Patented green and safe core-shell nanoparticle technology has won the Excellence in Research Application Award at the inaugural Hong Kong Innopreneur Awards organised by the Federation of Hong Kong Industries

Research & Innovation

Edible Coating for Extending Fruit Shelf Life

PolyU academic-led start-up Grand Rise Technology has enabled a new class of amphiphilic core-shell particles that has wide-ranging applications. The particles can be used as an edible coating for extending the shelf life of fruits, thus helping to reduce food waste and lowering the risk of cross-infection of viruses during transportation. This bio-based antimicrobial coating is non-toxic and eco-friendly, offering prolonged protection against viruses and bacteria.

The development of this innovative, patented green and safe core-shell nanoparticle technology has won the **Excellence in Research Application Award at the inaugural Hong Kong Innopreneur Awards organised by the Federation of Hong Kong Industries**. Grand Rise also won the **Environmental Impact Award in the Alibaba Entrepreneurs Fund/HSBC JUMPSTARTER 2022 Global Pitch Competition**, in addition to being included in the **Forbes Asia 100 to Watch list 2022**.

Influence of Menu Design on Environmental and Nutritional Determinants of Food Choice

The School of Hotel and Tourism Management has conducted a study to examine how nutritional and environmental information on menus at a Chinese restaurant impacts food choice decisions made by diners.

The research found that showing nutritional and carbon emission information did not significantly change dietary choices towards more sustainable food options, but did improve customers' awareness and perception of the restaurant's attitude to social responsibility, fostering informed food selection. The inclusion of carbon emission data also enhanced patrons' perception of the restaurant's commitment to social responsibility, which positively correlates to potentially increasing demand for sustainable options. Moreover, it was demonstrated that using a reference format for complex information could improve transparency, whereby clear and accessible information helps diners make better-informed food decisions, promoting sustainable and nutritious diets.

Importantly, the study offers practical insight and advice for the hospitality industry on effectively communicating health and sustainability efforts in support of environmentally sustainable dining practices.

Teaching & Learning

Subject: Global Food Security

The Department of Food Science and Nutrition is committed to deepening students' comprehension of food security, with a specific focus on aspects such as yield and safety at both regional and global levels. For that reason, this subject is designed to introduce and reinforce the concept of sustainable food supply, covering topical areas such as agriculture fisheries, food contaminants and novel food production in the context of global environmental changes. It also introduced One Health, an initiative jointly launched by the World Organisation for Animal Health and two United Nation agencies, the Food and Agriculture Organization and World Health Organization.

By scrutinising the interrelation between the environment and food supply, students assess the severity of climate change and aquatic acidification, their interactions with environmental contaminant and the associated effects on the global food production systems. This helps them identify the causes and define risks that may contribute to food insecurity, to which they work out possible solutions. Concurrently, students can hone their critical thinking and communication skills, while appreciating the value of social and national responsibilities, and professional integrity and ethics.

Service-Learning and Civic Engagement Exchange Programme

Funded by the Lee Hysan Foundation, this programme provides students with a multitude of collaborative opportunities to explore food justice and nurtures socially responsible student leaders through immersive service-learning exchange.

This academic year, students from PolyU and the University of Southern California (USC) spent a month in Hong Kong collaborating with advocacy organisations for the elderly and migrant populations on topics including food insecurity, recycling and indigenous cuisines, enabling the students to better transfer and apply their knowledge outside the classroom. They also visited urban gardens and food centres such as those at Chung King Mansion and Tai Po Market to see how food is positioned in an urban environment.

PolyU students then joined their USC counterparts in Los Angeles, where they worked with Moonwater Farm (Compton) and groups like Compton Community Garden to examine how policy issues impact local food security. During the four-week programme, they also helped Compton Middle School put in place ZipGrow™ hydroponic facilities to create a sustainable food system, engaged with Long Beach community farms to understand how Southeast Asian diasporas had contributed to the rich South Bay landscape and visited landmarks like the Los Angeles River, to discover their roles in relation to food justice.

Training delivered by the Research Institute for Future Food in collaboration with the Hong Kong Fishermen Consortium

Outreach & Engagement

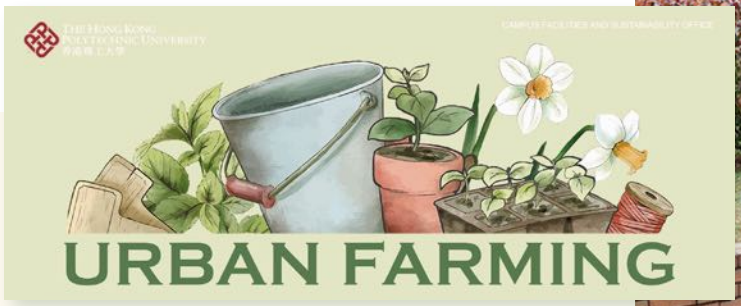
Sustainable Aquaculture Modernisation and Development

In collaboration with the Hong Kong Fishermen Consortium, the Research Institute for Future Food has been conducting research at a mariculture demonstration farm. The farm aims to provide conventional mariculturists with hands-on training in modern and sustainable maricultural practices and has so far **coached over 350 trainees**.

In addition, the Department of Food Science and Nutrition offered a training programme for **more than 100 participants** that incorporates traditional aquafarms into a floating platform. The innovative technique provides high stability during harsh weather conditions, such as those commonly seen in Hong Kong during typhoons, and minimises losses due to bad weather while maintaining good quality of fishes. This aquafarm design also allows the growing of different fish species in the same area, which can be easily managed, contributing to an economic and efficient platform for modernised and sustainable aquaculture.

Adding Value to Kitchen Waste Management with Bokashi Composting

PolyU has collaborated with "The Store in Time" at The Mills and food localisation retailer Greenfield Organic to arrange a month-long exhibition and a full-day workshop in Tsuen Wan on household-level food scrap upcycling. The exhibition was enriched by activities including guided tours, crop tasting and video screening, and **attracted a total of 1,500 visitors**. Participants could also take part in a workshop in which they learned how to make bran-based microbial carrier for in-vessel fermentation. These events not only showcased how community composting can be a means for waste reduction, but also demonstrated the pressing need to revitalise local agriculture and highlighted the sensory and communal contributions of eco-social farming.



Governance & Operations

Organic Farming on Campus

To seize the opportunity presented by the fast-expanding global urban farming movement aiming to improve environmental sustainability, food supply, health conditions and social integration, PolyU has been organising its unique urban farming activities for the University community on campus since 2015. These activities offer a multitude of benefits to participants who want to experience and practise organic farming, while opening up the possibilities of growing food on campus and enhancing social interaction. Two workshops with professional farmers and student ambassadors were held this academic year for over 40 staff and student participants, who reaped the **nearly 35kg harvest** of their hard work over four months, including lettuce and radishes among other common vegetables.