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BIOTECHNOLOGY

5 WOMEN SCIENTISTS MAKING THEIR MARK ON GLOBAL STAGE

All of them have some common traits

ACCORDING to the United Nations, gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.

Providing women and girls with equal access to education, healthcare, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large.

Implementing new legal frameworks on female equality in the workplace and the eradication of harmful practices targeted at women are crucial in ending the gender-based discrimination prevalent in many countries around the world.

Gender equality is a top priority at the UN and is one of 17 Sustainable Development Goals (SDGs) agreed to by heads of government of UN member states in 2015.

It only makes sense. Throughout history, extraordinary women from different faiths and backgrounds worked to advance their communities which are beacons that guide young women and men today.

In the year 859, for example, Fatima al-Fihri founded the world's first university, in Fez, Morocco. Students travelled there from all over the world for Islamic studies, astronomy, languages and sciences.

Arabic numbers became known and used in Europe through this university.

A millennium later, in France, physicist and chemist Marie Curie conducted pioneering research on radioactivity, earning the first Nobel Prize ever awarded to a woman.

Indeed, she went on to become the first person and only woman to win the Nobel prize twice, and the only person to win the Nobel Prize in two scientific fields which are physics and chemistry.

Fast-forward to the present time. Modern science and technology have always been the domain of developed countries. But recently, the prestigious scientific



Datin Paduka Prof Khatijah Yusoff from Universiti Putra Malaysia found that the virus which causes Newcastle disease shows promise as a cancer-fighting agent. PIC TAKEN FROM WWW.MERDEKA.AWARD.MY

journal, *Nature*, highlighted five scientists from non-Western nations who are making their mark on the international stage in the biotechnology field.

And all five are women.

The first is Dr Simone Badal McCreath, a medical researcher at University of the West Indies in Jamaica, working on natural sources of anti-cancer compounds found in the island's abundant endemic species.

She realised that most cancer cell lines used to study these compounds were from white people. It spurred her to begin establishing the first Caribbean cancer cell lines. She has already started on a Caribbean prostate-cancer cell line and plans to develop more.

Badal McCreath advises aspiring biotechnologists to take advantage of their connections.

"Create a strategy with the help of those who've succeeded at the field," she says.

Dr Sushila Maharjan, meanwhile, who received her PhD from South Korea, founded from scratch the Research Institute for Bioscience and Biotechnology in Kathmandu, Nepal.

There was no help from the Nepalese government but eventually she managed to secure funding from The World Academy of Sciences, the Elsevier Foundation and the Alexander von Humboldt Foundation.

The research institute's research objectives involve making

the most of Nepal's natural resources — in particular, high-altitude microorganisms, which are relatively unexplored and which, because of their extreme environment, could harbour biological compounds not found in organisms at lower altitudes.

The results so far are promising.

"We have isolated anti-cancer drugs and they are highly potent against kidney, liver and lung cancer," says Maharjan.

In Bangkok, Dr Chanchao Lorthongpanich is principal investigator at the Siriraj Center of Excellence for Stem Cell Research, focused on generating human platelets in the laboratory in hopes of reducing the risk of contamination and rejection associated with donor platelets.

Another amazing woman scientist singled out for attention by *Nature* magazine was Jenny Leslie, chief operating officer and co-founder of BioTech Africa in Cape Town.

Her company started by creating components for HIV diagnosis kits and for fighting diseases including tuberculosis, typhoid, dengue and Zika.

According to Leslie: "There's a big drive for products made in Africa by Africans, so it bodes well for the future."

The final woman on the list is our very own Datin Paduka Prof Khatijah Yusoff from Universiti Putra Malaysia, who found that the virus which causes Newcastle

disease, a respiratory, gastrointestinal and neurological condition in birds — shows promise as a cancer fighting agent.

"This virus — apparently it kills human cancer cells, but it does not do any harm to us," she says.

Khatijah started her research programme on the virus in Malaysia, using an endemic and highly virulent local strain. Her advice to young graduates: think internationally.

"You don't have to look at the market in Malaysia alone — you can work anywhere around the world", if one is capable and hard-working.

She knows what she's talking about — she's currently the vice-president, respectively, of The World Academy of Sciences and the Islamic World Academy of Sciences.

All five of these remarkable women show some common traits: highly qualified, truly committed to their cause, working on local issues with global implications, unflinching effort in the face of adversity, and welcoming of international collaboration — an important SDG target in itself.

Their utmost enthusiasm and energy builds confidence that that the UN Global Goals can be met by 2030 after all.

The writer is a former member of the governing board of the Global Research Council, Asia-Pacific region

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