



SCIENCE, TECHNOLOGY & INNOVATIONS SNAPSHOTS

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# DISCOVERY

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# Interview with Dr. Collin Scantlebury

Team Leader, Biotechnology Department, Scientific Research Council



Dr. Collin Scantlebury

## 1. What do you do in your present role at the SRC?

As the Team Leader for the Biotechnology department, I try my best to offer expert technical advice and leadership to the team. Much of the work involves managing staff competencies in *in vitro* plant germplasm conservation, *in vitro* propagation and getting IAEA irradiated ginger and yam ready for field trials to validate claims of resistance to disease.

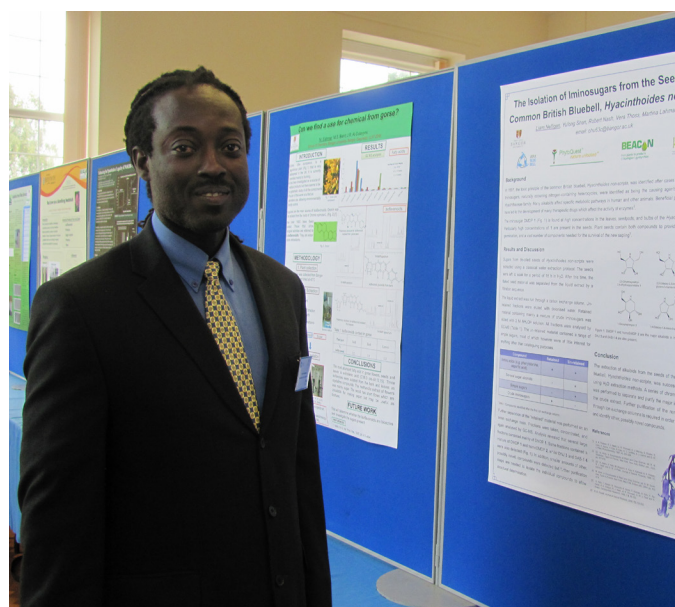
## 2. What was your early family-life like?

I grew up in Barbados with my mother, two aunties, and two uncles sharing a house that comprised two gable roofs and a shed roof. You have to be Bajan to understand the architecture of the 1960s, where houses were improved incrementally by adding a gable or shed roof at the back of the existing structure. I have fond memories of an ailing grandfather who

passed in 1972, who took me around with him and always brought me something on his way home from the farm where he worked as a watchman. I also have horrid memories of moving from a public school to a private school, which I hated.

## 3. Who would you say were the most influential persons in your early years?

My early years at university meant the Cave Hill Campus of the University of the West Indies. I owe much of my professional career to Professor Leonard O'Garro, an esteemed native of St. Vincent who made an introduction for me to the Caribbean Agricultural Research and Development Institute (CARDI) where I worked as Tissue Culture Scientist for over 15 years. Prof. O'Garro was my tutor from Summer School Classes at UWI in Biology. Professor Mattison (Microbiology), Dr. Louis Chinnery (Botany) and Professor Shawn Carrington (Plant Physiology) also influenced me.



Presentation at the University of Bangor, Gwynedd, Wales





**School of Chemistry, University of Bangor,  
Gwynedd, Wales**

#### **4. Tell us about your current research and did you have this particular area in mind from the beginning?**

I came to SRC from UK with nothing specific in mind, just to add my expertise and experience to any ongoing work. I did not think there was anything novel where I could not fit in. A few years prior at the College of Agriculture, Science and Education (CASE), I had established Tissue Culture capabilities without recourse to any of the popular commercially available inputs. I was thinking we could reduce our dependence on commercially sourced inputs.

Currently I am involved in research in Mangosteen (*Garcinia mangostana*), an exotic fruit from South East Asia, but grown here in Jamaica in Castleton Botanical Gardens by Public Gardens. It is a collaboration with Ministry of Agriculture/Public Gardens to produce plants by tissue culture.

More than 20 years ago, I worked on a species called *Philodendron melanoni*. It took the better part of a year to get success. Since November last year I have been patiently waiting on a similar *ornamental Philodendron xanadu* to produce side shoots for us to propagate *in vitro*. So far, we have initiated leaf

and petiole explants. It is just a matter of waiting to see if anything exciting happens.



