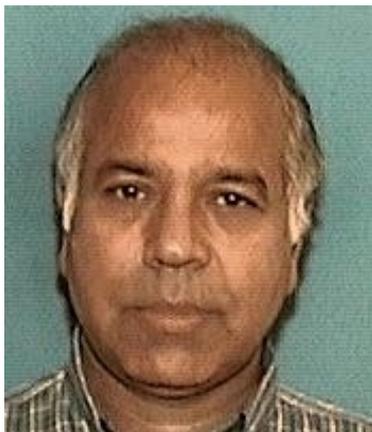


## THE BIOTECHNOLOGY CENTRE

**Prof. M. Ahmad, BSc *Bhagal*, MSc, PhD *LARI* – Director**

The Biotechnology Centre celebrated its 20th Anniversary in June 2010. The main event was a cocktail party and ceremony held on June 16th, 2010. The guest speaker was the Vice Chancellor of the University of the West Indies, Professor Nigel Harris, who mentioned in his speech that the Centre “brought to the University the ability to contribute in full what is expected of mature universities”. He referred to the fact that the University was “not an organization built simply to give degrees, but also to contribute to society in broad and diverse ways through education, discovery, innovation and outreach”. The event was very well attended including Ambassadors, Ministers, the Principal of the UWI, current and retired Professors, industrial and UWI collaborators, and past and current students.



Further to the event of the 16<sup>th</sup> June, a supplement was published in the Gleaner of June 29<sup>th</sup> featuring the work, staff and students of the Centre. Congratulatory messages were given by the Governor General of Jamaica, the VC of the UWI, our main sponsor, the CEO of the Jamaica Broilers Group and from the Director of the Biotechnology Centre. Other events in celebration of the Centre’s 20<sup>th</sup> Anniversary included an Editorial issued by Innovative Ideas which appeared in the Sunday Gleaner, June 13<sup>th</sup>, 2010, and a training session on the 16<sup>th</sup> of June on ‘Medicinal Plants of Jamaica – the contribution of technology’, hosted for farmers. The workshop was sponsored by the Environmental Foundation of Jamaica.

## WORK OF THE CENTRE

The Centre's work is concentrated on agricultural biotechnology and throughout 2009 – 2010 the staff focused on various projects involving medicinal plants, molecular biological studies on geminivirus, transgenic papaya and citrus research, and studies on root and tuber crops. Dr. Latanya Fisher, recent graduate of the Centre, obtained a Research Fellowship through the Office of the Principal to conduct research on the development and evaluation of transgenic citrus materials with resistance against citrus tristeza virus (CTV). Collaborative work is being conducted with the Horticultural Sciences Department, University of Florida, Gainesville. The Principal Investigator is Dr. Paula Tennant.

During the year under review, all the members of staff were involved in the training and supervision of projects being undertaken by postgraduates, as well as the teaching and supervision of undergraduate programmes and projects in the departments of Basic Medical Sciences, and Life Sciences. Annually, the Centre hosts outreach and educational workshops for various groups including teachers, sixth form science students, and farmers.

## PAPERS PRESENTED

- Bahado-Singh, P.S., Wheatley, A.O. and Asemota, H.N. (2009). “Nano-impacts of Food Glycemic Indices in type 2 diabetes: Analyzing the interplay of fiber and incretins in glucose release and absorption in the **small intestines**”. 17<sup>th</sup> Annual International Conference on Composites/Nano Engineering. Honolulu, Hawaii, USA, July 26 – August 1, 2009
- De la Haye, W., Gardner, N., Luke, K., Wheatley, A.O., Bahado-Singh P., Lowe, H., Ahmad, M., Salako, A., and Asemota, H. (2010). “The use of nutritional supplements in reducing craving associated with cocaine dependence”. 2<sup>nd</sup> International Conference on Drug Discovery and Therapy (ICDDT). Dubai Men's College, UAE. February 1-4.

