through small achievements; therefore, the impossible becomes possible. The success of ATA started with a small group, less than 10, but eventually, our enthusiasm and passion guided us to face all obstacles and became more than 50 people within a short time.

This successful journey of ATA gave me the honor and privilege to serve as the 2022-2024 president of the Arab Toxicologists Association (ATA). I want to start with a warm welcome to ATA's new officers and new members! Thank you for being a part of ATA. This Special Interest Group serves everyone who is interested in toxicology from any part of the world, particularly the Arab regions. ATA provides a platform for interactions among toxicologists from government, industry, and academia by organizing scientific seminars, workshops, and educational programs or events in toxicology.

On behalf of the 2022–2023 leadership team of the Arab Toxicologists Association, Maha Almazroua (Vice President), Amira K. Mohammed (Secretary), Hanan Ghantous (Past President), Hadil AlMuhisen (Councilor), Iyden Mohammed (Councilor), Osama Abdulla (Postdoctoral Representative), and Saeed Alqahtani (Graduate Student Representative), Nabila Saber (Award Committee), Abeer Abdelwahab, Sahar Issa (Scientific Program), Esraah Alharris (Newsletter Committee), I would like to introduce you to ATA and provide some information about our activities. Being a member of the ATA, under the umbrella of the Society of Toxicology (SOT), is the key to exploring and developing connections with other members and maximizing the benefits of this membership. The ATA website provides learning tools about ATA and SOT news through seminars, educational courses, awards, governance, educational outreach, among other learning. Being a member of ATA allows the members to discover new opportunities for communication, collaboration, and connection with fellow members. These opportunities are possible because ATA has members from global sectors such as the US Environmental Protection Agency (US EPA), the US Food & Drug Administration (US FDA), companies, industries, and academia. I genuinely appreciate and thank all members and volunteers for their continuous support, service, and dedication to the ATA since 2019, when this group was established. The ATA board would like to extend its sincere appreciation to Dr. Burhan Ghanayem for being the first financial supporter for funding the outstanding graduate research award, which recognizes and celebrates successful graduate students. The currently elected leaders of ATA are committed to serving the current and future ATA members by contributing their time and energy to committees such as the newsletter, awards, scientific programs, postdoctoral and graduate student representation. Each year, the ATA welcomes interested members to join the board to become ATA leaders.

"SUCCESS IS THE SUM OF SMALL EFFORTS REPEATED DAY IN AND DAY OUT" by Robert Collier

Saif Abdullah Alharthy, MSc, PhD, NEBOSH
ATA President 2022-2024

Mission

The mission of the Arab Toxicologists Association:

- To effectively communicate toxicological ideas and support its members to succeed and achieve excellence in toxicology in the United States and worldwide.
- To address current toxicological issues that affect Arab nations and increase awareness of the involvement of toxic substances in causing diseases.
- To promote the development of marginalized branches of toxicology in Arabic nations.
- To serve as an educational guide for Arabic studies in toxicological science.
- To promote the establishment of regional toxicology societies and of a Pan Arab toxicologist association to be an umbrella for all toxicology associations in all Arab countries.

Officers

Saif Alharthy, PhD
President

Maha Almazroua, PhD
Vice President

Hanan Ghantous, PhD
Past President & Councilor

Nabila Saber, PhD
Award Committee Representative

Amira Mohammed, PhD
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Hadil Al Muhisen, PhD
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Sahar Issa PhD,
Scientific Program Commitee Representative

Abeer Abdelwahab, PhD
Scientific Program Committee Representative

Osama Abdulla, PhD
Postdoctoral Representative

Saeed Alqahtani, PhD
Graduate Student Representative

Esraah Alharris, PhD
Newsletter Committee Representative

By: Sahar Issa, MD, MBBCh, MSc, PhD

Dr. Issa recently co-authored with Dr. AlMazroua the research paper entitled: **'Estimation of blood and urine levels of eight metals and essential trace elements collected from living Subjects compared to urine, cardiac and femoral postmortem blood, and other postmortem samples: A forensic toxicology study.'** This research was published in the *Journal of Forensic & Legal Medicine*. Dr. Sahar Issa was invited by the head of the National Institute of Toxicology and Forensic Sciences of Spain to give a talk through a podcast about this article on the morning of November 18th, 2022, to all staff and colleagues in the institute about this work and how the results would help to interpret abnormally high cadmium levels in postmortem samples.

