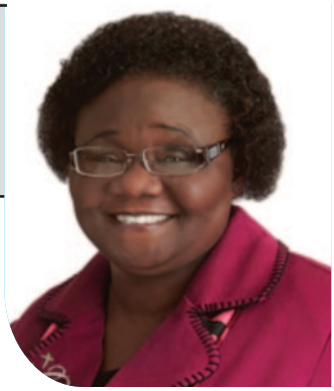
THE BIOTECHNOLOGY CENTRE



Professor Helen Asemota, BSc, *Univ. of Benin, Nigeria,* MSc, *Ahmadu Bello University, Nigeria,* PhD, *Univ. of Benin/Frankfurt, Germany* – **Director**

INTRODUCTION

The Centre started the 2018/2019 academic year with international outreach showcasing the Centre's key efforts at producing *the distinctive student* and becoming *more world-acclaimed.* More communities were reached, internationally and locally, with research and outcomes.

The year started with the visit of Professor Helen Asemota along with two postgraduate students, Ms. Tamara Grant and Mr. Orville Byfield, to the Research Centre for Food and Development (CIAD), Hermoshillo, Mexico, from August 19 to September 3, 2018. At the middle of the year, the Centre hosted Dr. Wesley Gray, Professor of Environmental Toxicology at Southern University of Baton Rouge (SUBR), Louisiana, USA on sabbatical leave from October 2018 to January 2019. During the period, Dr. Gray and Professor Asemota proposed the initiative for a possible 2+2 Biotechnology programme between UWI Biotechnology Centre and SUBR in order to augment the approved M.Sc. Biotechnology programme, when it comes on stream. At the end of the year, from July 22–31, 2019, the Centre effected a national training workshop entitled "Basic Biotechnology Skills Training Workshop – Train the Trainers", for High School Teachers.

The Centre also hosted High School Students' Summer Internship Programme in Biotechnology. Over the internship period, the interns learnt how to use the Centre's laboratory instruments, prepare reagents for protein analysis, conduct DNA extraction and carry out Gel electrophoresis with the guidance of Prof Asemota along with Research Assistants and postgraduate students of the Centre.

BIOTECHNOLOGY CENTRE STAFF

The Academic Staff at the Centre are:

1. Professor Helen Asemota (Executive Director) – Professor of Biochemistry and

Molecular Biology at the Basic Medical Sciences of the Faculty of Medical Sciences (FMS) – Yam Biotechnology & Biomedical Research Group Leader.

2. Professor Paula Tennant, Professor of Virology at the Life Sciences Department of the Faculty of Science & Technology – FST, Molecular Virology Research Group Leader.
3. Professor Marcia Roye, Associate Dean of Graduate Studies, FST - Geminivirus Research Group Leader).
4. Dr. Sylvia Mitchell (Senior Lecturer & Medicinal Plants Research Group Leader).
5. Professor Noureddine Benkeblia (Professor at the Life Sciences Department of FST, Tree Crops & Metabolomics Research Group Leader).
6. Professor Wesley Gray (Professor of Environmental Toxicology from SUBR, LA) served within the Yam Research Group, during his sabbatical leave at the Centre from October 2018 to January 2019.

All of the Centre's Academics taught courses at the Basic Medical Sciences or Life Sciences Department or within the Faculty of Science and Technology foundation programmes, during the year.

The Support Staff of the Centre in the period were:

1. Mrs. Sonal Gupte (Research Assistant to Prof. Asemota),
2. Ms. Deiondra Robinson (Research Assistant to Prof. Roye),
3. Mr. Carlton Barrows (Senior Laboratory Technologist),
4. Mrs. Karen Stewart (Senior Administrative Assistant II),
5. Ms. Elizabeth Mills (Yam Project Field Assistant),
6. Mr. Roy Dwyer (Handyman), and Ms. Shernette Banks-Ashman (Laboratory Attendant).

TEACHING & RESEARCH

Postgraduate Students

The following twenty two (22) post-graduate students at the Centre, received training in the year, towards their PhD or MPhil degree programmes. They are: **Kimberly Foster, Chantal Marriott, Princess Bell, Nikashae Scott, Lowen Williams, Chenielle Delahaye-McKenzie, Fabian Miller, Cheryl Green, Nikolai Lutas, Tamara Grant, Vanessa Williams, Chevaughn Witter, Deiondra Robinson, Daniel Perry, Racquel Wright, Julian Bailey, Orville Byfield, Bayode Bamikole, Donella Dawkins, Jordan Freeman, Jesse Clarke and Antoni Comrie.**

The Centre also catered for some students registered in other departments but

conduct their research at the Centre, namely**: Keaton Logan, Melissa Williams, Sasha-Gay Williams and Kenroy Wallace** of the Department of Basic Medical Sciences; and **Lloyd Johnson, Damion Neath and Aliza Lindo** of the Department of Life Sciences. The students were attached to various research groups of the Centre depending on their research supervisors.

Research Areas of the Centre

The research areas in the period under review, were mainly agro-focused and biomedical. The various research groups (with the group leaders) were:

- Y**am Biotechnology & Biomedical Research Group** – led by Professor H. Asemota (the Director), operated in partnership with the Basic Medical Sciences Department. The bio-interdisciplinary research areas include: improvement of production, storage and utilization of Yam as food, as medicine and as industrial raw materials, inclusive of value-chain expansion studies, and innovation of value-added products with a theme of "From Farm to Finished Products". Tools used are from biotechnology, biochemistry, molecular genetics, and nanobiotechnology. Work includes analyses of yams, coco yams and dasheens biodiversity, DNA profiling; studies on Yam Starch quality and applications for commercial purposes, bioengineering of yam biomaterials; biochemical studies on bioactivity of plants' extracts and associated metabolic mechanisms of action of secondary metabolites/natural products/supplements in normal and diseased states in selected non-communicable diseases, experimental diabetes, hypercholesterolemia, cancer and drug abuse; Studies of Glycemic indices and applications (in collaboration with the SRC) and Coffee rust disease (in partnership with the SRC and IICA). Other research areas of the group are: Moringa phytochemistry and Moringa-based nutritional products derivation; Biomagnetic Therapy and associated metabolic effects in diabetes mellitus. Collaborates with researchers in Department of Surgery, TMRU, Community Health, Physics, Chemistry and Chemical Pathology. The group also embraced Cannabis-based principles and exploitation for technology derivation; antibodies production against agents of Yam diseases; Yam Anthracnose research and biosensor fabrication and field testing (in an NSF BREAD PHENO Project in collaboration with SUNY) as part of the development of low-cost technology to aid smallholder farmers in developing countries. The group extensively collaborates and networks with various former students of the group serving in other Government institutions or UWI departments and with various local and foreign experts/institutions. 12 postgraduate students currently study within this group, in various aspects the research areas.
- **Molecular Virology Research Group** – led by Professor M. Roye. Research on Geminiviruses. The group has identified over 22 geminivirues infecting crops and weeds in Jamaica. This has helped to develop disease management strategies for

