

## THE NATURAL PRODUCTS INSTITUTE

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

### WORK OF THE INSTITUTE



**I**n the 2005/2006 academic year, the Natural Products Institute initiated several new research projects, continued with the completion of those projects started earlier and increased its client services. Dr. Yee of the Institute attended the Fourth International Society for the Development of Natural Products, held in Leysin, Switzerland, and was re-elected Treasurer of the Society, for the period 2006/ 2008. At this conference, a poster presented by Dr. Rupika Delgoda of the Institute and describing some of her research, won one of the First prizes from a field of some 160+ posters, for her poster entitled, “The interaction of Caribbean natural products with Cytochrome P450 enzymes: potential metabolic drug-herb interactions.” This was the second success for best poster for Dr. Delgoda for the year and her research student, Mr. Mario Shields, having been awarded the prize for the best poster presented at the Twenty First Mona Symposium, “Investigating the potential for drug-herb interactions in Jamaica: Effects of medicinal plants on the activity of Cytochrome P450 enzymes.”

There were several additional claims filed for in the patent application by Dr. Trevor Yee. Research is continuing and additional claims are being investigated. Work is presently proceeding towards the next stage of finding a commercial partner for the invention.

The Institute exchanged a confidentially agreement with the Manchester Interdisciplinary Biocentre, University of Manchester, UK and established an on-going collaboration for molecular modeling projects.

The Institute assisted in the organization of a Presentation/Seminar on July 26-27, by the legal firm of WilmerHale, which specializes in Intellectual Property Right issues, which was prepared to offer their services to UWI on a *pro bono* basis.

### **Client Services:**

The following client services were initiated/continued:

- Development of nutraceuticals form local ethnomedical formulations.
- Analyses pertaining to the local registration of an analgesic preparation.
- Assistance with bioactivity claims of an herbal preparation.
- Assistance with the formulation/marketing of several household chemical formulations.
- Assistance in the field of alternative energy sources.
- Assistance with the development a potential new plant variety.
- Income from client services: J\$50,000

### **International Collaboration:**

Collaboration was established by Dr. Delgoda with Professor Michael Sutcliffe at the Manchester Interdisciplinary Biocentre, University of Manchester,UK, for molecular modeling of CYP450 enzymes.

Collaborations continued by Dr. Delgoda, with the University of Leicester (Prof. Gordon Roberts) and Dundee (Prof. Wolfe and Dr. Paine), in the U.K., with funding from the International Foundation for Science.

## **GRANTS**

### **New grants**

**Dr. Delgoda** received on behalf of her post graduate student, Mario Shields, US\$1380, from the Post graduate Research fund, UWI, to attend an international conference.

### **Continuing grants**

SuperPlus graduate grant (worth J\$1.5M) to **Dr. R.Delgoda** and Mario Sheilds the first recipient

International Foundation for Science (Worth US\$11,900) to **Dr. R. Delgoda**.

Environmental Foundation of Jamaica (worth US\$62,000) to **Drs. T. Yee, R. Delgoda** and Prof. R. Young.

## **PAPERS PRESENTED:**

### **Fourth International Society for the Development of Natural Products Conference, Leysin Switzerland, May 28 -31, 2006:**

- **Mario Shields, Trevor Yee, Paul Reese, and Rupika Delgoda**, “The interaction of Caribbean natural products with Cytochrome 450 enzymes: potential metabolic drug-herb interactions.” First Prize Winning Poster.
- **Grace-Ann O. Junior, Roy B. R. Porter, Lawrence A. D. Williams, and Trevor H. Yee**, “An investigation into the essential oil composition of the three endemic species of *Bursera spp.* (Burseraceae) in Jamaica.”

### **13<sup>th</sup> North American meeting of the International Society for the Study of Xenobiotics (ISSX), Maui, Hawaii, October 2005**

- **Shields, M., Yee, T., Reese, P. and Delgoda, R.** Investigating the potential for drug-herb interactions in Jamaica: Effects of medicinal plants on the activity of Cytochrome P450 enzymes.

### **21<sup>st</sup> Mona Symposium on natural products and medicinal chemistry, UWI, January, 3-6,2006.**

- **Shields M., Reese P., Delgoda,R.** The effect of Jamaican medicinal plants on the activity of Cytochrome P450 enzymes. First Prize Winning Poster.

## **PUBLICATIONS:**

### **Peer Reviewed Publications**

- \* **Trevor H. Yee.** 2006. New Pesticidal Compounds from Limonoids. Natural Products: a Must for Human Survival, Y. Z.

Zhu, B. Tan, B. H. Bay and C. H. Liu, Eds World Scientific Publishing Co, London, pp 308-324.

- \* **Shields, M., Yee, T.,** Reese, P. and **Delgoda, R.** Investigating the potential for drug-herb interactions in Jamaica: Effects of medicinal plants on the activity of Cytochrome P450 enzymes, *Drug Metabolism Reviews*, 2005, 37 (suppl 2), 137-138. (abstract only)

## **PUBLIC SERVICE:**

### **Dr. Trevor Yee**

- Treasurer, International Society for the Development of Natural Products.
- Member, Editorial Board, *Jamaica Journal of Science and Technology*.
- President, The Natural History Society of Jamaica.
- Member, Advisory Steering Committee for Complementary Medicine-Ministry of Health.
- Member, Steering Committee Towards a National Bioprospecting Programme, National Commission of Science and Technology, Office of the Prime Minister.

### **Dr. Rupika Delgoda**

- UWI representative and Research Sector Representative for the Caribbean Business Herbal Association, Jamaica Chapter

## **SUPERVISION OF RESEARCH STUDENTS**

### **Postgraduate**

Five MPhil Students working jointly with the Natural Products Institute, the Departments of Chemistry, Life Sciences, and Basic Medical Sciences-Biochemistry, are being supervised by **Dr. Trevor Yee**, Prof. Helen Jacobs, Dr. Roy Porter, Dr. Dwight Robinson, and Dr. Lisa Lindo.

One M.Phil. student working at the Natural Products Institute is supervised by **Dr. Rupika Delgoda** and and co-supervised by Prof. Paul Reese at the Department of Chemistry. His thesis was submitted in August 2005.

### **Undergraduate**

Three undergraduate students registered in the Department of Biochemistry for final year Biochemistry, were supervised by **Dr. Rupika Delgoda** for a 6 month project each.

One undergraduate student registered in the Department of Chemistry was supervised over 2 month summer work program, by **Drs. Yee and Delgoda**.

Three undergraduate students registered at the University of Technology were supervised jointly by **Dr. Rupika Delgoda** and Dr. Novie Younger at Epidemiology Section, TMRI for a one year final research project.

### **TEACHING**

**Dr. Yee** lectured in the BSc Final year Food Chemistry course; and guest lectured to the BSc Final year Life Science students in the Mycology, and Medicinal and Economic Botany courses; and to the visiting graduate students of St. Olaf's College in Medicinal Chemistry.

**Dr. Delgoda** lectured in BSc final year Advanced Biochemistry course; and guest lectured in Medicinal and Economic Botany, Dept. of Life Sciences.

**Drs. Yee, Delgoda** and Sylvia Mitchell coordinated and taught the Herbal and Complimentary Medicine course to the B.Pharm. Final year students at the University of Technology.