The study aimed to study the concentration of eight metals in the blood samples (cardiac and femoral), urine, and other samples (Spleen, liver, and renal tissues) collected from human cadavers at different postmortem intervals in addition to blood and urine samples collected from the living population as a contribution to establishing normal or so-called "reference" metal levels under antemortem and postmortem situations. Along with regular toxicology testing, different samples are occasionally collected during autopsy to estimate metal level as a possible cause of death. Therefore, utilizing a scientific procedure on postmortem specimens is crucial for interpreting forensic toxicological analytical results. Even modest procedural errors made by incompetent forensic toxicologists or chemists lacking specialized training and knowledge can alter the scientific conclusions and the legal verdict about the cause of death. This work focused on measuring eight metal and element levels in living and human cadavers in order to establish reference metal levels under antemortem and postmortem situations. The results of this study will aid in identifying reliable interpretations of results produced by numerous researchers in the same field.

Many important points were highlighted during the talk:

- Postmortem metal levels vary with sampling location and postmortem interval.
- Postmortem diffusion and redistribution yield high blood cadmium compared to antemortem levels.
- High cadmium levels in advanced putrefaction might be misinterpreted as incompatible with life.
- Postmortem sampling should be performed as quickly as possible.
- Cardiac blood is the least suitable medium for postmortem sampling.

By: Hadil Al Muhisen, MSc, PhD

The Status of the Toxicology Field in the Middle East:

Toxicology is a critical field that plays a vital role in understanding the harmful effects of chemicals and other substances on living organisms, including humans. In the Middle East, toxicology is an emerging field that is gaining recognition and attention as the region continues to face numerous challenges related to environmental degradation, pollution, and public health[1]. This article aims to examine the current status of toxicology as a field in the Middle East and to explore the challenges and opportunities facing toxicologists in the region. To illustrate the current situation, the status of toxicology will be examined in three major countries in the Middle East: Saudi Arabia, Egypt, and Iraq,

The Importance of Toxicology in the Middle East:

Due to the presence of several industrialized and oil-producing nations in this region, it is becoming increasingly important to understand the effect of these sectors on the environment and general welfare of living organisms. Toxicology plays a critical role in addressing these challenges by providing the necessary data and information to support informed decision-making and policy development. However, there are still significant challenges that need to be overcome to establish toxicology as a well-respected and fully integrated discipline in the region. Some of these challenges include:

- Lack of resources: Many countries in the Middle East lack the necessary resources to establish and support toxicology programs and initiatives. This includes a lack of funding, infrastructure, and trained personnel.
- Limited awareness: Despite the growing recognition of the importance of toxicology, there is still limited awareness and understanding of the field among the general public and policymakers in the region.
- Inadequate regulations: In many countries in the Middle East, there are inadequate regulations and policies in place to address the harmful effects of chemicals and other substances on the environment and public health.
- Inadequate training and professional development opportunities: There are limited opportunities for toxicologists in the Middle East to receive training and professional development in the field, and many toxicologists in the region are self-taught or have limited access to formal training programs.

The State of Toxicology as a Field in the Middle East: A Country-by-Country Analysis:
Despite its importance, the state of toxicology as a field in the Middle East varies widely across different countries. Here are some examples of the status of toxicology in the Middle East:

Saudi Arabia
In recent years, toxicology has become an increasingly important field in Saudi Arabia, with a growing emphasis on understanding the toxic effects of chemicals on the environment. The Ministry of Health has continued to grow and improve the field of toxicology. In light of this effort, there has been an increase in the number of poison control centers across the country.