- Gardner, N., Wheatley, A.O., Bahado-Singh, P., Dilworth, L., De la Haye, W., Lowe, H., Salako, A. and Asemota, H. (2009). “The effects of nutritional supplements in the reduction of hepatocellular oxidative damage associated with cocaine dependence”. Faculty of Medical Sciences 18<sup>th</sup> Annual Research Conference. University Hospital of the West Indies, Mona, Jamaica; November 11-13.
- Harvey A.C., Riley C.K., Adebayo S.A., Wheatley, A.O., Ahmad H. and Asemota H.N. (2009). “Children Syrups Substitution by Tablet Formulations Utilizing Acetylated Yam (*Dioscorea sp.*) Starches as Potential Excipients”. Faculty of Medical Sciences 18<sup>th</sup> Annual Research Conference. November 11-13, 2009.
- Harvey, A.C., Stennett, D.K, Riley C.K., Adebayo S.A., Wheatley A.O. and Asemota H.N. (2010). “Potential Utilization of Yam (*Dioscorea sp.*) Biomaterials in the Formulation of Tablets for Management of Diabetic Complications”. 16th International Diabetes Conference of the University **Diabetes** Outreach Programme, March 25-28, 2010.
- Mitchell, Sylvia. (2010). “Tissue Culture Technology: Possibilities for Improving Jamaica’s Agriculture Productivity and Sustainable Food Production”. JSA/COA/CASE Seminar on Cutting Edge Technologies for improving agricultural productivity and food security. March 25, 2010, College of Agriculture, Science and Education. Portland, Jamaica.
- Olarte Castillo XA, Rojas Y, Tennant P, Fuchs M, Sierra R, Bernal AJ, Fermin G and S. Restrepo S (2010). “Origin, evolution and molecular epidemiology of Papaya ringspot virus. Plant Viruses Exploiting Agricultural and Natural Ecosystems”. 11th International Plant Virus Epidemiology Symposium and 3rd Workshop of the Plant Virus Ecology Network. Cornell University, Ithaca, New York, June 20-24, 2010.

## PUBLICATIONS

- \* Bennett S, Tennant P, Mc Laughlin W (2010). “First report of Hop stunt viroid infecting citrus orchards in Jamaica”. *Plant Pathology* 59: 393
- \* Collins, A.M., Brown, J.K., Mujaddad Rehman, M., Roye M.E (2009). “Complete nucleotide sequence of an isolate of *Euphorbia Mosaic Virus* that infects *Euphorbia heterophylla* and *Wissadula amplissima* in Jamaica”. *Archives of Virology* 154:1859-1860.
- \* Collins, A.M., Mujaddad Rehman, M., Brown, J.K., Reddy, C., Wang, A., Fondong V., Roye, M.E. (2009). “Molecular characterization and experimental host range of an isolate of *Wissadula* golden mosaic St. Thomas virus”. *Virus Genes* 39:387-395.
- \* Collins, A.M., Mujaddad Rehman, M., Brown, J.K., Reddy, C., Wang, A., Fondong, V., Roye, M.E. (2010). “Molecular characterization and experimental host range of an isolate of *Macropodium* golden mosaic virus-[JM1] that infects *Wissadula amplissima* in Jamaica”. *Virus Research* 150:148-152.
- \* Delahaye C., L. Rainford, A. Nicholson, S.A. Mitchell, J. Lindo and M.H. Ahmad (2009) “Antibacterial and antifungal analysis of crude extracts from the leaves of *Callistemon viminalis*”. *J. Medical and Biological Sciences*. Vol 3, Issue 1, 2009: 1-7.
- \* Fisher L, Tennant P, Mc Laughlin W (2010). “Detection and characterization of Citrus tristeza virus stem pitting isolates in Jamaica”. *European Journal of Plant Pathology* 127: 1-6.
- \* Graham, A.P., Martin, D.P., Roye, M.E. (2010). “Molecular characterization and phylogeny of two begomoviruses infecting *Malvastrum americanum* in Jamaica: Evidence of the contribution of inter-species recombination to the evolution of malvaceous weed-associated begomoviruses from the Northern Caribbean”. *Virus Genes* 40:256-266.