the associated crops. Research on HIV has shown that antiretroviral drug resistance is associated with children and adults infected with HIV in Jamaica. This information can be used to develop individual treatment plans. Current students Deiondra Robinson and Jesse Clarke are presently working on characterizing geminiviruses infecting papaya and ornamentals in Jamaica respectively. Undergraduate research student Shannique Clarke during September 2017–May 2018 carried out research work under the topic "The Utilization of Molecular Techniques to Identify Various Symptomatic Plant Species as Hosts of Geminiviruses in Jamaica."

- **Molecular Plant Virology Research Group** – led by Professor P. Tennant (in partnership with Life Sciences Department). Using a number of advanced scientific techniques over 20 viruses were detected in food crops such as papaya, pumpkin, citrus and sweet potato. Knowledge of this distribution has led to an understanding of the effect of virus and viroid diseases on agricultural production. Other projects involved (i) the characterization of armyworms in Jamaica, the findings of which should lay the foundation for studies in the area of pest control and (ii) the characterization of cocoa germplasm in Jamaica which has provided some insight into where new materials should be introduced, so as to increase diversity and address production factors related to disease resistance.
- **Medicinal Plant Biotechnology Research Group** – led by Dr. Sylvia Mitchel, Senior Lecturer. This group has developed advanced propagation protocols for approximately 30 medicinal and economically important plants. Through this group, the Centre produced and distributed to farmers various tissue cultured crop/plants such as ginger, turmeric, sarsaparilla, chainy root, sugar loaf, cowboy pineapple, sweet potato, yellow yam, negro yam, sweet yam, Lucea, St. Vincent, yampie, cassava and Guinea hen weed. Present research includes studying the antibacterial and antifungal activity of bottlebrush and Smilax varieties; DNA fingerprinting of Smilaceae, raspberry plants and bamboo; biochemical and DNA analysis of turmeric, developing propagation methods for bamboo, biochar studies, and field studies of medicinal and economically important plants. The group collaborates with the UHWI microbiology lab for anti-microbial tests and the Bureau of Standards for the development of standards in the nursery, plantation and making of biochar from bamboo, while the Group also conducts field studies. Post-graduate students are also encouraged to develop businesses around what they learn during their studies. The group motto is "Harness the potential of our plants for health and wealth".
- **Tree Crops Research Group** – led by Professor Noureddine Benkeblia (in partnership with Life Sciences). The research group aims to investigate the application of modern agronomic technologies, particularly metabolomics, considering various aspects of specific tree and aromatic local and regional crops such as onion, pimento, ribena, soursop, custard apple with a primary objective to

introducing them as profitable venture, and new products in the local and regional value chain, at first instance. The outcomes of the laboratory will contribute by increasing the productivity, the quality attributes, storability and potential by-products of these crops, aiming to develop the agro-processing sector, contribute to the self-sufficiency in some of these commodities (particularly onion which is mostly imported) food security and rural development and prosperity in Jamaica. The group collaborates with many local, Caribbean and overseas laboratories in the Caribbean, USA, Mexico, Brazil, France, UK Ireland and Japan among other laboratories. The main research areas are tree and aromatic crops physiology and metabolomics, focusing on fructans (primary metabolites) and phenolics metabolism (secondary metabolites) and their relationship with maturation and ripening of fruits. The main goals of these research activities are to understand the physiological, biochemical and metabolite responses of crops to biotic and abiotic stresses. Recently, Professor N. Benkeblia focused part of his research on the response of crops to climate change, and this work is part of his activities with IPCC (International Panel on Climate Change).

TEACHING

In addition to the research training and supervision of post graduate research students, the academic members of the Centre, were involved in teaching at both undergraduate and postgraduate levels during this period at other departments and/or in the Faculty Foundation programmes.

Undergraduate courses taught: were within the Department of Basic Medical Sciences (BMS) of the Faculty of Medical Sciences (FMS) and the Department of Life Sciences of the Faculty of Science and Technology (FST). The courses included: Biotechnology I, Biotechnology II, Molecular Biology I, Molecular Biology II, Introduction to Microbiology and Molecular Biology, Food Microbiology and Biotechnology, Virology, Principles of Plant Biotechnology, Plant Biotechnology Molecular Biology & Genetics, Science Medicine and Technology, Biochemistry for Physical Therapy Students, Biochemistry Laboratory Research Project, and Plant Biochemistry & Physiology, along with their associated lab classes.

Postgraduate courses taught: Members of Biotechnology Centre's staff also taught in the following postgraduate courses: "Standards and Risk Management in Agricultural Production Systems", one of the courses in the MSc in Agricultural Entrepreneurship Programme in the FST. Other courses taught by Centre staff were the FMS: Pharmacogenomics and Toxicogenomics postgraduate course on Natural Remedies and Treatments, to students of the UWI School of Nursing. The Centre's approved MSc. Programme, coordinated by Dr. Sylvia Mitchell and facilitated by Professor Roye is still expected to start soon.

ACTIVITIES OF THE CENTRE

Staging of Training Workshops

Basic Biotechnology Skills Workshop – Train The Trainers

The Biotechnology Centre, Faculty of Science & Technology (FST), Mona, organized the "Basic Skills Biotechnology Training Workshop – Train the Trainers", in collaboration with the Faculty of Humanity and Education, School of Education, facilitated by the Caribbean Examination Council, to enhance the teaching of Biotechnology in High Schools through acquainting teachers with the skills to teach biotechnology laboratory aspects at the CAPE level. The Workshop series were developed by Professor Helen Asemota and her research team at the Biotechnology Centre, and organized from July 22–31, 2019 as Summer Training Workshop in collaboration with Dr. Aldrin Sweeney and team of the UWI-Faculty of Humanity & Education, School of Education, and the Caribbean Exam Council (Mrs. Alsian Perry)

The Workshop series was presented at three levels namely:

1. Foundational Basic Biotechnology Laboratory skills 22 July–23 July, 2019
2. Basic Biotechnology laboratory skills for 24 July–26 July 2019
3. Basic Application Skills in Biotechnology for 29 July–31 July, 2019.