**Mangosteen (*Garcinia mangostana*)**



***Philodendron melanoni***

I am currently trying to get grape vines in culture. The problem is a combination of unsuitable mother explant material and us needing to perfect the surface sterilization regime “not too harsh to kill plants but sufficient to rid the surface contaminants”.

I currently have a variety of sweet potato that has

produced true zygotic seeds. This is an interesting opportunity to determine phenotypic differences between sweet potato plants from seeds. If differences are significant and distinctive, this is an opportunity to select and produce new sweet potato varieties.

SRC has a history of mutation breeding in collaboration with the International Atomic Energy Agency (IAEA) in ginger and yam. We are adding coffee and sweet potato. While the aim for the initial species was disease resistance, for sweet potato the aim is to reduce harvest time.

Whereas most of the *in vitro* work has been on solid media, we are currently setting up a liquid media temporary immersion system. This is a commercially available computerized automated system. It is essentially a bioreactor for increasing production by factors of 10 to 100. However, I want to enhance competencies in callus production by using cell suspension cultures for coffee.

We work a lot with plants that produce rhizomes and mini or micro tubers in the shade-house. I have used this as an opportunity to collect data on ginger and yams to help us better manage these immature rhizome and tubers.



**Ginger Rhizomes**



**Yam Tubers**

## 5. How significant are your findings?

With Mangosteen, we are only one of several labs in Jamaica that our partners have provided material for *in vitro* propagation. To date, we are the only lab with success. We are currently on *in vitro* rooting trials. The literature has not documented any need for shoot elongation steps but we have had to conduct shoot elongation studies.

We have found that we may store ginger and turmeric rhizomes for longer than 7 months in normal conditions. We conducted principal component analysis (PCA) on ginger rhizome data. The rhizomes parameters may be somewhat predictive of the capacity for long storage.

The work on yam mini tubers showed that the minimum daily temperature might be a variable, which warrants investigation in tuber induction. We have shown that even in immature plants decrease in day length induces tuberization.



## 6. What kind of impact will your research make?

To be specific, the in house research in propagation mangosteen is allowing access to planting material of exotic species; those that are difficult to propagate by conventional methods. Potentially, this very lucrative orchard crop may fetch billions if commercial orchards can be established. It is reported that Mangosteen is grown in Puerto Rico and Miami outside of Asia.

The resistance breeding work will help improve the coffee and ginger industries; with resistant ginger lines, we may plant ginger in places that were formerly inhospitable. Therefore, there will be increase acreages, increased production and perhaps higher yields.

What is more important is that if SRC can produce resistant lines of ginger, there will be international recognition of Jamaica as a centre of excellence for ginger and breeding.

## 7. If you could turn back the hands of time, is there anything that you would change?

Of course, there are many things. However, what I would like is a second chance at high school where this time around, I would be more focused. I grew up among lots of domestic strife in the household. At high school, I was more focused on things around me and trying to grow up and flee my circumstances. It was a miracle I finished high school and I repeated one year at UWI because of misinformation about cancellation of exams following some inclement weather.

## 8. Any missed opportunities?

Despite my lack of focus at high school, when I took the Scholastic Aptitude Test (SATs) I scored in the 96 percentile and was accepted at the University of Pennsylvania. I recalled showing my mother the

envelope with the contents but that was the end of that because I still needed the funding, which she could not afford. Later she said if I were serious about going, she would have gotten a loan.

## 9. What would you say to other young people who have an interest in the sciences?

There may be more financially lucrative careers than in the sciences (including medicine). But salaries are better than most other fields. There are so many careers linked to the sciences that we take for granted. I can readily see the link to the Health sector, Environment, including mining, minerals and oil industry, Marine and coastal environment. Food science, technology, and manufacturing and those who are interested in Engineering. These may be mechanical, electrical, chemical, and brewing and distillation. Cosmetics, soaps, perfumes and shampoo industry; pharmaceuticals. These fields allow you to contribute tangibly to life. At the end of the day, there is a sense of satisfaction that you have done something that may change the world.

## 10. Is there need for greater participation by the private sector in S&T research and where should that focus be?

Participation in S&T research is usually out of necessity. The private sector will not on its own accord volunteer to participate in research unless it is to improve key functions and processes linked to revenue. Quality research comes at a commensurate cost.

As such, it is up to the private entity to make the appropriate and correct assessment of where the need for improvement lies. This gap analysis may be a paid S&T research activity if expertise is not resident in the organization.

