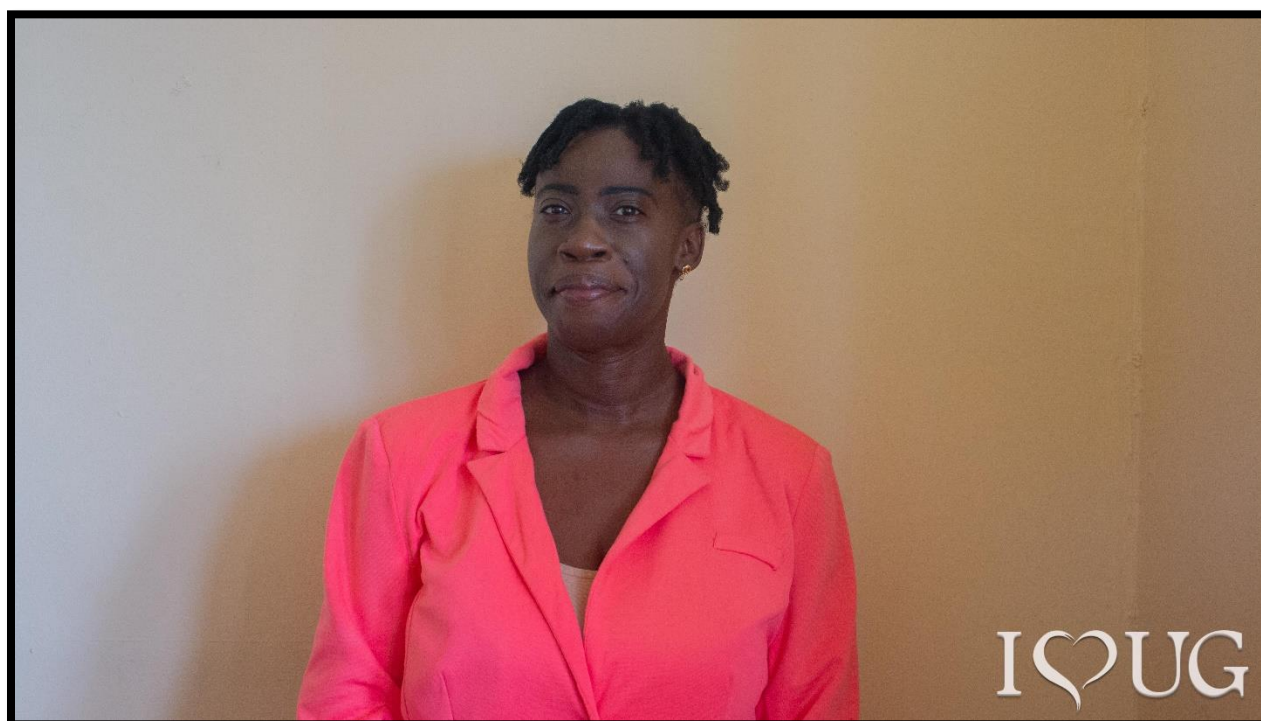


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UG Researcher Leading Efforts to Ensure Sustainable Fish Farming ...Herb Extract Proven to Enhance Fishes' Immune Systems

The University of Guyana's staff and students have been at the forefront of research, significantly contributing to various fields and addressing some of society's most critical issues, such as food security and environmental management. Today, we shine the spotlight on Ms Samantha Forrester, an Aquaculturist, who has been leading the way with her remarkable work in safeguarding the health of fish and ensuring they are reared in a sustainable manner.



Ms Samantha Forrester, Lecturer and Researcher at the Faculty of Agriculture and Forestry at the University of Guyana

Ms Forrester is a lecturer and researcher attached to UG's Faculty of Agriculture and Forestry for over nine years. She holds a Bachelor of Science in Agriculture from the University of Guyana and a Master of Science in Fisheries Science from Nanjing Agricultural University in China, the world's top fish producer. "With support from UG, I was selected for the MOFCOM Scholarship, and the University of Guyana granted me study leave to bolster my research," she explained.

