

# THE NATURAL PRODUCTS INSTITUTE

**Trevor H. Yee, BSc (Hons), PhD**  
*UWI, MBA (Hons) Nova*  
– **Executive Director**

## WORK OF THE INSTITUTE



**T**he Institute continued with a number of pure and applied research projects and submitted an application for a patent through the Office of Sponsored Research. The application was approved by the UWI patent screening committee for one of Dr. Trevor Yee's projects involving a process of value addition to a natural product with commercial potential. Further work also advanced a Technical Agreement with a commercial processor for another of his research projects that had completed the initial research phase.

Dr. Rupika Delgoda was successful in securing funding for research with the Super Plus Food Stores and thus the "SuperPlus Graduate Research Grant" was established. The grant provides research expenses and an incentive for graduate students to carry out research at the Institute. The signing ceremony took place on June 21, 2005, where Mr. Wayne Chen, CEO of the Super Plus Food Store group and the Principal of the Mona Campus, Prof. the Hon. Kenneth Hall signed an agreement worth J\$1.5 Million in the first instance.

The Institute has been coordinating a collaboration with the University of Mississippi (U. Miss.) for a joint grant application for research funding involving the U. Miss. and several departments of the UWI. This application was submitted to the International Cooperative Biodiversity Group (ICBG) of the US. National Institute of Health on Feb. 15<sup>th</sup>, 2005. Dr. Trevor Yee and Dr. Norman Quinn of UWI's Discovery Bay Marine Laboratory were invited to the ICBG meeting in Washington, D.C. in October, 2004 for the ICBG seminar and Grant Application briefing.

Dr. Steven Price of the Public Interest Intellectual Property Advisors (PIIPA), a Smithsonian based Institute which assists developing countries with Intellectual property issues at little or no cost to them, accepted an invitation from Drs. Yee and Quinn to visit Jamaica. He presented a lecture, "Public Interest Intellectual Property Advisors: Helping to Level the Playing Field," at the Mona Visitors' Lodge on March 10<sup>th</sup>, 2005 and also addressed interested groups on the North Coast at the Discovery Bay Marine Laboratory on March 11<sup>th</sup>, 2005.

## RESEARCH IN PROGRESS

Research is continuing in the following areas:

- .– Investigation into the value addition of a plant, exported as raw material, by means of the extraction, chemical characterization, and development of a commercial process for the extraction of the active ingredients. **Dr. Trevor Yee**, Prof. Helen Jacobs.
- .– Investigations of a number of plants as potential new sources of essential oils. **Dr. Trevor Yee**, Dr. Roy Porter.
- .– Investigation of a local plant with potential as a nutraceutical. The chemical and

physiological profiles of the plant, for the presence of a number of bioactive compounds are being investigated. **Prof. Ajai. Mansingh, Prof. Ronald Young, Dr. Trevor Yee, Ms. Arlene Wilson.**

□.- The study of potential interactions between herbal and prescription medicines. **Dr. Rupika Delgoda**, Prof. Paul Reese, Dr. Novie Younger.

– Drug Metabolism and expression of Cytochrome P450 enzymes in diseased and normal tissue. **Dr. Rupika**

**Delgoda**, Dr. Allie Martin, Prof. Micheal Lee, Prof. Roland Wolfe (UK) and Prof. Gordon Roberts (UK).

□.- Development of botanical pesticides formulations for the management of cruciferous vegetables, coffee, and other economic plants, and ticks of cattle and other animals. **Prof. Ajai Mansingh, Dr. Trevor Yee, Ms. Arlene Wilson**, Dr. Dwight Robinson.

### **Client Services**

The following client services were initiated/continued.

□.- Development of nutraceuticals from local ethnomedical formulations

□.- The assessment of a natural product formulation for anticancer activities.

□.- Consultation for pesticidal control and preparation of organic fertilizers for a farming complex.

### **International Collaboration**

□.- A collaborative research grant application to the International Cooperative Biodiversity Groups (ICBG) between the Faculty of Pure and Applied Sciences, UWI and the University of Mississippi, is being coordinated by the NPI.

□.- Collaborations with the Universities of Oxford, Leicester and Dundee in the U.K. continued, with funding from the International Foundation for Science.

### **PAPERS/POSTERS PRESENTED**

**Annual Research Conference, Medical Faculty UWI, November 2004.** Posters presented.

• **M.A. Shields**, P.Reese, M.J.Paine, C.R. Wolf and **R. Delgoda**, “Investigating potential drug-herb interactions:

effects of Jamaican natural products on the activity of Cytochrome P450 enzymes”.

