

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 growth of several research projects during this year and the initiation of a few others, in particular research on control methods for insecticide resistant mosquitoes responsible for carrying multiple diseases including ChikV and Zika viruses. Collaborations commenced between NPI and Colorado State University, Fort Collins, USA as well as Liverpool School of Tropical Medicine, UK, and the project is well underway with support from Ministry of Health.

The Institute launched a Handbook entitled, “Potential Drug Interactions for commonly used medicinal plants and foods in Jamaica” this year which has been well received by the medical community. Data compiled in this book, which is a combination of both original research at the

Institute as well as from established literature, has also been used to create an app for use by physicians and pharmacists.

Members of staff continue to contribute to national and international bodies in natural products development as well as engage in high quality publications and presentations at national and international conferences. NPI was invited to partner with the Chemistry Department at the 26th Mona Symposium this year to host a public forum entitled, “Natural Products for National Development”, which attracted a variety of public and private sector representatives for dialog in this key area, towards national development.

Our research efforts have been recognized in two noteworthy awards this year: The award for first place winning poster at the 20th meeting of the renowned International Society for the Study of Xenobiotics (ISSX) North America meeting, Florida, and best research publication for the Faculty of Science and Technology, Mona Principal’s Research Awards.

PAPERS PRESENTED

Invited plenary and oral presentations:

- **Picking D**, Younger N, Mitchell S, Delgoda R, “Prevalence of medicinal plant use in Jamaica & assessment of potential drug-medicinal plant interactions of select plants,” the international symposium on methods for studying drug metabolism and transport and African Traditional Medicines, Pretoria, South Africa, November 23-25, 2015
- **Picking D**, Jamaican Ministry of Health, World Health Day 2016 forum, “Reversing diabetes: A possibility or a dream,” Invited to speak on “The use of herbs in diabetes,” Public Forum – Kingston, Jamaica – March 2016
- **Picking D**, Second Agribusiness Forum organized by the Technical Centre for Agricultural & Rural Cooperation (CTA), the Inter-American Institute for Cooperation on Agriculture (IICA) and the Caribbean Agribusiness Association (CABA). Invited speaker on

“Opportunities in the nutraceutical and pharmaceutical industry for the region,” Barbados, November 2015

- **Picking D**, Panelist presenting on “Essentials of scientifically based natural products industry”, at the public forum entitled, “Natural Products for National Development”, at the 26th Mona Symposium University of the West Indies, January 5, 2016.
- **Delgoda, R**, “Towards unveiling the value of Caribbean biodiversity: using phase I and II drug metabolizing enzymes as targets” International Symposium on Methods for Studying ‘Drug Metabolism and Transport’ and African Traditional Medicines” (METHODS-2015), Pretoria, South Africa, November 23–25, 2015.
- **Delgoda, R**, “Natural Products in cancer prevention and therapy”, Faculty of Medical Sciences conference and workshop, November 13, 2015, UWI

Papers presented as posters

- **Francis S**, Laurieri N, Nwokocha C, and **Delgoda R**, “Per os treatment of rats with apocynin, a natural organic compound, has potent inhibitory effects on arylamine N-acetyltransferase activity in liver”, 20th North American ISSX Meeting. October 18–22, 2015, Florida, USA.
- Badal S, Asuncion-Valenzuela M, Kandagatla S, Zylstra A, Francis S, Quitugua A, Amis L, Davis W, Jacobs H, Raner G, Brantley E, Delgoda R, “Potential chemopreventive properties of Jamaican natural products”, International Symposium on Methods for Studying ‘Drug Metabolism and Transport’ and African Traditional Medicines” (METHODS-2015), Pretoria, South Africa, November 23–25, 2015.

PUBLICATIONS

Book

- **Delgoda, R** and **Picking D**, Potential drug interactions: for commonly used medicinal plants&foods in Jamaica, *Handbook for health care professionals*, Natural Products Institute, University of the West Indies, Kingston, Jamaica, 2015

Refereed Journal Articles and book chapters

- Francis S, Laurieri N, Nwokocha and Delgoda R, “Treatment of Rats with Apocynin Has Considerable Inhibitory Effects on Arylamine N-Acetyltransferase Activity in the Liver”, *Scientific Reports*, 2016, May 31;6:26906. doi: 10.1038/srep26906
- Murray J, Picking D, Lamm A, McKenzie J, Hartley S, Watson C, Williams L, Lowe H and Delgoda R, “Significant inhibitory impact of dibenzyl trisulfide and extracts of *Petiveria alliacea* on the activities of major drug metabolizing enzymes in vitro: An assessment of the potential for medicinal plant-drug interactions”, *Fitoterapia*, 2016, 111, 138–146
- Francis S, Nwokocha C and Delgoda R, “Inhibition of cytochrome P450 1 enzymes by apocynin and other Jamaican natural products: Assessing potential for chemoprevention and drug-herb interactions”, in “In-vitro Bioassays and Chromatographic Analyses Used to Screen Natural Products from Jamaica in the 21st Century”, Green C (Ed), 2015, 49–61, *Research Signpost*.

TRAINING RECEIVED BY STAFF

- Francis S, entomology and vector control training at Colorado State University, November 2015–February 2016
- Delgoda, R, Developing a Cochrane Systematic Review; workshop conducted by Caribbean branch of the US Cochrane Centre, UWI, April 18–20, 2016
- Francis S, one year post-doctoral training in entomology, University of Florida, Gainesville, USA, April 2016

Client Services

- Efficacy of local plants in fighting cancer
- Development of nutraceuticals

PUBLIC SERVICE

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)
- 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

- Picking D, Delgoda R, Younger N, Germosén-Robineau L, Boulogne I, Mitchell S, Principals award for best publication, Faculty of Science & Technology, January 2016, for publication: “TRAMIL ethnomedicinal survey in Jamaica,” *Journal of Ethnopharmacology* 169, 314–327
- Francis S., Laurieri N, Nwokocha C and Delgoda R, First Place poster winner (of 289), Awarded to the poster: Per os treatment of rats with apocynin, a natural organic compound has potent inhibitory effects on Arylamine N-acetyltransferase activity in liver. (October 18 – 22, 2015) at the 20th North American International Society for the study of Xenobiotics (ISSX), Florida, USA.

Visiting academics hosted by NPI

- Professor Geoffrey Cordell, Natural Products Inc.; February, 2016.