EDITORIAL

ROLE OF PAKISTANI UNIVERSITIES IN COMBATING COVID-19

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In Pakistan, the total number of universities is 177 and more than 12,000 active Ph.D. faculty members are working. Approximately 1500 Ph.D. scholars are enrolled every year in different fields. Above mentioned statistics are the best indicators for a developing country such as Pakistan. After the COVID-19 outbreak, world scientists across the globe raced to develop drugs, instruments, personal protective equipment (PPEs), and vaccines to control outbreaks. In this situation, Pakistani scientists were involved in different projects which were related to the COVID-19 outbreak.

All universities done their best endeavor according to their existing resources in COVID-19. The University of Engineering and Technology(UET), Lahore researchers designed cost-effective personal hygiene articles and ventilators[1]. The expert research team of ASAB, NUST Islamabad claimed to establish a cheaper COVID-19 molecular-based diagnosis testing assay. This assay cost was 1/4th of the current market available price of the test. This historical achievement was done with the collaboration of the Wuhan Institute of virology China, the German center for infection Research (DZIF), the Armed Forces Institute of Pathology CMH Rawalpindi, and Columbia University USA[2].

Another exertion done by the Centre of Excellence in Molecular Biology; Punjab University Lahore scientists team to develop a cheaper diagnostic test assay for the detection of COVID-19, one test price was estimated up to Rs 800 (5 US dollars) only[3]. A breakthrough was noted in International Centre for Chemical and Biological Sciences (University of Karachi), which identified nine compounds that could inhibit the virus growth in the host cell. The aim of this project was to invent a viral protein functional inhibitor. At this university, the vaccine designing project was also launched[4].

The Punjab University, chemical engineers developed anti-viral disposable wipes and sanitizers according to the world health organization's (WHO) standard operating procedure (SOPS). Different sources of COVID-19 spread were reported, and wipes could be used for the decontamination process of different items such as purses, mobile phones, pens, keys, stair railings, ATMs, public washrooms and door handles[5].

The national university of science and technology is the state of art and leading institute in Pakistan. The CEME (NUST) researcher-developed bilanguage (English and Urdu) screening COVID-19 application. The name of the app was "COVID CHECK PAKISTAN", which was used for the screening process. In initial approximability, 8,000 people from different counties such as USA, UAE, Saudi Arabia and the UK were screened. This application was the first-world application in the Urdu language version, enabling screening of the Pakistani population easily due to the mother tongue software version[6].

Pakistani university's efforts were not hidden during the pandemic, as NUST Aga Khan University and Aga Khan University Hospital launched the "CoronaCheck "mobile applications enable to screen people easily and safely to evaluate symptoms, while staying at home. This application used an interactive chatbot, based on the Artificial Intelligence technique, which helps out Pakistani population users to understand COVID-19-related signs and symptoms and was helpful for intime treatment. Its basic aim was to identify potential COVID-19 carriers and limit its transmission risk. This app's best features included WHO guidelines, Urdu language videos, lists of government hospitals, and their helpline details. The concept of this app development was to reduce the burden on the healthcare system. The "CoronaCheck" App helped to tackle misconceptions and the bulk of unverified information on social media platforms having featured educational videos and were available on Google Play Store to download[7].

NUST, ASAB researcher achievement was to the sequenced complete genome of SARS-CoV2. This effort was to identify tracing the evolutionary origin of COVID-19 that infected the Pakistani population, is

useful for comparative genomic analysis. This discovery could play a vital role in accurate assay development and vaccine design. This project was completed with the collaboration of AFIP, Rawalpindi, and Charite-Berlin Germany and was published through National Genome Data Centre China, on March 25, 2020, was the first 29836 bp genome sequence using 2 isolates from Gilgit, Pakistan published from Pakistan, and available on the following link NCBI https://www.ncbi.nlm.nih.gov/nuccore/MT240479, GISAID, and NEXT RAIN[8].

The research team of the reputed national university located in Rawalpindi claimed that COVID-19 sequence, 2 isolates were taken from Manga, Pakistan. This data was published on April, 06, 2020. It was the 2nd 29836 bp genome sequence, and available on the following link NCBI: https://www.ncbi.nlm.nih.gov/nuccore/MT262993.1[9].

I conclude that the world had faced different pandemics like COVID-19 in different centuries. No doubt Pakistani government's planning, situation monitoring, coordination, disease assessment, and continuity of healthcare provision were excellent. The Government should launch different projects to handle crises and provide funding to the universities. Higher Education Commissions should promote excellence in research through various incentives.

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