

THE NATURAL PRODUCTS INSTITUTE



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

WORK OF THE INSTITUTE

With the establishment of regularized staff posts at the Institute in the previous two years, the academic year 2016–17 saw an increase in scholarly output. Fourteen publications by three members of academic staff included two books: a 716-paged, refereed, edited text book on *Pharmacognosy*, published by the renowned publishing house, Elsevier, Academic Press and a widely distributed, community-book on *Popular medicinal plants in Portland and Kingston, Jamaica*, published in collaboration with The New York Botanical Garden and funded through the a grant from National Geographic. The text book is expected to serve both local and international tertiary programs as well as researchers in the field, while the community book aims to preserve through documentation, local ethnomedical knowledge in the country. Work underlying these and other peer-reviewed articles published in scientific

journals, also allowed for successful liaisons to be established with the Ministry of Health (MOH). The Mosquito Control Research Unit, launched this year as a collaboration between UWI and MOH, will have research on insecticide resistance conducted by NPI researchers, playing a vital role.

Mosquito based research along with other multi-disciplinary, collaborative projects also attracted funding from the Seeding Lab, Instrumental Access Program for the provision of invaluable, scientific equipment benefitting researchers at NPI as well as the Department of Basic Medical Sciences.

With multiple opportunities taken up this year by our staff members for international training and exposure (including in Cuba, Singapore, USA, UK), along with growth in research capacity, the Institute looks forward to further increases in output in the upcoming years.

PAPERS PRESENTED

Invited plenary, oral and poster presentations:

- **Picking D**, Chambers B, Barker J, Shah I, Porter R, **Delgoda R**, Cytochrome P450 inhibitory action of *Hyptis verticillata* Jacq. extracts: Assessing the potential for drug interactions, 21st International Congress – Phytopharm, Graz, Austria, July 2–5, 2017
- **Picking D**, Cockpit Country: Vital resources and benefits, Trelawney Town-Flagstaff Maroon Treaty Day Celebration. March 1, 2017
- **Picking D**, **Delgoda R**, Medicinal plant safety: An overview of the drug interaction screening program for popular Jamaican medicinal plants at the University of the West Indies, 58th Society for Economic Botany Annual Conference, Bragança, Portugal, June 4–9, 2017
- **Delgoda R**, Evaluating natural inhibitors of drug metabolizing enzymes: implications for drug development and safety, 3rd Natural Products Conference: Interface of Science and Technology as Applied to Natural Product Research, Cancun, Mexico, Mar 20–23, 2017

- Turfus SC, **Delgoda R**, McKenzie J, Lindsay C, Nelson R, Ricketts S, Malcolm S, Pavy C, Mansingh A and Roopchand-Martin S, An investigation into the use of supplements consumed by Jamaican student athletes: A multi-faceted approach. Caribbean Poison Information Network (CARPIN) 8th Scientific Conference. College of Health Sciences, University of Technology, Jamaica, March 25–26, 2017
- **Foster K**, Younger-Coleman N, Aiken W, Brady-West D and **Delgoda R**, Prevalence of medicinal plant use by cancer patients in Jamaica, Faculty of Medical Sciences 25th Annual research conference, UWI, November 2016
- **Murray J**, **Delgoda R** Significant inhibitory impact exhibited by dibenzyl trisulfide and extracts of *Petiveria alliacea* on the activities of drug metabolizing cytochrome P450 enzymes and the implications for potential medicinal plant-drug interactions, Faculty of Medical Sciences 25th Annual research conference, UWI, Mona, Jamaica, November 9–11, 2016

PUBLICATIONS

Edited Books:

- Badal S and **Delgoda R** (ed.), *Pharmacognosy: Fundamentals, Applications and Strategies*, Elsevier Academic Press, U.K., 2016 (716 pages)
- VandeBroek, I. and **Picking, D.** (ed.) *Popular Medicinal Plants in Portland and Kingston*, Jamaica. New York Botanical Garden (NYBG) & the University of the West Indies, Kingston, Jamaica, 2016 (191 pages)

Refereed Journal Articles and book chapters

- **Picking, D.** “Global regulatory framework for medicinal plants” , in *Pharmacognosy: Fundamentals, Applications and Strategy*, Badal, S and Delgoda, R (Eds), Elsevier, London, 2017, p6 63–675
- **Delgoda R**, **Murray JE**, Evolutionary perspective on the role of

plant secondary metabolites in *Pharmacognosy: Fundamentals, Applications and Strategies*, Badal S and Delgoda R (Eds), Elsevier Academic Press, U.K., 2016, p93-100