Often the organization may not hire professionals but if they have trained staff, they may informally



make certain adjustments and assess the differences. Therefore, this constitutes part of the S&T research, even if conducted by in-house personnel.

## 11. What do you do for fun?

Unfortunately, of late I do not routinely do things for fun. Some of us live in a world where circumstances dictate that we live purpose driven lives. As we go about these activities sometimes, we derive a certain measure of enjoyment but at my age, I cannot say that I set out to do fun activities. In a former re-incarnation, I used to be a musician. That could be fun but it was foremost a means to make money. Catering and cooking was also fun but it was as part of a small business venture. I love to travel. I travel often but that is not even fun because air travel, especially in the Caribbean, has become too costly.



***Dr. Scantlebury in London holding the 2012 Olympic Torch***

# Inspiring the Future:

## SRC's STEM Ambassador Programme Update

By Leigia Hall, Coordinator, Science and Technology Education Unit (STEU),  
Scientific Research Council, Jamaica



**Leigia Hall**

students and so by offering the perspective of the professionals themselves, students might recognize the relevance of their roles and the growing demand for these experts globally. Students will now aspire to be a biotechnologist, a radiologist or an actuarial scientist- occupying more non-traditional STEM spaces too, because they have witnessed experts who are functional members in these fields.

STEM ambassadors are assigned to schools to assist with the development of STEM programmes aimed at stirring curiosity, curating opinions, and further developing the skill of critical thinking that will stimulate the evolution of practical ideas. The programme today boasts 101 active ambassadors, moving from a membership of 20 at its inception. More professionals are seen being eager to contribute to the cause and becoming recognized role models to help drive a future of STEM for Jamaica. STEM Ambassadors are located across the island, strategically positioned but currently mostly proportioned in the parishes of Kingston, St. Andrew and St. Catherine. The intention of the programme is to have sizeable representatives across all parishes who will be able to cater to schools wherever they are so that no school is left behind. The Science and Technology Education Unit has been and is working to uncloak the exhilarating world of STEM that is the youths' for the taking if they only open their minds and allow themselves to believe that they too can do it. The Scientific Research Council, through the Science and Technology Education Unit, is determined to guide this generation and the next into becoming notable leaders in science and technology that will propel Jamaica to heights of transcending impact. The previous fiscal year too saw the intake of numerous members in the fields

**T**he STEM Ambassador Programme is one of the many ways the Scientific Research Council serves to popularize science and technology in Jamaica. Launched in 2020 and led by the Science and Technology Education Unit (STEU), the programme is purposed at recruiting volunteers in the fields of science, technology, engineering and mathematics to inspire youths to pursue careers within the disciplines as well as expose them to the variety of STEM professions available to them and the profound position they hold in advancing the economy. The programme recognizes Jamaicans who work in these fields and highlights their contributions and potential contributions to the future of STEM. STEM subjects have since experienced lowered attrition from

of technology ranging from software engineering, robotics engineering and cloud architecture, and we are enlivened about the extended opportunities presented here.



***STEM Ambassador Induction Ceremony, August 2024.***

## **Looking Ahead: 2025 & Beyond**

With ongoing and new partnerships, Tracey looks forward to expanding engagements in 2025-26, continuing support for current schools, and introducing programs to others schools. Future initiatives will be based on school needs, ensuring that students remain at the forefront of environmental education and advocacy.

## **What is next for the programme?**

STEU aims to work with the current batch of STEM ambassadors to enhance the profile of the programme and have substantially active representation in each parish. The target is to upgrade our presence and work in rural parishes by first targeting schools that are in greater need for assistance with STEM application. The programme offers support in various forms by aiding the launch, implementation and sustenance of science and technology clubs, development and establishment of S&T programmes/activities that employ the practicality of the core sciences and assisting with the technical know-how to activate these plans. Through our approach, the programme will be more deliberate in ensuring that ultimately, every school in Jamaica, has an assigned STEM ambassador and consequently, effective STEM programmes that will generate innovators, inventors and pioneers in the various fields. Forwardly, we hope to garner partnerships for financial aid that will give these schools access to the necessary resources that will accommodate generative exploration of science and technology.



# STEM Ambassador Par Excellence

**By Leigia Hall, Coordinator, Science and Technology Education Unit (STEU),  
Scientific Research Council, Jamaica**

Delving a bit deeper into the immersive work being done by a member of the programme, here we look at Ms. Tracey Edwards.