Also, the Saudi government set up the first database that can be used by the different branches of toxicology, called the Online Toxicology Request and Result (OTARR) system. Other steps include setting up different application programs with a single call number (937) as a rapid response to urgent toxicological cases. The Saudi health ministry has made significant investments in research and infrastructure in the field of toxicology (among other disciplines) where several research centers have been established in academic and hospital organizations[2] [3]. These include the Ministry of National Guard—Health Affairs, the King Faisal Specialist Hospital and Research Center, the King Abdulaziz City for Science and Technology, the Center of Excellence in Genomic Medicine Research (CEGMR) at King Abdulaziz University, and King Saud University. Additionally, the ministry has developed several programs aimed at training the next generation of toxicologists, including establishing graduate programs in toxicology at several universities.

Egypt

Egypt has a long-standing tradition of conducting research in various fields of toxicology, with a special focus on understanding the toxic effects of drugs, pesticides, among other chemicals. Several research institutions are dedicated to the field of toxicology, including the National Institute of Oceanography and Fisheries, the National Research Centre (NRC), the National Center for Toxicology (NCTR). Additionally, Egypt has established several undergraduate and postgraduate academic programs in toxicology, such as the programs at Ain Shams University, Cairo University, and Alexandria University. Unintentional and intentional toxic exposures continue to significantly cause morbidity and mortality in Egypt. Poisoning exposure is an increasing public concern due to the increased use of chemicals, pharmaceuticals, and natural toxins in the global markets which reflect industrial, economic, and social configurational changes. The wide availability of chemicals and medications has led to increased exposure of humans to potential poisons, which in turn has increased the number of poison control centers (PCCs). PCCs in Egypt are divided into two main categories: University hospital centers that reach up to ten PCCs, and MOH-based centers located inside the General hospitals, which are currently fourteen in number, with four more centers under construction. The science of Toxicology constitutes an integral part of the undergraduate medical training and examination program. Egyptian researchers contribute enormously to the advancement and diversity of toxicological research in the Middle East.

Iraq

Iraq has several institutions dedicated to toxicological research, including the University of Baghdad and Al Rafidain University College. However, in recent years the advancement of this field has been hampered by the recent history of conflict and instability. As a result, the field of toxicology in Iraq has experienced a lack of funding and, limited access to the latest technological advancements. Nevertheless, the country has a growing number of young scientists who are passionate about toxicology, and there is potential for growth and development in this field in the near future.

Despite the existing challenges, there is a number of opportunities for toxicologists in the Middle East where they can make a significant impact [1]. Some of these opportunities include:

- Supporting informed decision-making: Toxicologists in the Middle East can play a critical role in providing data and information to support informed decision-making and policy development in areas related to the environment and public health.
- Advocating for change: Toxicologists can advocate for policies and regulations that promote environmental protection and public health, and they can raise awareness of the importance of toxicology among policymakers and the general public.

- Collaborating with international organizations: Toxicologists in the Middle East can collaborate with international organizations and scientific communities, such as SOT, to exchange ideas and knowledge, and to advance the field of toxicology.

In the Middle East, the most available branches of toxicology that are promoted in the media include environmental toxicology, clinical toxicology, and food toxicology.

- *Environmental toxicology* involves researching the harmful impact of environmental contaminants on the environment and on human health. This branch of toxicology has gained prominence in recent years due to increasing concerns about the impact of environmental pollutants on human health, particularly in the areas of the Middle East where industrialization and urbanization have led to increased exposure to pollutants.
- *Clinical toxicology* is concerned with the study of the toxic effects of drugs, chemicals, and other substances on human health. This branch of toxicology is of particular importance in the Middle East due to the high prevalence of drug use and exposure to chemicals and other substances in the region.
- *Food toxicology* is concerned with the study of the toxic effects of food contaminants, such as chemicals and pollutants, on human health. This branch of toxicology is of particular importance in the Middle East due to the growing concerns about food safety and quality and the increasing prevalence of foodborne illnesses in the region.