CAPE WORKSHOP

The 'Concepts in Biotechnology & Genetic Engineering CAPE laboratory workshop on recombinant DNA technology' was hosted on December 20, 2018, at the Faculty of Medical Science Research and Teaching Facility in the North lab. A total of 83 students participated in this year's workshop, from four High schools, Campion College, Mannings High, St. Andrew High and Mona High, along with two final year students from the University of Technology.

The Workshop involved a registration process, commencing at 8:30 am. The students were then introduced to use of the micropipettes, nature of plasmids and the methodology of the experiment by Professor Roye. At about 10 am, students started the first half of the experiment, which included the extraction of plasmid DNA from one of two E. coli cultures containing either plasmids pCR 2.1 or pTRC99A.

Following an hour long lunch break, the students returned to the lab to conduct the second and final part of the experiment. Students were again first briefed on restriction digest analysis and gel electrophoresis. Professor Roye used interactive videos during this presentation to further illustrate the concepts. The students were then allowed to load their undigested and digested DNA samples onto the electrophoresis gels. This concluded the day's experiments.

UWI MONA RESEARCH DAYS 2019

The Biotechnology Centre participated in UWI Research Days, 2019 with activities involving staff and students. The Centre attracted students and visitors by performing the following activities at both Research village and the Centre.

- Centre tour and lab demonstrations: The Biotechnology Centre conducted tours of the facility with special talks and lab experiments to visitor's and students from various schools. Staff members and students from the Biotechnology Centre demonstrated the following lab activities – Simple DNA extractions, tissue culture and products development, Visitors were lead on a tour of the botanical garden and shown various medicinal plants.
- Jamaican Yam Biodiversity Quiz: Professor Asemota and her Research Group also conducted a Yam Taxonomy Biodiversity Quiz at the main tent and presented certificates to eighty (80) participants. This activity was a means of highlighting the extensive research being conducted on yams by the Yam Research group at the Biotechnology Centre. The yam taxonomy Quiz facilitated interaction with many primary, secondary and tertiary level students, as well other individuals from secular and public sector. This undertaking, for Research Days 2018, through the interest that it sparked can be considered as successful in exhibiting research and outreach prospects at the Biotechnology Centre which was the principal goal.
- Products Display & Sampling: The Biotechnology Centre displayed finished products at the booth in the Main Exhibition Tent, with a theme of 'From Farm to Finished Products". The Centre rolled out a wide array of products that were designed to accommodate the current global trend, 'Going Natural'. There were a variety of products from the various research groups. These products included candles, soaps, tissue culture plants and organic pesticides and also food products. The food products included Wine from different local fruits, food products from Yam and Moringa that comprised Yam Cookies, Yam biscuits, Yamie chin chin, Yam spread, Yam Pudding, and Moringa Bites and Bars.
- Dr. Mitchell's, Research Group Leader at the Centre and PhD student Mrs Chenielle Delahaye-McKenzie displayed the various oils that can be made from local herbs such as lemon grass and neem among other plants and crops. There was also a display of activities under the Bamboo project including potted bamboo plants.

OUTREACH ACTIVITIES

Biotechnology Centre Participation in Open Day Event in Montego Bay Freezone

On March 22, 2019, The UWI, Mona was among several organizations that set up booths at an Open Day event put on by the Montego Bay Freezone Co. Ltd. in

Montego Bay, St James. It was a celebratory occasion that was marked by the workforce in the Freezone exceeding 10, 000 employees. Three postgraduate students from the Biotechnology Centre, namely, Ms. Tamara Grant, Mr. Chevaughn Witter and Ms. Donella Dawkins were stationed at the UWI booth and assisted with informing visitors of UWI Biotechnology Research programmes to ginger their interest in the Discipline. The visitors were also provided with flyers that outlined the prerequisites of the programmes. Many interested individuals filled out forms to facilitate later contact by UWI.

The UWI Marketing Department, led by Mrs. Marjorie Bolero-Haughton, coordinated the manning and setting up of the booth. Yam samples being researched at the Biotechnology Centre were on display.

SUMMER INTERNSHIP 2019

Three multifaceted student interns complemented the workforce of the Biotechnology Centre during the June–July period of 2019. Trichel O'Connor began her internship at the Centre on June 4, 2019 whereas Zara Ranglin and Breanna Barrett started July 8th and July 10th respectively and the internship ended on July 31st.

The interns were supervised by Prof. Helen Asemota, Mrs. Sonal Gupte the Research Assistant to Professor Asemota, Ms. Tamara Grant (MPhil candidate of Professor Asemota/Dr. Riley) and Mr. Nikolai Lutas (MPhil candidate of Dr. Riley/H. Asemota).

During the internship, Ms. Oconnor, Ms. Ranglin and Ms. Barrett got insight into how the Centre functions. In addition, they were involved in preparing for and demonstrating in the 2019 Basic Biotechnology Lab-skills Training Workshop. Over the internship period, the interns learnt how to use the Centre's laboratory instruments, prepare reagents for protein analysis, do DNA extraction and carry out Gel electrophoresis. They also gathered useful knowledge on an enzyme purification procedure, DNA fingerprinting and Tissue Culture.

The interns expressed that they highly value their work experience at the Biotechnology Centre and the supervisors considered performance of the interns to be exceptional. In the period, Trichel Oconnor, conducted Laboratory Research Project on Biochemistry of Yam Acclimatization, with Professor Asemota's team.

UWI INFORMATION DAY

The Biotechnology Centre participated in UWI Information Day on Saturday, November 24, 2018 organized by the Registry – Marketing Recruitment & Communication. The Centre was represented by four postgraduate students.

