

## THE NATURAL PRODUCTS INSTITUTE



**Dr. Rupika Delgoda** (D.Phil. (*Oxon*), B.Sc. (Hons.))  
Executive Director

### WORK OF THE INSTITUTE

The Natural Products Institute (NPI), saw the establishment of several staff posts during this academic year, the first such cohort in the Institute, thus allowing for the formulation of a five year strategic plan. We are thankful to the Principal for the establishment of these posts of Research Fellows and a Senior Scientific Officer, which we anticipate will allow the growth of the Institute.

Combined with the approval of grants from the National Health Fund (NHF), Caribbean Health Policy Agency (CARPHA) in association with US, National Cancer Institute (NCI), in addition to Principal's New Initiative, totaling up to approximately J\$21M, we look forward to a year of research in cancer, (treatment and prevention leads) mosquito vector control, drug-herb interactions and cannabis (details of which are

provided in sections below). Following the invitation of several members of staff to join national bodies in natural product development, NPI looks forward to having national and international impact. Our staff continued to engage in high quality publications, presentations at several international conferences, as well as organization of the Faculty of Science and Technology conference, and also hosted several internationally renowned scientists. The year also saw the conclusion of the hosting period for Biotech R&D, a privately owned company.

## PAPERS PRESENTED

### Invited plenary and oral presentations:

- **Campbell T**, Bowen-Forbes C, Thompson I, Nembhard N, Lindo R, McKenzie, J Delgoda R, “A comparative analysis of the sensory and phytochemical properties of two varieties of the red raspberry *Rubus rosifolius* and the antidiabetic activity of its extracts, 10th conference of the Faculty of Science and Technology, UWI, Mona, June 9–11, 2015
- **Yee, T**, “Hypoglycaemic and hypotensive constituents from *Eucalyptus camaldulensis*”, 8th biennial meeting of the International Society for the Development of Natural Products, Shanghai, China, October 10–12, 2014.
- **Delgoda, R**, “Meeting the gaps for developing natural products in the Caribbean: a Jamaican model”, 8th biennial meeting of the International Society for the Development of Natural Products, Shanghai, China, October 10–12, 2014.
- **Francis S**, Delgoda R, Gallimore W, Jacobs H, Bibby J, Paine M., “Natural Compound: Use in Vector Control Programme.” 5th National Health Research Conference. Healthy Individual, Healthy Community, Healthy Nation; Kingston, November 27–28, 2014

### Papers presented as posters

- Delgoda, R, Kandagatla, S, Ranor, G, Brantley, E, Badal, S, Francis,

S, Jacobs, H, “Novel quassinoid from Jamaican *Castela Macrophylla* blocks induction of Cytochrome P450 1 enzymes and luciferase genes”, presented at the 2015 Annual meeting of the American Society of Pharmacognosy, 25th–29th July 2015, Copper Mountain, Colorado, USA.

- **Francis S, Delgoda R, Bibby J, Paine M.** “Natural compounds: considerations as insecticide synergists.” American Society of Tropical Medicine and Health 64th Annual Meeting, November 2–6, 2014, New Orleans, USA.
- **Picking D, Delgoda R,** “Evaluating the potential for drug-medicinal plant interactions in Jamaica”, 8th International Society for the Development of Natural Products, October 10–11, 2014
- **Picking D, Delgoda R,** “Evaluating the potential for drug-medicinal plant interactions in Jamaica”, Society for Scientific Advancement, Mona, November, 2014

## PUBLICATIONS

### Refereed Journal Articles and book chapters

- **Picking D, Delgoda R,** Younger N, Germosén-Robineau L, Boulogne I, Mitchell S, “TRAMIL ethnomedicinal survey in Jamaica”, *Journal of Ethnopharmacology*, 2015, 169, 314-327
- **Delgoda R,** Kandagatla S, Ranor G, Brantley E, **Badal S,** Francis S, Jacobs H, “Novel quassinoid from Jamaican *Castela Macrophylla* blocks induction of Cytochrome P450 1 enzymes and luciferase genes”, *Planta Medica*, 2015, 81, 948
- **Francis, S and Delgoda, R** “Patent reivew on the development of cytochrome P450 inhibitors”, *Expert Opinion on therapeutic patents*, 2014, 24(6), 1–19
- **Delgoda R, Picking D,** “The pivotal role of scientific research in the development of the nutraceutical industry in Jamaica” in *Jamaica’s*

*Nutraceuticals: Opening the door to their potential*, Lowe, H and Morrison, E (Eds), Pelican Publishers, Jamaica, 2015

- **Badal S**, Collins-Fairclough A, Stewart C, Smith K, Potential for naturally-derived therapeutics: The Caribbean as a Model. Insights from the Conference on Therapeutics & Functional Genomics. *Expert Opinion on Biological Therapy*, 14, (2014): 1–4.

#### **Patent applications**

- **Yee, T and Jacobs H**, “Simplified Process to Extract Quassinoids” US Patent No. 2014/0187799 A1. This new patent in their series of extraction of Bitterwood describes three improvements to the original patents.

