

'Unesco-L'Oréal For Women in Science' bridges gender gap

The programme acknowledges women's need for juggling time and navigating opportunities in a field men predominantly

by AUFA MARDHIAH

UNESCO and L'Oréal recently created the "Unesco-L'Oréal For Women in Science" initiative to empower female scientists and provide them with a platform to advance in their careers with a grant amounting to RM30,000 as the scientific field stands out as a particularly challenging arena for women.

The programme, involving 110 countries, took root locally in 2006 and has been making strides over the years.

Far from a mere token effort, the initiative takes rigorous steps to identify, support and celebrate exceptional women in science.

The programme acknowledges women's need for juggling time and navigating opportunities in a field still predominantly led by men.

Despite these obstacles, the initiative remains committed to uplifting women and addressing the gender gap in scientific industries.

One distinctive feature is the hands-off approach of L'Oréal in evaluating and assessing participants.

The company acts as a benefactor, providing grants and organising events, leaving the evaluation process entirely independent.

Recruitment from March to April calls for applications from universities, the Academy of Science Malaysia and the public.

A unique aspect of the initiative is the involvement of past winners in the assessment process.

Following the initial round of assessments, the top selected applicants, varying in number each year, proceed to the main jury phase led by Professor Emeritus Datuk Dr Asma Ismail.

In 2023, the programme witnessed a record-breaking 120 applications, showcasing the growing interest and need for such initiatives. The top 10% of applicants move forward to face scrutiny from the main jury.

The rigorous evaluation process involves not only assessing scientific merit but also encourages participants to share their passion for science through video submissions.

The finalists are then subject to a deliberation meeting, where the main jury meticulously considers each candidate.

The ultimate goal is to identify three women who will be crowned as the worthy winners for the year, a task made even more challenging by the stiff competition this year.

The three winners were Dr Che Azurahaman Che Abdullah from Universiti Putra Malaysia, Dr Acga Cheng from Universiti Malaya and Dr Elena Azizan from Universiti Kebangsaan Malaysia.

All three winners expressed gratitude to receive the award and were relieved at the same time for completing their presentations.

Nevertheless, they also look forward to seeing how L'Oréal translates their research into something that everyone can understand, as well as benefitting the society.

Combat against Black Pod Disease

Che Azurahaman's research endeavour aimed to establish a circular economy by repurposing residual materials from cocoa agricultural waste and transforming



The initiative is a movement breaking barriers as it celebrates achievements and fostering a community of women scientists

Pic by Muhd Amin Naharul

them into nanomaterials.

The primary objective of the research is to combat the black pod disease affecting cocoa trees.

The proposal outlined Che Azurahaman's successful synthesis of both luminescent and gold nanoparticles from cocoa agricultural waste.

Unlike previous studies that focused on individual nanoparticles, her research explored the synergistic antifungal properties resulting from the combination of both nanoparticles.

This approach seeks to address the pressing issue of cocoa disease with a comprehensive and environmentally conscious solution.

Before receiving this grant, Che Azurahaman and her team had already undertaken the training of students to convert agricultural waste into nanoparticles.

Initially successful in applications related to anti-cancer and anti-microbial properties, her focus shifted upon joining the programme towards addressing the specific challenge of antifungal resistance in the context of black pod disease affecting cocoa cultivation.

The redirection aligns with her team's commitment to combat the primary disease impacting cocoa production.

Notably, black pod disease has long plagued cocoa cultivation globally, causing a significant drop in yields ranging from 80% to 90%.

Che Azurahaman said traditionally, farmers have relied on chemical and natural methods to prevent its occurrence.

She believed that the research serves as a pivotal step in advancing novel strategies against black pod disease, leveraging nanotechnology and the expertise of female scientists to contribute to sustainable and resilient cocoa agriculture.

"My aspiration extends beyond the culmination of our current research on black pod disease.

"I am eager to explore the realm of nanomaterials for health, specifically in the prevention of diseases, transitioning from personalised medicine to personalised agriculture. The versatility of these materials allows for targeted interventions against various diseases.

"Looking ahead, I envision applying for additional grants to sustain our research momentum," she told *The Malaysian Reserve* (TMR).

Recognising the crucial role of education in fostering the next generation of researchers, she aimed to allocate resources to support local students.

"Currently, there is a deficit in

scholarships for these students, and securing grants would not only advance our scientific pursuits but also contribute to inspiring and nurturing the future cadre of researchers," she added.

Substitution of Lowland Rice with Aerobic Rice

Cheng's research essentially explores the substitution of lowland rice (flooded rice) with aerobic rice (non-flooded rice).

The primary objective is to investigate the efficacy of inoculations in enhancing yield and replenishing soil fertility simultaneously.

By addressing both aspects, she aims to achieve a dual-purpose solution, essentially "killing two birds with one stone".

"It is important to emphasise that the intent is not to eliminate flooded rice cultivation entirely but rather to integrate aerobic rice as a sustainable approach towards promoting self-sufficiency in rice production.

"This research thus stands as a strategic step toward understanding and optimising the dynamic interaction between aerobic rice and soil microbes in the context of a changing climate," she said to TMR.

