

Women during the COVID-19 Era

AL-Hmoud: Eye on Food Safety and another Looking for Coronaviruses in Bats

Dr. Nisreen DaifAllah AL-Hmoud represents a model for Jordanian women who stand in the first rows in the face of the COVID-19 pandemic, leading the Bio-Safety and Bio-Security Center at the Royal Scientific Society (RSS) and contributing with the Center's team in finding novel solutions.



Dr. AL-Hmoud is a microbiologist specializing in research studies and projects related to human health, animal and environment, currently working in an administrative and research role at the RSS Bio-Safety and Bio-Security Center, which is a unique platform for studies and research projects related to the preservation of human health and the environment.

As partners in development and progress, the Women's Network (Women as Partners in Progress (WPP)) monitored the role of Dr. AL-Hmoud and other Jordanian women in dealing with the current crisis in Jordan due to COVID-19. The Network is concerned with the development of women's policies in Jordan, highlighting the achievements of Jordanian women in all sectors and their active role in the Jordanian society and the labor market.

With experts in the fields of microbiology, virology, molecular biology, environmental health and safety, and risk assessment and management, according to Dr. AL-Hmoud, the RSS Bio-Safety and Bio-Security Centre offers specialized laboratory-testing services for various types of specimens and focuses on technology transfer, education, training and the capacity building of local and regional institutions.

Dr. AL-Hmoud states that she is working within the "Western Asia Bat Research Network, WAB-Net", which is the first bat research network in the region with the aim of integrating ecological research on bats with virus surveillance to find "win-win" solutions that promote bat conservation and safeguards human health. The network includes representatives from Jordan, Georgia, Turkey, Pakistan, Lebanon, Iraq, Oman, Saudi Arabia, United Arab Emirates, Azerbaijan and Armenia.

Since project inception (in October 2017), standardized protocols for non-lethal bat sampling, site characterization, and screening bat-associated coronaviruses were developed. Demographic data and diagnostic samples from 350 individuals from five bat species were collected from four different sites in the north of Jordan. Collection of bat samples and detecting the presence of coronaviruses in the collected samples will be continued in the upcoming three years in different locations in the south of Jordan to characterize the coronavirus strains that inhabit the bats in Jordan, and to study its capability to infect humans. The team will consider testing COVID-19 in future bats samples that will be collected within the framework of the project. In this context, it is worth to mention that working in this project requires that the research team works long hours in the field (10-12 hrs.) during the night due to the fact that bats are mostly active after dusk and up until dawn.

Dr. AL-Hmoud believes that the research has an active and essential role in fighting the COVID-19 pandemic and in ensuring that the virus will not re-emerge in the next seasons. Today, the research team is living in critical and effective period trying to understand the mechanisms of transmission of COVID-19 and the duration of infectivity. In this regard, the research team at the Center is working on developing a vaccine to protect against COVID-19 based on innovative ideas; where the immunogenicity of this vaccine will be tested in animal model. As soon as the vaccine passes the phase I of trials, the candidate vaccine will be subjected to the subsequent phases. Besides, the research team will start testing the efficacy of the newly developed product by IK HealthCare. It is believed that this product "ANTI VIRUSIK" can stimulate and modulate the immune function of the host.

On the other hand, Dr. AL-Hmoud says that, during the current crisis due to COVID-19 pandemic, she and her team are working on examining the shipments coming to Jordan to ensure that they are free of COVID-19 in cooperation with the Jordan Food and Drug Administration (JFDA). Dr. AL-Hmoud adds that the Center has an active role in the daily life of the Jordanian citizen without being at the forefront through our work with the Ministry of Water and Irrigation / Water Authority of Jordan to study different water sources and to make sure that they are free of coronavirus. Besides, the research team at the Center has developed a project idea to test COVID-19 in wastewater effluents from isolation hospitals.

Dr. AL-Hmoud does not hide that her family are worried about her because she works with her research team on studying and examining coronaviruses in different samples. However, her family is aware of the importance of her work especially the fieldwork. Dr. AL-Hmoud states that she takes all the necessary

precautions and mitigation measures, especially during sampling the bats and processing the samples in the field: "The nature of my work makes me aware of any related risks; through taking all precautionary measures, I ensure my safety and the safety of my family"-Dr. AL-Hmoud said.

Dr. AL-Hmoud is proud of her work, and said, "I would like to have a bigger role in fighting coronavirus"; stressing that the RSS is dedicated to serve the country, and we are part of this institution and part of this country. Dr. AL-Hmoud elaborated that the research team is willing to support all national efforts and the Ministry of Health in detecting COVID-19 in clinical samples and to provide other services on a voluntary basis.

Dr. AL-Hmoud concluded that *she is proud to be part of the fight against COVID-19 pandemic to protect the country alongside the health and security staff, and also to be part of this large institution - the Royal Scientific Society of Jordan.*