Developmental and Reproductive Toxicology is a critical field of study that focuses on understanding the harmful effects of chemicals and other substances on fetal development and reproductive health. The field is increasingly important in a world where exposure to toxic substances is becoming more widespread and where the long-term effects of these exposures are still not fully understood. Despite its importance, developmental and reproductive toxicology often receives less attention than other areas of toxicology, and it is crucial that this situation change both globally and specifically in the Middle East [4,5]. Additionally, the field of developmental and reproductive toxicology is essential for developing safe and effective medications and treatments, as well as for identifying and mitigating the risks of exposure to toxic substances in the environment.

Male Reproductive Toxicity: *A Growing Concern:*

Infertility is characterized by the failure to conceive after trying for a year or longer, which results in unintentional childlessness. Approximately 8-12% of couples are affected by infertility worldwide, with male factors being the primary cause in half of these cases. Environmental contaminants have emerged as a significant contributor to the increasing trend of male infertility globally [6-8]. In order to resolve this issue, it is crucial that more attention is paid to developmental and reproductive toxicology in the Middle East. This could be achieved through increased investment in research and infrastructure, as well as through the development of academic programs in this field.

Conclusion

Toxicology is an emerging field in the Middle East that has the potential to play a critical role in addressing the challenges related to environmental degradation, pollution, and public health. Despite the challenges, there are significant opportunities for toxicologists in the Middle East to make a difference and contribute to the field. As the world continues to face new and complex challenges related to chemical exposure and toxicity, it is important to support and promote the growth and development of toxicology in the Middle East to ensure that this critical field continues to benefit from the contributions of scientists in this region. By working together, toxicologists in the Middle East can help establish toxicology as a well-respected and

fully integrated discipline and advance the field for the benefit of the region and the world.

References:

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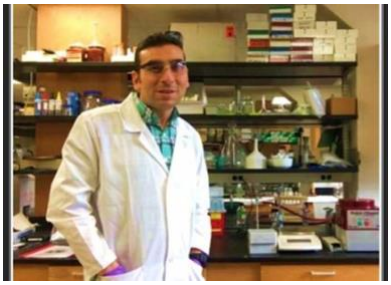
ATA ACHIEVEMENTS & ACTIVITIES

We are proud to announce that Dr. Maha Almazrou'a's achievements and efforts have been recognized by Prince Saud bin Nayef Al Saud during the annual meeting of the Pharmacy Conference: SIPHA in Saudi Arabia. On behalf of the ATA community, we extend our heartfelt congratulations to Dr. Almazrou'a for this well-deserved recognition. Her contributions to the field of toxicology are truly remarkable and inspiring.

Many Congratulations to Dr. Mohammed Gorab, for being selected to serve on the World Health Organization (WHO), among other expert toxicologists and epidemiologists on a scientific panel at the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) Roster of Toxicological and Epidemiological Experts (What a prestigious selection!).



Our own officer Hadil Almuhisen won the Women in Toxicology Graduate Award from the Women in Toxicology Special Interest Group, SOT. Hadil also recently received her doctoral degree in Toxicology from Texas A&M University. We are proud and happy for what you have achieved, Hadil. Big heartfelt congratulations!

ATA ACTIVITIES:

WEBINAR

We are excited to share that as part of the ATA-SOT's activities, we had the pleasure of working with the Computational Toxicology Specialty Section (CTSS) and the international conference Knowledge, Skills, and Abilities in Pharmacy and Toxicology (KSAPT) in Saudi Arabia to broadcast the Overview of Bioinformatic Sequence Analysis and Applications in Toxicology.

The presentation was given by two of our esteemed ATA members, Dr. Ahmed Abdelmoneim and Dr. Tamer Mansour, and was held on December 6th, 2022. We are thankful for the cooperation and support that made this possible.

This is a great example of how the ATA-SOT is working to promote collaboration and knowledge sharing among Arab toxicologists and the broader scientific community. We are proud to support our members in their endeavors and look forward to more exciting opportunities in the future.

