

THE NATURAL PRODUCTS INSTITUTE



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Executive Director

WORK OF THE INSTITUTE

During the period August, 2012 to July, 2013, the Natural Products Institute has made notable advancements in multiple research projects which has culminated in national recognition.

A collaborative research project with Dr. Trevor Yee of the Institute, Dr. Lisa Lindo and Mrs. Denise Daley-Beckford, of the Biochemistry Section of the Department of Basic Medical Sciences and Professor Paul Reese of the Department of Chemistry swept the major prizes in the Scientific Research Council's 2nd National Innovations in Science and Technology Awards for the Year 2012. The competition was held at the Jamaica Pegasus Hotel, 6–8th November, 2012. The title of the winning entry, from which a patent application was made was, “Novel Treatments against Hyperglycaemia and Hypertension (High Blood Sugar and Blood

Pressure)”. This collaborative research project was declared the Winner of the Health and Wellness Category, and the coveted award as the Overall Winner and Innovator of the Year for 2102.

Further, recently graduated doctoral student, **Dr. Charah Watson** of the Institute was also adjudged the Young Scientist for the Year in the awards for 2012.

Drs Rupika Delgoda and **Simone Badal** of the Institute won First Prize for the Best Poster at the 7th International Society for the Development of Natural Products symposium in Delhi, India, November, 2012.

The efforts to build a dedicated anti-cancer screening facility at the NPI were met with success and the laboratory space has been fully refurbished during this period, with support from the Forest Conservation Fund and UWI. It is expected to generate results locally in screening extracts and isolated ingredients towards their use as cancer preventive and treatment leads.

This period also saw **Dr. Sheena Francis** joining the Institute as a Visiting Research Fellow, and former doctoral student **Dr. Simone Badal** remaining as a post-doctoral research fellow.

PAPERS PRESENTED

- **Delgoda, R.**, “Bridging two worlds through science in the Caribbean”, keynote address at the 7th meeting of the International Society for the Development of Natural Products, November, 2012, Delhi, India
- **Murray J. and Delgoda R.**, “*Annona muricata* Linn (Annonaceae) [sour sop] displays moderate inhibition against major drug metabolizing enzymes: implications for drug-herb interactions”, 58th Annual conference CHRC Caribbean Public Health Agency (CARPHA), Bridgetown, Barbados from May 2–4 2013.
- **Badal S, Huang G, Tzeng T, Jacobs H, and Delgoda R.**, “Anticancer and chemopreventive leads from *Garcinia humilis* and *Clusia flava*”,

7th meeting of the International society for the development of natural products, November, 2012, Delhi, India.

- **Badal S.**, W. Gallimore, D. G. Huang, T.J. Tzeng, D.J. Gangemi, and **R. Delgoda** “Anticancer and chemopreventive leads from the marine algae, *Cymopolia barbata*”, the first Society for Scientific Advancement conference held in Mona, Jamaica, November 2012.

PATENTS FILED:

- **Dr. Trevor H. Yee**, Dr. Ruby L. Alexander-Lindo, Mrs. Denise K. Daley-Beckford, Professor Paul B. Reese filed two provisional US Patent applications on 4th October, 2012 entitled, Extracts from *Eucalyptus camaldulensis* for the Treatment of Hyperglycemia and Hypertension, Application numbers 61/709,893 and 61/722,614.
- **Dr. Trevor H. Yee** and Helen M. Jacobs filed a further patent for, “Process to Extract Quassinoids”. Patent Application No. 18/545720 on 19th July, 2013.
- **Trevor Yee**, **Charah T. Watson**, Eric Garraway, Dwight E. Robinson and **Nemois S. Schisholm** filed a U.S patent application, Methods and Products for reducing the population size of *Papilio demoleus* L. (Papilionidae). Date: March 6, 2013 US Pat. Apl. No. 13/576109
- **Rupika Delgoda**, **Simone Badal**, Helen Jacobs and Eileen Brantley filed a provisional US patent application on May 31, 2013, entitled, “Quassinoid and coumarin compounds for the prevention of cancer”. Application no. 61/829,881.

PUBLICATIONS

Book chapter

- **Badal S**, Sheilds M, **Delgoda R**, “Cytochrome P450 enzyme inhibitors from nature”, in edited book *Enzyme Inhibition and Bioapplications*, Sharma RR (Ed.), 2012, pp. 39–56. InTech publishers.

Refereed Journal Articles

- **Badal S and Delgoda R**, “CYP1B1: Friend OR Foe? A critical review”, *OA Biochemistry*, 2013, Apr 01;1(1):8
- **Picking D, Delgoda R**, Boulogne I and Mitchell S, “*Hyptis verticillata* Jacq: A review of its traditional uses, phytochemistry, pharmacology and toxicology”, *Journal of Ethnopharmacology*, 2013, 147; 16–41.
- Penicooke N, Walford K, **Badal S, Delgoda R**, Williams L, Joseph-Nathan P, Gordillo-Roman B, Gallimore W, “Antiproliferative activity and absolute configuration of zonaquinone acetate from the Jamaican alga *Stypopodium zonale*”, *Phytochemistry*, 2013 March;87:96–101.
- C.R. Nwokocha; D.U. Owu; M. McLaren; **J. Murray; R. Delgoda**; K. Thaxter; et al.; Possible mechanisms of action of the aqueous extract of *Artocarpus altilis* (breadfruit) leaves in producing hypotension in normotensive Sprague-Dawley rats, *Pharmaceutical Biology*, 50(9), 2012: pages 1096–1102.
- Henry I.C. Lowe, **Charah T. Watson, Simone Badal**, Ngeh J. Toyang, and Joseph Bryant. Cytotoxic effect of Jamaica bissy nut extracts on various cancer cell lines. *Applied Cell Biology*. 2012, 1:(1) 47–49.
- Henry I.C. Lowe, **Charah T. Watson, Simone Badal**, Ngeh J. Toyang, and Joseph Bryant. In vitro anticancer activity of the crude extract and two dicinnamate isolates from the Jamaican Ball Moss (*Tillandsia recurvata* L.) *American Journal of Contemporary Research*. 2012, 3: (1) 92–96.
- Henry I.C. Lowe, **Charah T. Watson, Simone Badal**, Ngeh J. Toyang, and Joseph Bryant. Cycloartane-3,24,25-triol inhibits MRCK α kinase and demonstrates promising anti prostate cancer activity in vitro. *Cancer Cell International*., 2012,12:(46) 1–4.
- Henry I.C. Lowe, **Charah T. Watson, Simone Badal**, Ngeh J. Toyang, and Joseph Bryant. Kinase inhibition of the Jamaican ball moss, *Tillandsia recurvata*, L. *Anticancer Research*. 2012, 32: 4419–4422.

- Henry I.C. Lowe, **Charah T. Watson**, **Simone Badal**, Ngeh J. Toyang, and Joseph Bryant. Cycloartanes from the Jamaican ball moss, *Tillandsio recurvata* L. *Analytical Chemistry, an Indian Journal*. 2012, 12:190–193.

PUBLIC SERVICE

Trevor H. Yee

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

Rupika Delgoda

- Co-Licencee and organizer of TEDxJamaica. Executive committee member, Jamaica Sri-Lanka Friendship Association.
- Referee for international journals: *British Journal of Pharmacology*; *Journal of Ethnopharmacology*; *Journal of Complementary Therapies in Medicine*; *Focus on alternative and complementary therapy*.

Sheena Francis

- Member, Caribbean Diaspora for Science, Technology and Innovation (CADSTI).
- Member, Caribbean Science Foundation (CSF), Organiser, Sagicor Visionaries Competition.