***Ms. Tracey Edwards.***

With a BS in Marine Biology and Geography and a current research student at the Institute of Sustainable Development at UWI, Mona, Tracey Edwards works as a Capacity Building Specialist at the Jamaica Planning Institute, is a National Climate Change Advocate and is the Founder of Plakortis' Earth Café, a platform providing sustainable solutions and capacity building opportunities to businesses and communities through education and training.

As a SRC STEM Ambassador focused on elevating mind-sets for future natural scientist and sustainability experts, Ms. Edwards uses her platform Plakortis' Earth Café to drive many

engagements. Plakortis Earth Café is dedicated to environmental education, engaging students in meaningful learning experiences about biodiversity, water conservation, renewable energy, pollution management, and climate change resilience. The flexibility of the Café ensures that environmental education is accessible, engaging, and impactful—ensured through interactive programs, school partnerships, and strategic collaborations. It is about creating opportunities for students to explore and understand the environment while developing sustainable solutions for their communities.

As a SRC STEM Ambassador, Tracey expresses her passion for sharing knowledge, fostering curiosity, and encouraging students to use resources sustainably. Her work, she says, is driven by collaboration—ensuring that schools and partners are actively involved in shaping impactful educational experiences. Tracey reinforced that she works with any school she is able to support—fostering strong relationships with teachers, principals, and students. Her school engagements currently include Foga High, Osbourne Store Infant and Primary, Treadlight Primary, Foundation Preparatory Calabar Primary which she works with through independent partnerships, and Windsor School of Special Education.

Plakortis' Earth Café thrives on partnerships that help provide resources, expertise, and opportunities for school engagements. Some of the key partners of the initiative include Jamaica Independent Schools Association (JISA), Ministry of Education, Early Childhood Coordinator for Clarendon, Caribbean Climate Network (CCN) & CCN Jamaica (managed by Plakortis, providing essential resources for initiatives), Independent partners supporting adopted schools. The Scientific Research Council also supports the programme in varying ways.

Each engagement is tailored based on the needs of the school and available partnerships. Some activities are school-driven, while others are initiated based on identified environmental challenges. Some major activities implemented in the schools worked with were focused at:

### **Climate Change Adaptation & Water Resource Management**

This is enforced through an interschool initiative designed to build awareness of climate change adaptation. This involves engaging presentations, field excursions and competitions tasked at designing climate-ready solutions for the participants' schools. The partnership of the SRC she says, played a key role in the implementation of these activities.

### **Powering Up with Renewable Energy**

A campaign encouraging students to explore clean energy solutions and featured activities are not limited to the creation of a mural, and a week-long exhibit at Osbourne Store Infant and Primary School, as well as an awareness campaign at Treadlight Primary School.

### **Natural Resources & Pollution Management**

This is the aim of a targeted initiative at Calabar Primary School and focuses primarily on pollution and ecosystem conservation. Activities include a study of Downtown Kingston and the mangroves along the Palisadoes, a clean-up activity, and a tour of a small fishing village and mangrove ecosystems to understand their importance. These activities are enhanced through hands-on engagement exercises that allow children to explore solutions through their own creativity.

As a STEM Ambassador, Tracey highlights that her role helps her to align with national education priorities. She exclaims that she develops plans based on school needs, identify opportunities, which lends into her securing the resources necessary to implement them.



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# Fostering Growth through Food Product Development

By Deneé Gilman, MA., Senior Marketing Research Officer, Marketing and Corporate Communications Division, Scientific Research Council, Jamaica



Deneé Gilman

grow and expand their businesses. The Council has witnessed and has been a part of numerous stories of growth and development by transforming our clients' ideas and at-home recipes into tangible, excellent, world-class products. From 2021 to 2024, the team developed one hundred and seventy-six (176) product prototypes for happy clients.



## In-house Product Formulations

In addition to developing products for our clients, our creative team also develops product formulations that are available for purchase by someone who may not want, or have the time, to engage in the product development process.

This bank of formulation documents include

**A**s the principal public sector agency of Jamaica with responsibility for the promotion of the application of scientific research, the SRC serves Jamaica by providing a range of integrated value-added solutions as a full-service agency in support of national growth and development. One of these services is food product development.