CONFERENCES/WORKSHOPS/EVENTS ATTENDED BY BIOTECH STAFF/STUDENTS:

- Three postgraduate students under the supervision of Professor Helen Asemota, namely, Mr. Nikolai Lutas, Ms. Tamara Grant and Mr. Keaton Logan received training in Phytopathological Techniques for Selecting Disease-resistant Sweet Yam and Ginger. The training took place at the Scientific Research Council. Certificates were awarded for participation.
- Professor Helen Asemota along with four postgraduate students attended the twenty-fifth University Diabetes Outreach Conference on April 25th, 2019. The students in attendance were Mr. Keaton Logan, Mr. Lowen Williams, Ms. Tamara Grant and Ms. Davia Peddie. Two of the postgraduate students, namely, Mr. Logan and Mr. Williams each had a poster on display at the Conference. Mr. Logan received an award for his presentation.
- Professor Benkeblia attended the Annual Meeting of the Crop Science Society of America (CSSA), in Baltimore, USA.
- Professor Asemota attended Project MILEAGE Microelements in Life Expectancy and Ageing (Midterm Workshop on Microelements in Cardiovascular); April 8 & 9, 2019 at the UHWI. She made an oral presentation on "Minerals composition and biofortification of tuber crops." She also attended the annual STEM Women of Color Concave in Washington DC, for which she is a Founding member, in June 2019. She visited the Biotechnology Laboratories of the North Carolina Central University in Durham also in June 2019, to negotiate collaboration/partnership in research.
- Dr. Sylvia Mitchell attended Workshop on ABS Contract Templates, Advancing the Nagoya Protocol in Countries in the Caribbean Region, January 8th and 10th 2019, Jamaica. Hosted by IUCN-ORMACC in corporation with UN Environment. Dr. Sylvia Mitchell; Advancing the Nagoya Protocol in Countries in the Caribbean Region Workshop on ABS Contract Templates; January 8 and 10, 2019 in Jamaica; and January 29 and 30, 2019 in Trinidad. Presentation topics were as follows:
  - Reviewing Existing Institutional Capacity – ABS and Caribbean Institutions
  - ABS Medicinal Plants – The case of Medicinal Marijuana
  - Reviewing Existing Institutional Capacity – ABS and Caribbean Institutions – Take home messages & way forward.

    Dr. Sylvia Mitchell also attended the Caribbean Access and Benefit Sharing Week, Hosted by IUCN in association with UN Environment, From Global Goals to Local Implementation, January 29–31, 2019, Port of Spain, Trinidad and the Ninth Meeting of the Jamaica-Mexico Binational Commission.

- Ms. Tamara Grant, a postgraduate student at the Biotechnology Centre and Mrs. Sonal Gupte the Research Assistant to Professor Helen Asemota, attended The Second Preparatory Meeting for the Ninth Meeting of Jamaica-Mexico Binational Commission on June 13, 2019. This meeting was convened primarily to facilitate discussions on the project proposals that were submitted for consideration by Mexican Authorities. A delegation from Mexico was engaged in the meeting through video-conferencing. It was conveyed that the project proposal submitted by the Biotechnology Centre by Professor Asemota & Tamara Grant, was approved. This proposed project was considered to be a continuation of the project entitled: 'Bioengineering of Yams & other selected Caribbean roots and tuber crops biomaterials for value-chain expansion & pre-commercialization analyses'. Ms. Tamara Grant represented Professor Helen Asemota at the Ninth Meeting of the Jamaica-Mexico Binational Commission on June 19, 2019. Meeting agenda items were: 1. Political Affairs. 2. Economic, Trade and Financial Matters. 3. Technical, Scientific, Educational and Cultural Cooperation. Ms. Tamara Grant made a presentation entitled: "Research: Innovation and Commercialization", on behalf of Professor Helen Asemota.
- Participation in NCU IAD Conference – March 27–30, 2019

  Three postgraduate students of the Biotechnology Centre made presentations at the 3rd Inter-American Division Research Conference at Northern Caribbean University on March 27, 2019. Ms. Donella Dawkins' and Ms. Tamara Grant's presentations were made in the Microbiology Session while Mr. Nikolai Lutas made his presentation during the Agriculture and Environmental Issues Session. All students received positive feedback from the audience.

  The titles of their presentations were as follows:

  – Donella Dawkins –"Exploiting Toxin Antitoxin Systems in Vancomycin Resistant Enterococci and High Level Aminoglycoside Resistant Enterococci isolates from the Caribbean as Potential Antibacterial Strategy"
  – Tamara Grant – "An Investigation into the Use of Nanoparticles against the Yam Anthracnose Disease"
  – Nikolai Lutas-"The Fight against Coffee Leaf Rust in Jamaica: An Overview of the current state of the disease in Jamaica."
- Professor Benkeblia attended the Annual Meeting of the Crop Science Society of America (CSSA), in Baltimore, USA during November 4–7, 2018 and made an oral presentation and exhibited 2 posters.
- Ms. Melisa Williams (associate student of Professor Helen Asemota) made an oral presentation at the Scientific Session of the 7th Annual Conference held by the Society for Scientific Advancement (SOSA) on Friday, November 16, 2018 at Mona Visitors' Lodge, UWI, Mona.

VISITORS TO THE BIOTECHNOLOGY CENTRE

- On April 15th, 2019, thirteen students and two teachers from St. Ann's Bay Primary visited Professor Asemota's laboratory at the Biotechnology Centre. Ms. Tamara Grant gave a presentation that outlined yam cultivation practices, Jamaican yam biodiversity and research carried out on yams at the Biotechnology Centre. The students were tested on the knowledge that they garnered after the presentation and each was given a certificate of participation which they were delighted to receive.
- Professor Ajaguanna Ibrahim and Professor Matthew Ilari of the Caribbean Maritime University (CMU) visited the Biotechnology Centre on March 29, 2019. The meeting was to discuss MOU between the Biotechnology Centre and CMU re Biotechnology laboratory training with Prof. Asemota.
- The Biotechnology Centre had the following visitors on March 1, 2019: Dr Andrew Lamm, Dr. Richard Lambie and Dr Cecelia Waugh Hall. The meeting was to discuss co-financing for an upcoming project under the United Nations Development programme.
- Twenty students from the University of Technology, Jamaica visited the Biotechnology Centre on November 13, 2018. The purpose of the visit was to allow students to see real life applications of the concepts they have been introduced to in their Biotechnology course. They got the opportunity to acquaint themselves with the research being conducted at the Centre. From this experience, they will be able to see local scientists making discoveries and solving problems in the Jamaican context.
- Visitors' to the Biotechnology Centre were Professor A. Bradley from the University of Surrey and Dr. Charles Grant, General Director of International Centre for Environmental and Nuclear Sciences (ICENS) on October 3, 2018.
- Dr. Shelly McFohae from The Caribbean Institute for Health Research (CAIHR) also visited on October 3, 2018.
- The 2018 class of BIOT3113 students visited the Biotechnology Centre on Friday October 26, 2018. The class comprised of 40 final year students. Professor Roye made a presentation on her work on Geminiviruses and HIV drug resistance research in Lab 2. Ms. Deiondra Robinson introduced students to past work in Lab 1, including Professor Tennant's work on genetically modified papaya, Damion Neath's work with army worms, Lamar Thomas work on fungi and RNA viruses in cucurbits and Aliza Lindo's work on the Jamaican Cocoa. Ms. Tamara Grant presented on research work done on Yam and Mr. Nikolai Lutas explained his research on Coffee Leaf Rust Disease and other research activities of Lab 4, Professor Asemota's lab. Students were asked to write an essay on the topic "From

Farm to Finish Products" when they toured Yam Group Lab 4. Mr. Antoni Comrie also made a presentation on tissue cultured plant in Lab 5 (lab of Dr. Mitchell) as well as the Centre's Growth Room.