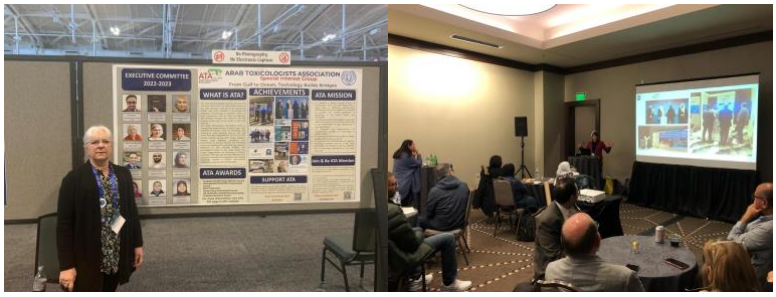
Thank you, Dr. Abdelmoneim and Dr. Mansour, for sharing your expertise with us, and thank you to all those who helped make this event a success. This collaboration also provided an opportunity for both Dr. Saif Alharthy and Dr. Saeed Alqahtani to present their most recent research and discuss its application in Saudi Arabia. Additionally, Drs. Saif Alharthy and Saeed Alqahtani represented the ATA at the KSAPT expo, sharing the ATA's mission with other experts.

We want to express our sincere gratitude to Dr. Maha Almazrou'a for offering her cooperation and supporting the ATA mission.

The ATA's Activities at the SOT annual meeting (2022-2023):

We are also excited to share that the ATA held its first Endorsement Symposium session approved by the Society of Toxicology for the 2023 SOT Annual Meeting! The session was titled "Understanding the Concept of Similarity and Its Applications to Toxicological Research and Risk Assessment". We congratulate the Chair, Kamel Mansouri, and Co-Chair, Denis Fourches, for organizing this critical symposium.

Additionally, ATA held its annual reception at SOT 2023. ATA updated its member about the achievements and activities for 2022-2023. ATA awarded the winners of different categories as can be shared in the upcoming newsletter and the ATA official website. Congratulations to all the awardees!



Dr. Hanan Ghantous in front of the ATA poster at SOT! Thank you Hanan for your dedication to the mission of ATA!

Publications:

We are proud to share the 2022-2023 Publications of our ATA members! Congratulations to all members who have had their work published. Your dedication and hard work are making an impact in the toxicology community.

- Issa SY, Zaghloul NM, Al Mazroua MK. **Estimation of blood and urine levels of eight metals and essential trace elements collected from living Subjects compared to urine, cardiac and femoral postmortem blood, and other postmortem samples: A forensic toxicology study.** J Forensic Leg Med. 2022 Nov;92:102435. doi: 10.1016/j.jflm.2022.102435. Epub 2022 Oct 26. PMID: 36334314. **Paper link**
- Alqahtani S, Xia L, Shannahan JH. **Enhanced silver nanoparticle-induced pulmonary inflammation in a metabolic syndrome mouse model and resolvin D1 treatment.** Part Fibre Toxicol. 2022 Aug 6;19(1):54. doi: 10.1186/s12989-022-00495-6. PMID: 35933425; PMCID: PMC9356467. **Paper link**
- Xia, L., Alqahtani, S., Ferreira, C. R., Aryal, U. K., Biggs, K., & Shannahan, J. H. (2022). **Modulation of Pulmonary Toxicity in Metabolic Syndrome Due to Variations in Iron**

Oxide Nanoparticle-Biocorona Composition. Nanomaterials, 12(12), 2022. **Paper link**

- Alharris E, Mohammed A, Alghetaa H, Zhou J, Nagarkatti M, Nagarkatti P. **The Ability of Resveratrol to Attenuate Ovalbumin-Mediated Allergic Asthma Is Associated With Changes in Microbiota Involving the Gut-Lung Axis, Enhanced Barrier Function and Decreased Inflammation in the Lungs**. Front Immunol. 2022 Feb 21;13:805770. doi: 10.3389/fimmu.2022.805770. PMID: 35265071; PMCID: PMC8898895. **Paper link**
- Osman KA, Shaaban MMI, Ahmed NS. **Biomarkers of imidacloprid toxicity in Japanese quail, Coturnix coturnix japonica.** Environ Sci Pollut Res Int. 2023 Jan;30(3):5662-5676. doi: 10.1007/s11356-022-22580-1. Epub 2022 Aug 18. PMID: 35980528. **Paper link**
- Osman, K. A., Ali, A., Ahmed, N. S., & Ayman, S. (2022). **Biochemical and genotoxic effects of some pesticides on the Egyptian Toads, Sclerophrys regularis (Reuss, 1833).** Watershed Ecology and the Environment, 4, 125-134. **Paper link**