The Council's innovative and inventive Food Product Development team produces quality food products for commercialization as a part of their unwavering commitment to supporting micro, small and medium-sized enterprises in the local and regional agro-processing industry. Through this service, MSMEs have taken journeys to start,

beverages such as juice blends, flavored waters and herbal teas; vegetable products such as callaloo in brine and vegetable patties; fruit jams, jellies and preserves as well as fruits in syrup and fruit syrups; soups; sauces; minimally processed foods; jerk, milled and dried seasonings; smoked meat products and condiments. These in-house formulations make it easier for clients to commercialise by accessing these ready-for-market products.

The SRC's Food Product Development Unit is here to make science and technology work for you to create the product you have been thinking about and standardizing that recipe from your grandmother that the family loves, to take to market and share it with the rest of Jamaica. Build your dream; build a legacy. The SRC is here to help you do it.

We look forward to serving you with excellence.





## What's New at the SRC **Food** **Pilot Plant?**

- Dehydrator – Perfect for drying fruits, herbs & plant materials
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- Improved Production Schedule – More production slots now available to meet your needs

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# 31<sup>st</sup> National Science and Technology Conference 2024

**“Harmony in Innovation: Unleashing the Power of Nuclear Applications for Sustainable Development”**

**T**he 31<sup>st</sup> National Science and Technology Conference, hosted by the Scientific Research Council (SRC) of Jamaica was a resounding success. This prestigious event took place from October 29 to November 1, 2024, at the Jamaica Conference Centre in Downtown Kingston, Jamaica. With the theme *“Harmony in Innovation: Unleashing the Power of Nuclear Applications for Sustainable Development,”* the conference was a landmark gathering of experts, researchers, policymakers, and industry leaders from across the globe.

This year’s event aimed to spotlight the transformative potential of nuclear science and technology in advancing Jamaica’s sustainable development goals. It explored critical applications in agriculture, healthcare, energy, and industrial development, demonstrating how these innovations can drive national growth and resilience.

Over the course of these four days, participants engaged in insightful discussions, explored groundbreaking advancements, and collaborated on practical solutions that could harness nuclear technology’s power for sustainable progress. The conference also provided a platform for youth engagement and creativity through special sessions, including the Innovation Summit and the STEM Olympiad Debate competition, further nurturing Jamaica’s culture of innovation and scientific excellence.

## Conference Highlights

### **Day 1, October 29:**

Nuclear Energy - Governance, Safety, and Small Modular Reactors (SMR).

### **Day 2, October 30:**

Nuclear Applications in the Medical Field.

### **Day 3, October 31:**

Nuclear Applications in Agriculture, Mutation Breeding, and SIT for Vector Control.

### **Day 4, November 1:**

Non-Destructive Testing and Expanding Nuclear Applications in Health and Industry.

It was a great pleasure to have been part of this exciting opportunity to collaborate with leaders and innovators in science and technology as we unlocked the full potential of nuclear applications for sustainable development.

The Council wishes to thank the Ministry of Science, Energy, Telecommunications and Transport (MSETT) and the International Atomic Energy Agency (IAEA) for their continued support as well as all the other entities that made the Conference a resounding success.

# Pictorial Highlights of the Conference 2024



*Participants of Day 1 of S&T Conference pose for a photo.*



*Students display research chart on Day 2 of S&T Conference.*



*(From l – r) Dr. Parris Lyew-Ayee Jr., Senator The Hon. Aubyn Hill, Dr. Charah Watson, The Hon. Daryl Vaz and Christopher Brown pose for a photo at the Opening Ceremony.*



*Dr. Charah Watson shares a laugh with Dr. Steven Lofters, Dr. Mellanie Didier, Prof. Marvin Reid and Dr. Kern Pemberton (from l – r) on Day 2 of S&T Conference.*



*Deneé Gilman engages participants of Day 2 of S&T Conference at the marketing and corporate communications booth.*



*Oreane Collins engages a participant of Day 2 of S&T Conference at the Biotechnology booth.*



# Pictorial Highlights of the Conference 2024



*Xavier Murray inspires young minds at the Science & Technology Education Unit booth.*



*Deneé Gilman smiles for a photo as she displays SRC client's products.*



*Student presents his research on Day 3 of S&T Conference.*



*The audience reacts to heated debate between Glenmuir High School and St. Catherine High School.*



*The SRC staff poses for a fun photo on Day 4 of S&T Conference.*



*Dr. Charah Watson addresses tour group on Day 2 of S&T Conference.*





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