- Professor Gray of the Southern University of Baton Rouge (SUBR) visited the Biotechnology Centre on sabbatical leave form October 2018 to January 2019, and also in July 2019.

COLLABORATIONS AND MOUS

The Centre continues to collaborate with various departments within the FST and FMS for research and co-supervising of postgraduate students, with neighbouring universities and research institutions as well as with foreign institutions for partnership/networking. We also collaborate with local yam farmers. Our current list of international and local collaborators include: Morehouse School of Medicine, USA; School of Pharmacy, Roosevelt University, USA; SUNY Binghamton, USA; University of Toronto, Mississauga, Canada; Albany State University, USA; University of Salento, Italy; Cordoba University, Colombia; Redeemers University, Nigeria; Trees that Feed Foundation, Illinois, USA; University of California, Davis (US-Davis); The Bamboo Project, Government of Jamaica; Bureau of Standards, Jamaica; JAMPRO; The National Environment and Planning Agency (NEPA); OAS; The 4H Club, Jamaica; Agro Systems Consultants, Jamaica; Grace Kennedy Limited; National Committee on Science and Technology; Northern Caribbean University (NCU); Southern Trelawny Environmental Agency (STEA); Scientific Research Council (SRC); MSET; Peckham Development Council, Pan-American University, Aguascalientes, Mexico, CICY and CIAD, Mexico, IICA, CARDI, CMU, UTECH, Southern University of Baton Rouge (SUBR), SUNY Binghamton.

a) MOUs with: King Mongkut's University of Technology North Bangkok (Thailand), Chinese Academy of Science (China), Wallenford Company (Jamaica).

b) MOU with SUNY, Binghampton renewed within the year.

c) MOU with CIAD, Mexico signed within the year in question.

d) Research Grants/partnership

   A Grant submission was made to National Institutes of Health (NIH) by Professor Helen Asemota's group along with Dr. Wesley Gray visiting Professor from Southern University of Baton Rouge (SUBR), and Professor O. Sadik of SUNY.

   The Centre has an NSF Grant for Yam Research with SUNY, USA.

   Bamboo Project Grant with the Government of Jamaica.

SPECIAL PROJECTS

UWI-SUNY NSF Yam BREAD Pheno Project – "Development and Field Testing of Paper-Based Biosensors to Increase Productivity of Small Holder Agricultural in Developing Countries"

This is a National Science Foundation (NSF) sponsored project, under the BREAD PHENO program and it is in collaboration with the State University of New York (SUNY) at Binghamton. Professor O. Sadik of SUNY is the PI and Professor H. Asemota of UWI is co-PI. Local collaborators in the project are Northern Caribbean University (NCU) and the Southern Trelawny Environmental Agency (STEA), as well as selected local farmers. This project seeks to revolutionize yam production in Jamaica through the development and field testing of low cost genotyping and phenotyping biosensors and molecular genetic tools. UWI works with small holder yam farmers in Jamaica with the help of NCU in Manchester and STEA Trelawny and Extension Officers. The project operates under a sub award agreement between SUNY and UWI.

Researchers from the Biotechnology Centre and NCU visited Yam Farms in Bilby and Grove place, Manchester. The main purpose of the field trips was to apply nanoparticles that were supplied by SUNY researchers to the infected sweet yam plants. Observations were made in order to determine if the nano particles applied can suppress the anthracnose disease on Sweet Yam selected plants.

The partnering institutions established an experimental Sweet yam plot infected with yam anthracnose disease. This plot incorporated four groups of treatments. The first type of treatment constituted the application of nanoparticles. The tubers were reaped on November 15, 2018. The yield of tubers and fungal infection of each group of treatments are being analysed to determine if the nanoparticles used can potentially serve to control. Investigations are ongoing.

Jamaica-Mexico Bilateral Cooperation Project" – "Bioengineering of Yams & Other Selected Caribbean Roots and Tuber Crops Biomaterials for Value-Chain Expansion & Pre-Commercialization Analyses"

This Jamaica–Mexico Bilateral Commission Project is the Phase iv of investigations which started in 1999 involving collaboration with Mexican Scientists. The project focuses on bioengineering biomaterials from selected crops for value-chain expansion & pre-commercialization analyses. The project has been renewed for Phase v in the 2020–2021 bilateral period. The project will facilitate boosting of the agro industry via expansion of value chain of Yams. For this new project, Professor Helen Asemota is working in collaboration with UTECH, through Orville Byfield, who accompanied

the UWI researchers last year to Mexico CIAD to visit Dr. Jesus Fernando Ayala Zavala of CIAD in Hermoshillo. A research group from the Biotechnology Centre comprised of Professor Helen Asemota, Mr. Orville Byfield and Ms. Tamara Grant visited the Centro de Investigacion en Alimentacion y Desarrollo (CIAD) in Hermosillo, Mexico from August 19 to September 1, 2018. The visit was to carry out tests on samples that were taken to Mexico, to explore the facilities at CIAD to identify the possibilities for additional research. Also, the researchers met with faculty at CIAD to benefit from their expertise for the effective execution of the project as well as to showcase the Biosports products to get ideas on how their commercialization can be expedited. Mr Orville Byfield and Ms. Tamara Grant made presentations of their research work to postgraduate students and professors at CIAD.

A report was submitted in May 2019 to the Mexican Embassy on the academic visit of Prof. Helen Asemota and two of her postgraduate students to Hermosillo, Mexico over the period August 20–31, 2018. The institutions visited were: the Research Centre for Food and Development (CIAD) and the University of Sonora. During the visit the team from the Biotechnology Centre were exposed to state of the art facilities, and research was advanced within the scope of the Project: 'Bioengineering of Yams & other selected Caribbean roots and tuber crops biomaterials for value-chain expansion & pre-commercialization analyses'. Also, the Jamaican researchers had productive meetings with faculty from CIAD and the University of Sonora. In addition, the postgraduate students learned valuable techniques.

BAMBOO GOVERNMENT PROJECT

OAS and PIOJ representatives visited the Biotechnology Centre on August 1, 2018. According to Dr. Mitchell, they were happy with the work of the Biotechnology Centre in the Bamboo project.