We encourage members to share their publications with us to celebrate their success in advancing the toxicology field. Let's keep encouraging one another and expanding the limits of what is achievable in the discipline of toxicology.

Mentee/Mentor Program

We are delighted to share the Society of Toxicology's Mentor and Mentee Program! This program provides an incredible opportunity for both mentors and mentees to connect, learn, and grow in their careers.

We encourage all members to explore this program and consider becoming a mentor or mentees. As a mentor, you will have the chance to transfer your knowledge and experience to a mentee and assist them in achieving their objectives. As a mentee, you'll get the chance to learn from an experienced toxicologist and receive guidance and support in navigating your career.

We also want to extend a special invitation to our experts in Arab toxicology to join the program as mentors. Your knowledge and expertise can be incredibly valuable in helping other mentees to achieve their goals and advance their careers. Therefore, let's unite as a group to encourage one another and improve toxicity. We sincerely hope you'll join us in the Mentor and Mentee Program and take advantage of this wonderful opportunity.

We would like to extend a special thank you to **Mohamed Ghorab** for being the **first mentor** to join the Society of Toxicology's Mentor and Mentee Program. Your dedication to the field of toxicology and willingness to support others in their career development is truly inspiring. Your leadership in this program sets a wonderful example for others to follow, and we are grateful for your commitment to helping others achieve their goals.

Thank you for your generosity, Mohamed, and for being a vital part of this program. We look forward to seeing the positive impact you will have on your mentees' careers.

In addition to the Society of Toxicology's Mentor and Mentee Program, Dr. Ghorab is serving as a mentor in the **@toxmsdt program** which is mentoring and skills development training

program that is funded by NIH. For more information, please visit the link

Awards

The Arab Toxicologists Association (ATA) is proud to offer multiple awards each year to recognize our members' achievements. These awards celebrate our members' successes and contributions to the field of toxicology.

The available awards are:

1. Graduate Student Best Abstract Award
2. Distinguished Scientific Presentation Award
3. Best Publication Award
4. Outstanding Professional Award
5. Dr. Burhan Ghanayem Outstanding Graduate Research Award

We encourage all eligible members to apply for these awards and showcase their outstanding work. The deadline for submission is every January 8th, so be sure to submit your application soon.

To learn more about the awards and the application process, please contact ATA officers or visit the following link:

[https://www.toxicology.org/groups/sig/ATA/about-us.asp]

We would also like to take this opportunity to congratulate the awardees of 2023, whose names can be found in the link above. Their dedication and hard work have not gone unnoticed, and we are proud to have them as members of our organization.

FINANCIAL SUPPORT

ATA's committees and members started with a huge ambition to keep ATA going and being successful. Therefore, ATA appreciates any donation and support to encourage scientists at all levels and initiate scientific activities in toxicology. Funding sponsors and donors will be recognized at future events and on the ATA website. For donations to ATA, please fill out the financial support form in the link below and follow the instructions to send the support through fax or SOT mail. Please contact Dr. Nabila Saber (nabilasaber@yahoo.com)
Donation Form

JOIN US

Toxicologists or professionals in related fields can join ATA at any time during the year by applying at the following link

https://www.toxicology.org/groups/sig/ATA/docs/ATA-SOT-2021-Membership.pdf

https://www.toxicology.org/groups/sig/ATA/join-us.asp

For more information on becoming a member of SOT and ATA, please contact:
sothq@toxicology.org