- \* Powell M, Wheatley A, Omoruyi F, Asemota H, Williams NP, Tennant PF (2010). “Comparative effects of dietary administered transgenic and conventional papaya on selected intestinal parameters in rat models”. *Transgenic Research* 19: 511-518
- \* Tennant P, Fisher L, McLaughlin W (2010). “Disease-resistant transgenic crops: priorities and strategies for the Caribbean”. <http://knowledge.cta.int/en/Dossiers/S-T-Issues-in-Perspective/Biotechnology/Articles/Disease-resistant-transgenic-crops-priorities-and-strategies-for-the-Caribbean>.

## **INCOME GENERATION**

The Environmental Health Foundation granted USD8,825.00 (J\$767,775.00) under the project Glycemic indices of Jamaica foods and development of low GI products for diabetic and health conscious individuals. The funds are designated to purchase equipment for use in the project.

The Centre received the sum of J\$4.2M to conduct research under the project “Enhancing productivity of medicinal Plants during Cultivation and processing using innovative machines”. The grant was made available from the Environmental Foundation of Jamaica (EFJ) for a period of two years from September 2009. In addition, the EFJ awarded a discretionary grant for \$190,000.00 towards conducting a workshop on ‘Medicinal Plants of Jamaica – the contribution of technology’. The workshop was held on the 16<sup>th</sup> of June 2010 conducted by Dr. Sylvia Mitchell.

The sum of \$445,000.00 was received from the Jamaica Broilers Group and an additional grant for \$50,000 obtained from the Tropical Battery Company as a contribution towards the Centre’s 20<sup>th</sup> Anniversary Celebration.

## **PUBLIC SERVICE**

### **Prof. M. H. Ahmad**

- Member, National Biosafety Committee, National Commission on Science and Technology (NCST).
- Member, Caribbean G17 Committee

### **Dr. Sylvia Mitchell**

- Co-editor, In Vitro Report of the Society for Invitro Biology (SIVB)
- UWI Representative and Chair of the Advisory Board, Centre of Excellence for Advanced Technology in Agriculture (CEATA)
- Member, Biosafety committee, National Commission on Science and Technology (NCST).
- Scientific Advisor, Ministry of Health Advisory Committee on Complementary and Alternative Medicine.
- Reviewing editor, *Journal of Ethnopharmacology* (JEP), *Journal of Medicinal Plants Research* (JMPR), *African Journal of Pharmacy and Pharmacology* (AJPP), *Journal of Plant Growth Regulation* (JPGR), *In Vitro-Plant* (IVP), *Plant, Cell, Tissue and Organ Culture* (PCTOC), and *Scientific Research and Essays* (SRE).

### **Dr. Andrew Wheatley**

- Director, Jamaica Anti-Doping Commission (JADCO)
- Chair, JADCO Subcommittee on Science and Education and Chair – Education and Outreach Committee
- Director, Jamaica National Commission for UNESCO

## STUDENTS

Mr. Adriel Ramkissoon was admitted to the Biotechnology Centre to pursue a MPhil degree in Biotechnology. His research will concentrate on the determination and characterization of the ARV resistance in paediatric AIDS cases in Jamaica and will be supervised by Dr. Marcia Roye.

In September 2009 two students supervised by Dr. Paula Tennant were awarded their degrees in Biotechnology. Latanya Fisher was awarded the PhD degree in Biotechnology for her thesis entitled “Evaluation of the diversity of citrus *tristeza clostero virus* (CTV) isolates in Jamaica and development of transgenic citrus material” and Shawna Gae Turner was awarded the M Phil for her work on the “Evaluation of *Carica* and *Vasconcellea* Germplasm for sources of resistance against papaya ringspot virus isolates from Jamaica”.