• **N. J. Quinn, T.H. Yee**, W. Gallimore, D. Gotehfeld, M. T. Hamann, M. Slattery, and L.Walker, “Exploring Jamaica’s Marine Biodiversity while Searching for Pharmacologically Interesting Natural products from Jamaican Coral Reefs.”.

**Conference in Nanjing, China, October 2004.**

- The NPI being the secretariat of the International Society for the development of natural products (ISDNP) was involved in the 3<sup>rd</sup> International ISDNP conference held in Nanjing, China. A group led by Prof. Ronald Young, Dean of the Faculty, and including Prof. the Hon. Errol Morrison, Mr. Victor Rhone, Dr. Trevor Yee, Prof. Paul Reese of the Dept. of Chemistry, and Dr. Howard Reid of the Mona Institute of Applied Sciences (MIAS) attended.

### **Published abstracts**

• **T. Yee.** Investigations into new pesticidal compounds from limonoids extracted from Meliaceae and Rutaceae and from the synthesis of rotenoids and their analogues. 2004.

Abstracts of the 3<sup>rd</sup> International conference on natural products, October, Nanjing, China, p 248

- . • **R. Delgoda, M. Shields and G. Buckely.** Investigating potential drug-herb interactions, *ibid*, p 202.
- . • **N. Jayasundera, I. Obeiefuna, R. Delgoda, R. Young.** The investigation of acclaimed anti-hypertensive properties of a local herbal formula. *Ibid* p 180.
- . • **A. Wilson, A. Mansingh.** Exploration of therapeutic potential of a common tropical weed: chemical and bioactivity assays. *Ibid* p 234
- . • **V. Rhone** Growth and development of the natural products industry in developing countries: the need for a centralized market intelligence database. *Ibid* p 200.
- . • **A. Wilson.** Natural pesticides an alternative to synthetic pesticides. Presentation made at meeting hosted by Pesticide Control Authority as part of activities for Pesticide Awareness Week 2004.

## PUBLICATIONS

### Peer Reviewed Publications

- .\* **R. Delgoda** and A. Westlake. 2004, Herbal interactions involving cytochrome P450 enzymes, a mini review; *Toxicology Review*, 23(4):239-49.
- .\* **R. Delgoda, C. Ellington, S. Barrett, N. Gordon, N. Clarke, N. Younger,** 2004. The practice of polypharmacy involving herbal and prescription medicines in the treatment of diabetes mellitus, hypertension and gastrointestinal disorders in Jamaica, *West Indian Medical Journal*, 53(6), 400-405

### Donations

During the year, the Natural Products Institute donated two books in which it was involved to the UWI Science Library and to the Ministry of agriculture library. The two books were;

- .- Utilization and management of agricultural and Agro-Industrial Waste. Workshop Manual by Prof. P. Agamuthu
- .- Novel Compounds from Natural Products in the New Millenium. Potential and Challenges by Profs. BKH Tan, BH Bay, and YZ Zhu.

## PUBLIC SERVICE

### Dr. Rupika Delgoda

- UWI representative for R&D, the Jamaica Herbal Business Association

### Ms. Arlene Wilson

- .- Member, Steering Committee, Jamaica Young Scientist Forum -facilitated by the
- .- Member, National Commission on Science and Technology (NCST)
- .- Member, Committee for Development of National Plan of Action for Pesticide Management, Pesticide Control Authority
- .- Member, Plant Health Coordination Committee, Ministry of Agriculture
- .- Judge, Essay Competition/Science Fair – Institute of Jamaica/Scientific Research Council – Jamaica Public Service Company

### Dr. Trevor Yee

- .- Treasurer, International Society for the Development of Natural Products.
- .- Member, Editorial Board of the Jamaica Journal of Science and Technology
- .- Vice President, the Natural History Society of Jamaica

- .- Member, Advisory Panel for Complimentary Medicine, Ministry of Health
- .- Member Steering Committee – Towards a National Bioprospecting Programme, National Commission on Science and Technology, Office of the Prime Minister

## **SUPERVISION OF STUDENTS**

### **Postgraduate**

Two MPhil Students working jointly with the Natural Products Institute and the Department of Chemistry and are being supervised by **Dr. Trevor Yee**, Prof. Helen Jacobs, and Dr. Roy Porter.

Two MPhil students supervised by **Dr. Delgoda** with Prof. Paul Reese in Dept. of Chemistry and Dr. Lisa Lindo in Dept of Biochemistry.

### **Undergraduate**

**Dr. Yee** lectured in the BSc final year Food Chemistry course at UWI **Drs. Yee, Delgoda**, and Sylvia Mitchell coordinated and taught the Herbal and Complimentary Medicine to BPharm. Final year students at the University of Technology, Jamaica.