ABS

Dr Sylvia Mitchell during the period under review assisted with IUCN ABS project along with other Caribbean colleagues entitled "***Advancing the Nagoya Protocol in Countries of the Caribbean Region: ABS – Bio-prospecting in the Caribbean Region.***" In addition, Dr Mitchell assisted Jamaica ABS group with preparations to Jamaica signing of the Nagoya Protocol for monitoring Access and Benefit sharing of Jamaica's Biodiversity and Traditional Knowledge.

PUBLICATIONS

Referred Journal Publications

2019

- Sanderson, D., Voutchkov, M. and **Benkeblia, N**. (2019). Bioaccumulation of cadmium in potato tuber grown on naturally high levels cadmium soils in Jamaica. *Science of the Total Environment* 649: 909–915.
- **Benkeblia, N**. 2019. Variation of reducing and total sugars starch, total phenolic contents in unripe and ripe jackfruit (Artcarpus heterophyllus) and West Indian locust (Hymenaea courbaril) fruits. *International Journal of Plant Science and Horticulture* 1: 49–55.
- **Francis, R.D.,** Bahado-Singh P.S., Wheatley A.O., Smith A.M. and **Asemota H.N.** (2019) Glycemic index of selected foods in Jamaica. *Pharmacovigil and Pharmacoepi* 2: 13–16.
- **Francis, R.D**., Bahado-Singh P.S., Wheatley A.O., Smith A.M. and **Asemota H.N.** (2019) Glycemic index of selected foods in Jamaica. *Pharmacovigil and Pharmacoepi* 2: 13–16.

2018

- Fevrier, Adwalia, AK Soyibo, **SA Mitchell**, M Voutchkov (2018) Role of toxic elements in chronic kidney disease. *Journal of Health & Pollution*, December, 2018. Vol 8(20): 1-6. Doi: 10.5696/2156-9614-8.20.181202.
- Vandebroek Ina, David Picking, Stacey Aiken, Patrick Albert Lewis, Andreas Oberli, **Sylvia Mitchell** and Brian Boom (2018) A review of coralilla (Antigonon leptopus): An invasive and popular urban bush medicine in Jamaica. *Economic Biology,* 71: 1–17.
- **Francis, R**., Rodgers, Y., Salmon, C., Junior, G., Bahado-Singh, P. S., Smith, A., Wheatley, A. O., & **Asemota, H. A**. (2018). Glycemic index in the development of functional beverage. *European Journal of Experimental Biology*, 8(2), 1–4.
- **Francis, R**., Bahado-Singh, P. S., Smith, A., Wheatley, A. O., & **Asemota, H. A**. (2018). Glycemic index of traditional foods in Jamaica. *European Journal of Experimental Biology,* 8(3), 1–5.
- **Francis, R**., Rodgers, Y., Salmon, C., Junior, G., Bahado-Singh, P. S., Smith, A., Wheatley, A. O., & **Asemota, H. A**. (2018). Glycemic index in the development of functional beverage. *European Journal of Experimental Biology*, 8(2), 1–4.
- **Francis, R**., Bahado-Singh, P. S., Smith, A., Wheatley, A. O., & **Asemota, H. A**. (2018). Glycemic index of traditional foods in Jamaica. *European Journal of Experimental Biology,* 8(3), 1–5.
- Vandebroek Ina, David Picking, Stacey Aiken, Patrick Albert Lewis, Andreas Oberli, **Sylvia Mitchell** and Brian Boom (2018) *A review of coralilla (*Antigonon leptopus*): An invasive and popular urban bush medicine in Jamaica. Economic*

Biology, 71: 1–17.

TECHNICAL REPORTS/SCIENTIFIC REPORTS/WHITE PAPERS

- Asemota, H.N. and Grant, T. C. (2019). A Work Programme for the Jamaica-Mexico Bilateral Technical Cooperation Project: "Bioengineering of Yams & other selected Caribbean roots and tuber crops biomaterials for value-chain expansion & pre-commercialization analyses" was sent to Mr. Marlon Roberts, Foreign Service Officer in the Bilateral Relations Department of The Ministry of Foreign Affairs and Foreign Trade. This programme incorporated project related activities that were carried out over the 2017–2018 period and proposed activities for the 2019 Project year.
- **Mitchell SA**, K Lindsay, A Richards (2018) Bio-prospecting in the Caribbean region: Caribbean ABS Traditional Knowledge Stocktaking Traditional Knowledge in the Caribbean Region, IUCN,103pgs.http://www.abscaribbean.com/resources/documents.
- **Mitchell SA**, A Richards, K Lindsay (2018) Bio-prospecting in the Caribbean region: Standardized methodology for creation of Caribbean national registers of their marine and terrestrial biological resources, IUCN, 45 pages. http://www.abscaribbean.com/resources/documents.

CONFERENCES PROCEEDINGS

- **Lutas, N.,** Riley, C.K., Johnson, E., **Asemota, H.N** (2019, March) The Fight Against Coffee Leaf Rust in Jamaica: An Overview of the current state of the disease in Jamaica. 3rd Inter-American Division Research Conference, March 27–30th, 2019 (Research: Meeting Human Needs). Northern Caribbean University, Jamaica. (Oral Presentation).
- **Dawkins, D.**, Thomas-Rodriquez, C., Hyslop, E., **Asemota, H.N.,** Smikle, M. (2019, March) Exploiting Toxin Antitoxin Systems in Vancomycin Resistant Enterococci and High Level Aminoglycoside Resistant Enterococci Isolates from the Caribbean as Potential Antibacterial Strategy. 3rd Inter-American Division Research Conference, March 27–30th, 2019 (Research: Meeting Human Needs). Northern Caribbean University, Jamaica. (Oral Presentation).
- **Mitchell, SA** (2019) ABS and Medicinal Plants – the case of Medicinal Marijuana – Cannabis in the Caribbean. Caribbean Access and Benefit Sharing Week, Hosted by IUCN in association with UN Environment, From Global Goals to Local Implementation, January 29–31, 2019, Port of Spain, Trinidad.
- **Mitchell, SA** (2019) Reviewing Institutions and Experts in the Caribbean – ABS, Nagoya Protocol and Caribbean Institutions. Caribbean Access and Benefit Sharing Week, Hosted by IUCN in association with UN Environment, From

Global Goals to Local Implementation, January 29–31, 2019, Port of Spain, Trinidad.