The research endeavours, particularly focusing on aerobic rice, hold the promise of ushering in sustainable agricultural practices.

By eschewing the traditional submergence of paddies, aerobic rice presents an innovative approach that not only conserves water but also allows for cultivation similar to vegetables.

The utilisation of alternative land with suitable conditions further underscores the versatility of this cultivation method.

A key aspect of sustainability is the implementation of bio-fertilisers, contributing to soil replenishment.

Notably, she said the US has provided funding for her aerobic rice project, concentrating on rice development, given the singular growing season in the region.

The ongoing project, initiated three years ago, seeks to enhance crop improvement. Concurrently, within the scope of her work with L'Oréal, another facet involves the exploration of aerobic rice with multifunctional nanoparticles.

"I hope for aerobic rice to emerge as a viable staple food option in Malaysia, augmenting our national self-sufficiency.

"While recognising the gradual nature of crop improvement, the dual focus on lowland rice and aerobic rice holds the potential to make significant strides in advancing agricultural sustainability in

our country," Cheng added.

The Effect of CYP11B2 Inhibition on Adrenal Cell Fate

Elena's research centres around evaluating the impact of aldosterone synthase (CYP11B2) inhibition on adrenal cell fate, stemming from a hypothesis that extends beyond the conventional approach of using CYP11B2 inhibition solely for hypertension treatment.

While acknowledging its potential benefits in reducing aldosterone, she proposed that prolonged inhibition of CYP11B2 may go a step further.

The hypothesis posits that inhibiting CYP11B2 could induce programmed cell death in cells carrying mutations related to this gene, leading to comprehensive elimination.

Elena added that the significance lies not only in its potential effectiveness but also in offering an alternative to intensive medications.

The relevance of her proposal is heightened by recent advancements in CYP11B2 inhibitors, which have demonstrated selectivity for the enzyme.

This was historically challenging due to the homologous nature of another enzyme, CYP11B1.

The breakthrough in achieving selectivity has opened new possibilities for hypertension treatment.

However, Elena's research delves into the consequences of prolonged CYP11B2 inhibition, exploring the long-term effects beyond its immediate application in hypertension treatment.

Juggling between Professional and Personal Life

In her leisure time, Che Azurahaman enrolls in diverse classes to acquire additional expertise.

Presently, she is immersed in a mental health class, driven by her commitment to advocate for the younger generation who often grapple with such challenges.

She also enrolled in a communication class, aiming to refine her skills and become a proficient speaker.

Remarkably, the skills cultivated through these classes seamlessly integrate into her professional pursuits.

Navigating the demands of a career in the United Arab Emirates (UAE) while maintaining a connection with her personal life requires a meticulous balancing act.

Faced with a significant time difference between the UAE and Malaysia, Che Azurahaman

manages a mere four hours of sleep daily.

A crucial element in this delicate equilibrium is having a supportive partner and a robust support system to facilitate the demands of both her professional responsibilities and her personal life at home.

This delicate juggling underscores her dedication to both her career and personal wellbeing.

Meanwhile, Cheng seeks solace from the demands of her challenging professional life through simple and relaxing activities such as yoga and unwinding with Netflix.

When it comes to her professional and personal life, Cheng said the absence of immediate maternal responsibilities, coupled with her family residing in another state, affords her the flexibility to concentrate on her work throughout the weekdays, leaving the weekends open for quality leisure and personal time.

On the other hand, Elena indulges in the therapeutic pursuit of gardening, nurturing plants as a means of relaxation.

She also immerses herself in the world of Japanese online manga, exploring narratives and stories that captivate her imagination and provide an escape.

Elena imparts valuable insights gleaned from her experiences.

Recognising the impossibility of perfection in every aspect, she advocates for giving one's best effort and embracing imperfection.

On weekends, Elena prioritises quality time with her children, engaging in outings and attentively listening to their perspectives.

The support system she has cultivated plays a pivotal role in alleviating stress.

With friends providing emotional support, parents contributing significantly to childcare and a husband who consistently advocates for her progress, Elena emphasises the importance of a supportive ecosystem in effectively managing the demands of both professional and personal spheres.

This approach allows her to be present in each moment, fostering a harmonious integration of her roles and responsibilities.

Advice for Young Girls

Cheng emphasised the importance of authenticity and self-awareness.

"You have to be authentic and know what you want. If you want to have a family, go and have a family, but if you want a career, don't let someone tell you otherwise.

"Everything will come naturally if you just go in and fight for your dreams. If you have the passion, go for it," said Cheng.

Elena extended her advice to young girls by highlighting the multifaceted nature of their identities.

She believed that with a supportive network and ecosystem, women can successfully balance various roles including those of a friend, wife, mother and daughter.

She underscored the significance of an enabling ecosystem, robust networking and facilities that facilitate a flexible work-life balance.

Che Azurahaman, on the other hand, emphasised self-belief and the need to break through societal barriers.

She encouraged individuals to defy external opinions and stay true to their aspirations.

"You must know what you want, and achieve it," she said.

In essence, the "Unesco-L'Oréal For Women in Science" is a movement breaking barriers, celebrating achievements and fostering a community of women scientists.