- **Murray JE**, Laurieri N and **Delgoda R**, Proteins in *Pharmacognosy: Fundamentals, Applications and Strategies*, Badal S and Delgoda R (Eds), Elsevier Academic Press, U.K., 2016, p477-493
- Turfus SC, **Delgoda R**, **Picking D** and Gurley BJ, Pharmacokinetics in *Pharmacognosy: Fundamentals, Applications and Strategies*, Badal and Delgoda (Eds), Elsevier Academic Press, U.K., 2016, p495-511
- Laurieri N, **Delgoda R**, Novel targets in drug discovery in *Pharmacognosy: Fundamentals, Applications and Strategies*, Badal S and Delgoda R (Eds), Elsevier Academic Press, U.K., 2016, p617-630.
- Young R and **Francis S**, Form and Function of the Animal Cell in *Pharmacognosy: Fundamentals, Applications and Strategies*, Badal S and Delgoda R (Eds), Elsevier Academic Press, U.K., 2016, p459-475.
- Campbell TF, McKenzie J, **Murray J**, **Delgoda R**, Bowen-Forbes C, *Rubus rosifolius* varieties as antioxidant and potential chemopreventive agents. *Journal of Functional Foods*. 2017, Volume 37, Pages 49-57; doi.org/10.1016/j.jff.2017.07.040. IF= 3.144
- **Foster K**, Younger N, Aiken W, Brady-West D, **Delgoda R**, Reliance on medicinal plant therapy among cancer patients in *Jamaica*. *Cancer Causes Control*. 2017 Jul 15. doi: 10.1007/s10552-017-0924-9. IF=2.735
- **Francis S**, Saavedra-Rodriguez K, Perera R, Paine M, Black IV WC, **Delgoda R**, Insecticide resistance to permethrin and malathion and associated mechanisms in *Aedes aegypti* mosquitoes from St. Andrew Jamaica, *PlosOne*, 2017 Jun 26;12(6):e0179673. doi: 10.1371/journal.pone.0179673. IF=2.806
- Campbell S, **Murray J**, **Delgoda R**, Gallimore W Two New Oxodolastane Diterpenes from the Jamaican Macroalga *Canistrocarpus cervicornis*, *Marine Drugs*. 2017 May 30;15(6). pii: E150. doi: 10.3390/md15060150 IF=3.345

- Nwokocha C, Palacios J, Simirgiotis MJ, Thomas J, Nwokocha M, Young L, Thompson R, Cifuentes F, Paredes A, **Delgoda R**. Aqueous extract from leaf of *Artocarpus altilis* provides cardio-protection from isoproterenol induced myocardial damage in rats: Negative chronotropic and inotropic effects, *Journal of Ethnopharmacology* 2017 May 5;203:163-170. doi: 10.1016/j.jep.2017.03.037. Epub 2017 March 22 IF= 2.998
- Badal SA, Asuncion Valenzuela MM, Zylstra D, Huang G, Vendantam P, **Francis S**, Quitugua A, Amis LH, Davis W, Tzeng TJ, Jacobs H, Gangemi DJ, Raner G, Rowland L, Wooten J, Campbell P, Brantley E, **Delgoda R**, Glaucarubulone glucoside from *Castela macrophylla* suppresses MCF-7 breast cancer cell growth and attenuates benzo[a]pyrene-mediated CYP1A gene induction, *Journal of Applied Toxicology*. 2017 Jan 31. doi: 10.1002/jat.3436 IF= 2.982; citations=2

INCOME GENERATION

Picking D, ‘Clinical assessment of CYP450-mediated herb-drug interactions in humans: effects of commonly used Jamaican medicinal plants, *Momordica charantia* and *Hyptis verticillata* and Survey of Jamaican public health physicians: knowledge of medicinal plants and awareness of, and attitude to, their use by patients in their care’, New Initiative Principal’s Research Multidisciplinary Grant JA\$2.5M.

Delgoda R and Francis S, Seeding labs Instrumental Access Program, Equipment value US \$500,000

Income from book sales: J\$200,000

PUBLIC SERVICE

Rupika Delgoda

- Deputy Chair, Natural History Museum of Jamaica
- Member, Steering Committee, National Nutraceutical Industry, Jamaica

The Natural Products Institute

- 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

- **Francis S**, Nwokocha C and **Delgoda R**, Principal's Research Award for Most Outstanding Research Publication, Faculty of Science and Technology, January 2017
- **Picking D** and **Delgoda R**, Principal's Research Award for research project with greatest development impact, Faculty of Science and Technology, January 2017
- **Francis, S**, Scholarship to attend the Commonwealth Scientific Conference in Singapore, 13–16 June 2017. Organised and Funded by the Royal Society and the National Research Foundation, Prime Minister's office, Singapore.
- **Murray J** Basic Medical Sciences Award for best oral presentation, Faculty of Medical Sciences 25th Annual research conference, November 2016.

STUDENT DEVELOPMENT

- **Morrison I**, WIPO Sub-Regional Patent Drafting Course, Jamaica Intellectual Property Office, Kingston, Jamaica, 12–16 June 2017.
- **Wauchope S**, enzyme induction analysis at Loma Linda University, California, USA
- **Foster K**, An Introduction to R Statistics, University of the West Indies, Kingston, Jamaica, 8 December 2017.