Driven by the adage, ‘we are what we eat’, Ms Forrester embarked on a quest to safeguard the health of fishes and their immune systems. “Over the years, the demand for meat products, particularly fish, has increased as people become more health-conscious about their diets,” she noted.

This shift inspired Ms Forrester to investigate culturing fish in ponds and tanks for commercial purposes. Her research indicated that cultivating a large number of fish in confined spaces increases their susceptibility to stressors, such as bacterial pathogens.

"*Aeromonas hydrophila* is a bacterial pathogen that seriously affects the aquaculture industry globally, causing massive economic losses due to the high mortality rate of infected fishes. To combat these bacterial diseases, several veterinary drugs are used, but many contain harmful chemical compounds that pollute the aquatic environment and accumulate as residue in the fish’s tissue,” the researcher explained.

In response, Ms Forrester investigated a local medicinal herb which is an alternative source to antibiotics and is known for its medicinal properties. “I conducted an in-vitro study to determine the antibacterial properties of herbs effective in treating *Aeromonas hydrophila*,” she proudly reflected.

After observing positive results from the herbs, Ms Forrester formulated a basal diet to feed the fish daily. Using crucian carp for her study, she noted: “We tested five groups, each containing twenty fishes chosen at random. One group received only the basal diet as the control, while the other four groups were given the basal diet with herb extract added at varying potencies over eight weeks.”

She further explained that after eight (8) weeks, a subset of fishes from each group was exposed to a known concentration of the bacterium. Further observations, testing, and statistical analysis followed, leading to conclusive results. The study revealed that the herb extract enhanced the fishes’ physiological and immune functions and enhanced resistance against pathogenic infections in Crucian carp.

Ms Forrester’s research suggests that natural immunostimulants of plant origin may serve as viable alternatives to veterinary drugs containing harmful chemicals in aquaculture. She hopes her work will enhance the sustainability of fish farming as a livelihood while increasing the nutritional value of fish for consumers. Currently, she is focused on expanding her research portfolio in the areas of proximate analysis of selected plant species used in aquaculture and microbiological assessment of farmed fish and shrimp.

About The University of Guyana:

The University of Guyana, the national University of Guyana, now in its 60th year, was founded in October 1963, three years before Guyana became independent. “UG” as it is fondly referred to offers over 160 distinct programmes in over 60 disciplines from Certificates, Diplomas, Associate Degrees, Bachelor’s Degrees, Master’s Degrees to Ph.D.’s. These programmes are offered online, face-to-face or in blended formats. UG delivers through a Guyana-based system across eight campuses. This includes its 35-year-old community-based Institute for Distance and Continuing Education (IDCE) and the second major campus at Tain in Berbice celebrating its 25th anniversary in 2025. The University of Guyana’s student population is over 11,000.

Through its 8 academic divisions, including an accredited College of Medical Sciences, School of Entrepreneurship and Business Innovation and the Faculty of Earth and Environmental Sciences which is ranked # 5 globally. “UG” has provided education, training and research for over 60,000 alumni over its 60-year history with significant national and global impact. Other faculties include the Faculty of Engineering and Technology, the Faculty of Agriculture and Forestry, the Faculty of Natural Sciences, the College of Behavioural Sciences and Research, the Faculty of Education and Humanities and the Faculty of Social Sciences. The University is also home to 10 Research Institutes including the internationally important Centre for Biodiversity, the Institute for Food and Nutrition Security, the Institute for Research, Innovation and Entrepreneurship, the Institute for Energy Diplomacy, the Green Institute, the Institute for Human Resiliency, Strategic Security and the Future, and the International Centre for Excellence in Early Childhood Education. The mission of the University of Guyana is to discover, generate, disseminate and apply knowledge of the highest standard for the advancement of communities, the nation, and mankind within an atmosphere of academic freedom, transparent accountability, pragmatic innovation and universal respect.

UG’s forward-thinking Blueprint 2040 is currently setting the course for the University’s future design and institutional response to the changing needs of Guyana, the region and the world. UG is currently celebrating its 60th anniversary with a renewed focus on becoming the leading teaching and research University in Guyana. Visit UG at www.uog.edu.gy.

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