- **Grant, T.C., Asemota, H.N.,** Dondapati, S., Riley, C.K., Bazuaye-Alonge, P.E., Wright, V.F., Miller, R.M., Sadik, O.A. (2019, March) An Investigation into the Use of Nanoparticles against the Yam Anthracnose Disease. 3rd Inter-American Division Research Conference, March 27–30th, 2019 (Research: Meeting Human Needs). Northern Caribbean University, Jamaica. (Oral Presentation).
- **Lutas, N.,** Riley, C.K., Johnson, E., **Asemota, H.N** (2019, March) The Fight against Coffee Leaf Rust in Jamaica: An Overview of the current state of the disease in Jamaica. 3rd Inter-American Division Research Conference, March 27–30th, 2019 (Research: Meeting Human Needs). Northern Caribbean University, Jamaica. (Oral Presentation)
- **Dawkins, D.,** Thomas-Rodriquez, C., Hyslop, E., **Asemota, H.N.,** Smikle, M. (2019, March) Exploiting Toxin Antitoxin Systems in Vancomycin Resistant Enterococci and High Level Aminoglycoside Resistant Enterococci Isolates from the Caribbean as Potential Antibacterial Strategy. 3rd Inter-American Division Research Conference, March 27–30th, 2019 (Research: Meeting Human Needs).
- **S. Wright**, W Aiken, **H Asemota** (2018). Biomedical Engineering of Jamaican Yam tuber for Drug Targeted Therapy in Prostate Cancer and its Potential Use in Green Nanotechnology Formulation The 40th The Jamaica Institute of Engineers & The Canadian Society of Civil Engineers, "Engineering Week"; Theme" Engineering Our Future Through Celebrating Our Heritage." *September 2018,* University of the West Indies, Mona Campus, St. Andrew, Jamaica.
- Adwalia Fevrier-Paul, Adedamola Soyibo, Nimal DeSilva, **Sylvia Mitchell**, Mitko Voutchkov Evaluation of Whole Blood Elemental Trends in End Stage Renal Disease Patients in Jamaica. 11th FST Conference 2018. Poster.
- **M. Williams**, C. Nwokocha, M. Voutchkov, D. McGrowder, E. Williams, **H. Asemota**. Biomagnetic Therapy and Type II Diabeties. UDOP Conference 2018. Poster.
- **Sasha-Gay Wright**, William Aiken, **Helen Asemota**. Comparison of cytotoxicity of the RLY2 Extract in Androgen Sensitive and Insensitive Prostate Cancer cell lines. 11th FST Conference 2018. Poster.
- Kenroy Wallace, Wesley Gray, **Helen Asemota**. The Effect of Extracted bioactive material from Dioscorea alata cv. White Yam tuber on Prostate and Breast Cancer cells. 11th FST Conference 2018. Poster.
- **Racquel Wright**, Lee Ken, Hyacinth Hyacinth, Jacqueline Hibberts, Marvin Reid, Andrew Wheatley, **Helen Asemota**. Phytochemical analysis of Jamaican

Moringa oleifera leaf extracts and possible implications for treatment of oxidative stress conditions. 11th FST Conference 2018. Poster.

- **Lowen Williams**, Mohammed Bakir, Donovan McGrowder, and **Helen Asemota**. The use of metallic semicarbazone complexes in the management of type 2 diabetes. 11th FST Conference 2018. Poster.
- Melisa Williams, Chukwuemeka Nwokocha, Mitko Voutchkov, Donovan McGrowder, Elvira Williams, **Helen Asemota**. The biochemical effects of biomagnetic therapy on type II diabetic rats. 11th FST Conference 2018. Poster.
- **Robinson, D.,** Holness, S., **Roye M.** The use of small RNA next generation sequencing to identify viruses affecting tomato, sweet pepper and scotch bonnet pepper in Jamaica. 11th FST Conference 2018. Poster.
- **Robinson, D**., Holness, S., **Tennant, P**., **Roye, M**. (2018). Identification and Molecular Characterization of Viruses infecting Tomato, Scotch Bonnet Pepper and Sweet Pepper Using small-RNA Next Generation Sequencing. 11th FST Conference, UWI, Mona. April 25–27, 2018. (Poster Presentation)
- **Logan K.A. Wright S.A., Wright R.J**., Lawrence M.A., Bakir M., Nwokocha C.R., and **Asemota H.N.** Potential action of semicarbazones in the management of diabetes and its complications. UDOP Conference 2018. Poster.
- **S. Wright**, **R., K. Logan**, W. Aiken, **H. Asemota**. The Versatility of Jamaican Medicinal Plants for the Management of Type 2 Diabetes and other Non-Communicable Diseases. UDOP Conference 2018. Poster.
- **M. Williams**, C. Nwokocha, M. Voutchkov, D. McGrowder, E. Williams, **H. Asemota**. Biomagnetic Therapy and Type II Diabeties. UDOP Conference 2018. Poster.
- Sadik.O., **Dondapati, S., Asemota. H**. Development and Field Testing of Paper-based biosensors to increase productivity of small holder agriculture in developing countries. The UWI, Mona Research Days 2018. Poster.
- **Mitchell, Sylvia Adjoa** (2018) Bamboo tissue culture, propagation, cultivation and harvesting research 'catalyzing the process', Caribbean International Bamboo Conference, November 28th, Jamaica Conference Centre, Kingston, Jamaica.
- **Williams L**, Bakir M, McGrowder D, Nwokocha C, **Asemota H** (2019 April) The Use of Metallic Semicarbazone Complexes in the Management of type 2 Diabetic Rats. The 25th Annual International Diabetes Conference, April 25–27, 2019, Jewel Runaway Bay Beach & Golf Resort, Jamaica. (Conference Poster)
- **Logan K.A**., Lawrence M.A., Bakir M., Nwokocha C.R., and **Asemota H.N**. (2019 April) the Potential Therapeutic Effects of Metallic Semicarbazone Complexes in L-NAME Induced Hypertension Model. The 25th Annual International

Diabetes Conference, April 25–27, 2019, Jewel Runaway Bay Beach & Golf.

BOOK & BOOK CHAPTER

- **Tennant P**, Fermin G, Foster J (2018) *Viruses: Molecular Biology, Host Interactions and Applications to Biotechnology*. Academic Press. 392 pp.
- **Benkeblia, N.** (2018). Harnessing the nutritional and commercial benefits of jackfruit (Artocarpus heterophyllus) in the tropics and subtropics. In: *Agriculture, Food, and Food Security: Some Contemporary Global Issues.* C. L. Beckford (Ed.). Nova Science Publisher, Hauppauge (NY), pp. 1–28.
- **Benkeblia, N**. (2018). Unlocking the full potential of carambola (Averrhoa carambola) as a food source: botany, growing, physiology and postharvest technology. In: *Agriculture, Food, and Food Security: Some Contemporary Global Issues*. C. L. Beckford (Ed.). Nova Science Publisher, Hauppauge (NY), pp. 131–158.
- **Tennant, P**., Gubba, A., Roye, M. Gustavo, F. Viruses as Pathogens: Plant Viruses. In: Tennant, P., Gustavo, F, Foster, J.E. (Eds) *Viruses Molecular Biology, Host Interactions, and Applications to Biotechnology*. Elsevier Academic Press, USA. 2018. pp. 137–156.

