Raysa Khan Tareque: The Bangladeshi woman developing next-gen DNA technology

The young scientist is currently residing in the UK, working as a synthetic chemist for Evonetix, a Cambridge-based synthetic biology company focused on developing DNA synthesis technology.

AKHLAKUR RAHMAN

Raysa Khan Tareque is a Bangladeshi scientist who aspires to develop the next generation of DNA technology. As a Bangladeshi woman and a scientist, she has become a role model for the female population daring to chase after their dreams in STEM (Science, technology, engineering, and mathematics).

The young scientist is currently residing in the UK, working as a synthetic chemist for Evonetix, a Cambridge-based synthetic biology company focused on developing DNA synthesis technology.

In a casual interview with The Daily Star, the chemist opened up about her experience of working in STEM.

Raysa's family moved to Sweden when she was quite young and she completed her education there. "Chemistry invoked my curiosity from my high-school days," said the scientist. "I had an amazing chemistry teacher, Dr Tammara Elmfors, who inspired me to pursue higher level education on the subject."

She graduated as the top student in her class, earning a Bachelor's Degree in Medical and Pharmaceutical Chemistry from Nottingham Trent University in 2014. In 2018, she completed her PhD in Medical Chemistry from the University of Sussex.

"Once we went to visit a six-year-old cousin of ours in Bangladesh, whose mom told him that there's a scientist amongst the two of us," shared Nazmus Sakib Tareque, Country Manager UK, Equality Check, and Raysa's husband. "He assumed that the scientist was me rather than Raysa. But when I cleared his misunderstanding, he couldn't believe that a woman could also be a scientist."

A behind the scene still from Dr Raysa Khan Tareque's YouTube cooking show.

"People usually assume that being a scientist is a man's job," added Raysa. "Even in the UK, there are fewer women in the upper spectrums of STEM."

"It's often easier to accept and acknowledge something when you have a role model to broaden your horizon," shared Raysa. "I have also done a lot of outreach events where I presented myself as a female scientist and encouraged young girls to pursue scientific fields. I wanted to show them that I am a girl scientist and that it is possible to make a place for yourself in this field."

Raysa's team at Evonetix is currently focusing on a new DNA technology that could revolutionise gene synthesis with improved accuracy, speed and scale for scientists working in healthcare, medicine, data storage and many other industries.

"In simple terms, we at Evonetix are developing a DNA printer which would print DNA sequences with high accuracy and speed," stated Raysa. "It would allow scientists to speed up their work by massively cutting down the time needed to prepare DNA sequences for their research."

"Sometimes, it can take months for scientists to prepare long DNA sequences in the lab," said Raysa. "This DNA printer could make that process instant which could revolutionise the medical and health care industries."

Raysa is also quite popular amongst Bangladeshi youth and housewives through her YouTube channel and Facebook Page "Dr Raysa's", where she blends bits of chemistry with the science of cooking.

"I am a Bangladeshi woman who likes making cooking videos and at the same time I also have a career as a scientist," concluded Dr Raysa Khan Tareque, remarking that young Bangladeshi girls should see her success and strive for it themselves.

'Shushasther Odhikar Shobar- Better health right for all'

PRESS RELEASE

With the mission of ensuring and innovating access to public health across Bangladesh, Footsteps launched the health programme "Shushasther Odhikar Shobar- Better health right for all" back in 2020.

This health programme was initiated out of the necessity of mitigating the global health crisis at the peak of the pandemic. Now, it is actively working on five components of various health initiatives in last-mile communities across Bangladesh, impacting 4,701 people to date.

The Shushasther Odhikar Shobar (SOS) Program works on solutions for the general population, focusing on the health of women and children. The programme works on innovation, both on strategic and technical grounds, making healthcare facilities easily accessible in hard-to-reach areas. In the beginning, SOS was initiated to minimise the health hazard during the pandemic. Channelling the services properly to the targeted beneficiaries and addressing each segment of public health that is lagging behind is now the milestone for the programme. All the components now come together to uphold the SOS hub as a belief in accessing better health for all.

Professor Rubin Harvey from Penn State University, founder of Energize the Chain (ETC), delegated ETC Bangladesh to collaborate with Footsteps to strengthen the cold vaccine chain in Bangladesh. This is how the journey of SOS began, and now it is a fully-rounded programme.

The SOS Medical Box and Women Capacity building on First-Aid has ensured

PHOTO: COURTESY OF FOOTSTEPS

primary health security for 916 households in Kushtia and Rangamati, and also helped train 24 women.