#### **Training workshops attended by Staff**

- **Murray, J and Foster K** (student), cell culture and cytotoxicity assessments, hands on training provided by Dr. G. Huang, Clemson University, Clemson, South Carolina, USA, July 2015.
- **Delgoda, R**, US National Institute of Health (NIH), CARPHA and PAHO “Caribbean grant writing and Scientific peer review workshop”, St. George’s Granada, September 17–19, 2014

#### **INCOME GENERATION**

- 1) Caribbean Public Health Agency (CARPHA) and National Cancer Institute (NCI) (US\$50,000); “Identifying novel cancer treatment and prevention leads from the Jamaican biodiversity”, Awarded to Dr. R. Delgoda (PI) and collaborators.
- 2) National Health Fund (J\$7.0M); “Cancer treatment and prevention value of Jamaican natural products” awarded to Dr. R. Delgoda.
- 3) National Health Fund (J\$7.5M); “Anticancer screens of Jamaican natural and synthetic products using mice models; A necessary step for drug development ” awarded to Dr. S. Badal.

- 4) University of the West Indies New Initiative Grant 2015, (J\$1.5M), “Evaluating Jamaican Natural Extracts as Effective Pesticide Synergists to Control the Spread of ChikV & Dengue” awarded to Dr. S. Francis.
- 5) US National Institute of Health, Research Capacity Building workshop, “Improving Chronic Disease in the Caribbean through evidence based behavioural and social interventions”, July 21–23, 2015, Bridgetown Barbados, Travel grant awarded to Dr. R. Delgoda.

## **PUBLIC SERVICE**

### **Simone Badal**

- Science Policy chair, Society for Scientific Advancement (SoSA)

### **Rupika Delgoda**

- Member, Steering Committee, National Nutraceutical Industry, Jamaica
- Member, Cannabis Research and Development Evaluation and Monitoring Committee
- Member African Caribbean Cancer Consortium
- Secretary, International Society for the Development of Natural Products
- Co-Chair, 10th conference of the Faculty of Science and Technology, UWI
- Co-Licencee and organizer of TEDxJamaica
- Member International Society for Study of Xenobiotics
- Member American Society for Pharmacognosy

### **Sheena Francis**

- Board Member of the Caribbean Diaspora for Science, Technology and Innovation (CADSTI)

## **The Natural Products Institute**

- Organizing Committee, 10th conference of the Faculty of Science and Technology, 2015
- Organiser for Sagicor Visionaries Competition
- Member, American Society of Tropical Medicine and Health
- Member, Caribbean Academy of Sciences
- Member, Jamaica Organic Agriculture Movement
- Jamaican Young Scientist Forum
- Member, Caribbean Coastal Area Management Foundation

### **David Picking**

- Advisory Panel, Jamaican Ministry of Health – Complementary and Alternative Medicine (CAM)
- Advisory Panel, Bureau of Standards
- Board of Directors, Perishables Jamaica
- Lecturer, All American Institute of Medical Sciences, Black River, Jamaica
- Collaborator, New York Botanical Garden (NYBG)

### **Trevor H. Yee (Retired, honorary member)**

- Treasurer, the International Society for the Development of Natural Products (ISDNP)
- Executive Committee, the Natural History Society of Jamaica (NHSJ).

## **AWARDS**

- 1) Principal's Research Award for Most Outstanding Researcher, Faculty of Science and Technology (R Delgoda), January 2015
- 2) Award for best poster, 8th biennial meeting of the International Society for the development of natural products, October, 2014, Shanghai, China. (R Delgoda and D Picking)

- 3) Award for best poster, 3rd meeting of the Society for Scientific Advancement, Mona, November, 2014 (D Picking)
- 4) Award for most outstanding worker, Faculty of Science and Technology, Faculty Award ceremony, Ms. Kimone Stewart, Senior Administrative Assistant, March 2015

### **STUDENT MATTERS**

- 1) David Picking, Ph.D (with Distinction), Biochemistry, Thesis title, “The contemporary use of medicinal plants in Jamaica & assessment of potential medicinal plant-drug Interactions of select plants”, graduated 2014.
- 2) Je’Ann Murray, M.Phil, Biochemistry, Thesis title, “Inhibition of human cytochrome P450 enzymes by local herbs, natural and synthetic isolates”, graduated 2014.

### **NEWLY ESTABLISHED OVERSEAS COLLABORATIONS**

- 1) Colorado State University, Fort Collins, USA
- 2) University of North Carolina, Greensboro, USA
- 3) New York Botanical Gardens, NY, USA

### **Visiting academics hosted by NPI**

- 1) Professor Geoffrey Cordell, Natural Products Inc.; June17–25th, 2015. Seminar entitled, “Development of plant based health care products, constraints and strategies, June 23, 2015
- 2) Dr. George Huang, Clemson University, South Carolina, USA, July 6–23, 2015