INCOME GENERATION

The Basic Skills Biotechnology Training Workshop – "Train the Trainers" generated an overall amount of $ 405,000.00 JMD.

PUBLIC SERVICE

Professor Helen Asemota

– Ordained Minister (Reverend) with the Holiness Christian Church of Jamaica

– Chairman of Board – International Centre for Environmental and Nuclear Sciences (ICENS)

– Member, PSOJ Innovative Committee

– Member, NHMIJ Board, JIS

– Chairman and Co-Founder, Imade Asemota Foundation for Sickle Cell Research and Patients' Welfare (IAF), North Carolina, USA

– Director, Biotechnology Centre (FST, Mona)

– Country Representative, International Measurement Convention (IMEKO) Rep.

in Jamaica

- STEM Women of Science Concave (SWOC), USA. Founding Member
- Conveyor, the 2016 United Nations University Biotechnology Programme for Latin American and Caribbean countries (UNUBIOLAC) Activities
- General Co-chair, the 2017 IMEKO TC19 International Symposium in Aguascalientes, Mexico.

Dr. Sylvia Mitchell

- Member, Technical Working Group, Cannabis Licensing Authority, 2016 to Present
- Member, Health and Wellness Network Committee, Linkages Council, Ministry of Tourism, 2016 to Present
- Member, Ginger working group, Ministry of Industry, Commerce, Agriculture and Fisheries, 2017
- Member, ABS working group meeting, MEGJC
- Technical Secretary, Bamboo and Indigenous Material Products Standards Technical
- Committee (BIMPSTC), Bureau of Standards Jamaica, 2016–2018
- Founding Member, Bamboo Industry Association of Jamaica, 2016 to Present
- Bureau of Standards Jamaica, Pension Trustee, 2013 to Present.
- Biology (SIVB), 2009 to Present
- Member, Organization for Women in Science for the Developing World (OSWD).
- Convenor, Working Group, Bamboo Charcoal, TC296, ISO, 2017–2018
- Member, Working Group, Bamboo Terminology, TC296, ISO, 2017 to Present
- Member of Organising Committee, Caribbean Bamboo Conference in November 2018. Will be presenting a paper on the work done under this project.
- Convenor of ISO Bamboo standard working group on bamboo charcoal for 2017. Sent document for ISO meeting in Indonesia in 2–24th August, 2017.
- Co-editor of In Vitro Reports (posted on their website every three months), Society of In Vitro Biology (SIVB), 2009 to Present
- Member, Society of In Vitro Biology (SIVB), 2003 to Present.
- Member, Organization for Women in Science for the Developing World (OSWD).
- Convenor, Working Group, Bamboo Charcoal, TC296, ISO. Organizer first meeting of the WG1, Indonesia, held August 23, 2017.

Professor Marcia Roye

– Member of the Advisory Board of the National Compliance Regulatory Authority of the Bureau of Standards, Jamaica.
– Volunteer Cape Biology Teacher at Wolmer's Boys' School and St Andrew High School for Girls. Topic: Genetic engineering.

Professor Noureddine Benkeblia

– Scientific Activities Appointed "*Associate Editor*", *Canadian Journal of Plant Science*
– Member of the *Canadian Society of Plant Science* International Symposia
– Member of the Organizing Committee of the 2nd Asian Horticultural Congress, 26–28 September, 2017, Chengdu, China.
– Member of the Organizing Committee of the International Conference on Food Technology and Nutritional Science, 26–27 June, 2017, Baltimore, MD, USA.

Professor Paula Tennant

– Member, American Phytopathological Society
– Member, Caribbean Academy of Sciences, Jamaica Chapter
– Member, Jamaica Society of Scientists and Technologists

AWARDS & NOTATIONS

- Dr. Mitchell was given an award for being the IAPB (International Association for Plant Biotechnology) Country Representative for Jamaica, Awarded at IAPB meeting in 2018, and IAPB PIC 7.
- The Biotechnology Centre was honoured recently when its two full-time academic staff, Prof Marcia Roye and Dr Sylvia Mitchell were chosen as part of the 70+ UWI Women of Distinction. As part of the 70th anniversary celebrations of The UWI (1948-2018), The Institute for Gender and Development Studies, Regional Coordinating Office (IGDS, RCO), in association with the Office of the Vice Chancellor, The University of the West Indies (The UWI) conceived a regional project entitled Celebrating UWI Women. The project is geared at highlighting the significant contribution and outstanding achievements of women who have graduated from the various campuses of The UWI since its inception.
- Mr. Jordon Freeman post graduate in the MPhil in Biotechnology received the Youth Innovator Award 2018 for his product "Healthy Sugar" (sugar lower in calories) at the 2018 National Medal for Science and Technology and Innovation awards ceremony held at The Jamaica Pegasus hotel in New Kingston on Wednesday November 21, 2018.

- Mr. Freeman also won the 2018/2019 'Startupper of the Year' Total Challenge. Jordon was among several young entrepreneurs rewarded by Total Jamaica and are now being positioned to further implement their ideas for greater economic success. Jordon entered his company JA Bioplastic Limited and emerged as the first-place winner.
- Ms. Sasha Gay Wright, post graduate student of Professor Helen Asemota and associate student of the Biotechnology Centre was featured in the *Jamaica Observer* – All Woman for her ground-breaking cancer research.
- Ms. Wright's research has so far been focused heavily on the anti-cancer properties of the Jamaican round leaf yellow yam. Ms. Wright aims for her research is to do more that write a paper on her findings. She wants to use the extract that she found in cancer treatment through nutraceuticals (foods that have medical benefits). Web Link: Jamaica Observer https://www.jamaicaobserver.com/all-woman/sasha-gay-wright-s-ground-breaking-cancer-research_162010.
- Ms. Deiondra Robinson received the Outstanding Student Scientist Award at the Faculty of Science and Sport (FOSS) 5th International Scientific Conference held at the University of Technology, Jamaica (UTech, Ja.).