The programme also helped to promote Sexual and Reproductive Health Rights (SRHR) through workshops and consultation with SOS Bijoya—an eco-friendly reusable sanitary pad for menstrual hygiene management (MHM). This helped ensure knowledge on MHM, while also providing 100 adolescent girls with kits to have safe menstruation.

At present, ETC is planning to establish two cell towers, one of which will be a solar-powered vaccine and medical supplies' storage, which will be deployed in Satkhira this month. As a result, it is estimated to strengthen the healthcare supply chain and support 1,000 people every month.

With primary health safety in mind, the SOS Hub will be introduced in association with the local government. This will build a long-term relationship between Footsteps and beneficiaries.

Under The leadership of Shah Rafayat Chowdhury, founder, and president of Footsteps, the SOS programme is monitored and implemented by a specialised team coordinated by Project Coordinator Mehenaz Zaman, field officers, changemakers with a medical background, and public health professionals who will add value to the impact of the overall program.

Footsteps Bangladesh is a next-generation development organisation that empowers communities to tackle community-specific problems through effective self-sustaining initiatives.

Currently, Footsteps has six main social ventures impacting over 315,247 people, across 30 districts, in Bangladesh. For its tremendous work and remarkable impacts, so far, the team has been recognised nationally and internationally with the prestigious Forbes 30 under 30 Asia 2022 (Social Impact category), Diana Award (2020), AFS. Prize for Young Global Citizens (2020) and the Joy Bangla Youth Award (2020).

CCDB Climate Technology Park: A hope for a better future

SUHA HUSSEIN

The issue of climate change is nothing new for us. And what about the implications? We see them on the news all the time. Bush fires, flash floods, heat spikes, and all that. Time after time, we continue to see the prolonged human-induced climate change.

Our extensive use of plastic, combined with our poor waste disposal systems ever since the industrial revolution back in the 1970's, has resulted in the world boiling and bubbling in its own heat. As humans, we tend to get desensitized after a while. All this news just becomes noise. Because it all sounds slightly hopeless. It may be difficult to believe that there is hope. Well, we're here to tell you there is. There is hope after all.

This year summer came early. Way too early! Summer in March! What about winter? Will it get shorter and shorter? How will the earth survive with a rapidly depleting ozone layer? Will Chittagong survive the rising sea level? If I turn off the air conditioner, will it help? And some more maddening questions keep me up at night. I think of children who are going to have to live on this earth because not everyone will be rich enough to get a spaceship ticket out to some other planet that might just have a little oxygen.

A solar panel at CCDB Climate Park.

PHOTOS: ASHRAFUL ISLAM ADIB

Recently, on a field trip to the CCDB Climate Technology Park, located some 60 kilometers to the north of Dhaka's metropolitan area, students of the University of Liberal Arts Bangladesh (ULAB) discovered multiple kinds of technology that can help address the reality of climate change.

It was a rather cloudy day at the beginning of our journey but soon the sun was up. Upon our entrance, the first thing I noticed were the green buildings. The buildings were constructed from something called 'soil material'. I believe the greens on top and the soil material made the buildings especially resistant to heat. Apart from that, none of the buildings I saw were white in color. The interiors were lit with energy bulbs.

They had this brick aesthetic on the exterior which added to their visual appeal. Almost all of the buildings had solar panels. In fact, the conference building had the widest array of solar panels I have ever seen in a building.

The Climate Center is divided into 5 regions, each region depicting the various regions prevalent in Bangladesh: including the coastal, dry, charland, hilly and haor zones.

Among these, I like the 'natural fridge' the best. Constructed of bricks and soil, it resembles a vat where farmers can store their fruits and vegetables. It's been a problem for farmers to protect the items from the humidity. It's expensive and the costs to tackle this results in a high carbon footprint. The water that drips slowly into the vat from a water tank keeps the inside cool making fruits and vegetables last longer.

Several climate change adaptation and mitigation technologies present throughout the facility was truly impressive. For instance, the electric vehicle charging station, rain water harvesting system, soil management technology, pond sand filtration process, bottle drip irrigation, mini pond technology for drought prone areas, biodegradable mulching paper (organic mulching), zero energy cool chamber, floating agriculture, water desalination panel and solar irrigation pump were quite interesting.

Up until now, we have only had a vague understanding of climate change. When we saw something as simple as a sustainable ceiling fan and all the way to organic farming, the concept of climate change and sustainable living became very real.

Seeing the various kinds of technology made me want to make actual changes in my life. Field trips are always an adventure for an undergraduate student. I believe that a trip to this incredible place will inspire positive lifestyle changes for just about anyone.