7TH ANNUAL SOUTH ASIA BIOSAFETY CONFERENCE
September 14 – 16, 2019 | The Westin, Dhaka, Bangladesh

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**Bangladesh**

Annual Plant Tissue Culture & Biotechnology Conference 2019 at Dhaka University

Mohammad Umer Sharif Shohan, Dhaka University

The day-long **Annual Plant Tissue Culture & Biotechnology Conference 2018**, organized by the Bangladesh Association for Plant Tissue Culture & Biotechnology (BAPTC&B), was held at the Department of Botany, Dhaka University (DU) on 31 August 2019. Prof. Dr. Md. Akhtaruzzaman, Honourable Vice Chancellor, DU, presided over the programme as Chief Guest. Dr. Md. Amzad Hossain, Director General, Bangladesh Sugarcrop Research Institute (BSRI) and Professor Dr. Md. Imadul Hoque, Dean, Faculty of Biological Sciences, DU, were present as Special Guests. Prof. Dr. Rakha Hari Sarker, President of BAPTC&B welcomed the congregation of scientists and gave a brief introduction of the activities of BAPTC&B. Honourable Vice Chancellor, Prof. Dr. Md. Akhtaruzzaman, in his speech, focused on the vital role of agriculture in the development of Bangladesh, addressed researchers, and advocated for work on the development of the agricultural sector of the country. Dr. Md. Amzad Hossain explained the history and prospects of biotechnological research in Bangladesh. Prof. Dr. Md. Imadul Hoque, in his speech, upheld the leadership of BAPTC&B in developing biotechnology and biosafety in Bangladesh. The inaugural session ended with a Vote of Thanks by Prof. Dr. Mihir Lal Shaha, General Secretary, BAPTC&B.

During the scientific session, biotechnological research and development activities going on in various research and academic institutes were presented. Participating organizations included: BSRI, Bangladesh Agricultural Research Institute, Bangladesh Rice Research Institute, Bangladesh Council of Scientific and Industrial Research, Bangladesh Forest Research Institute, University of Dhaka, and Shahjalal University of Science and Technology. The conference provided a unique opportunity to hear from scientists from leading institutes across the country. Their ideas and research contributions will provide an impetus to agricultural development in Bangladesh. This conference was attended by academics, scientists, researchers, scholars, and students from all over Bangladesh.

**Sri Lanka**

Development of Genetically Modified Transgenic Mosquitoes in Sri Lanka

Prof. R. S. Dassanayake, University of Colombo

H. P. B. K. D. Ramyasoma, University of Colombo and University of Kelaniya

Prof. Y. I. N. Silva Gunawardene, University of Kelaniya

Mosquito-borne diseases achieved greater attention over the last few decades as mosquitoes are involved in spreading diseases such as malaria, dengue (DEN), yellow fever, chikungunya, etc. DEN causes epidemics in more than 100 tropical and sub-tropical countries and over 2.5 billion people (over 40% of the world’s population) are now at risk of infection by dengue virus (DENV). Also, in recent years, DEN has become the number one vector-borne disease in Sri Lanka, and the country experienced the worst ever DEN outbreaks in 2009, 2010, and 2013, showing that DEN is a major health issue in Sri Lanka. Despite these, there is no effective medicine or vaccine available to DEN, and mosquito vector control is the only promising option to control DEN. In recent years, studies were focused on the possibility of using alternative disease transmission control strategies based on genetically modified transgenic mosquito (TM). Therefore, we undertook research work to develop a DENV transmission resistant TM based on RNA interference (RNAi) of DENV as an additional useful tool in integrated DENV transmission control employed in Sri Lanka.

In achieving this objective, we established an Arthropod Containment Level-2 (ACL2) safety facility with microinjection system and biosafety protocols for the ACL2 facility to minimize further risks and environmental release of the TM (Figure 3). A TM line was engineered to have a gene construct containing the RNAi effector molecule that processed into small interfering RNA (siRNA) sequences inside the TM upon consuming blood to recognize DENV.
RNA (Figures 1 & 2). The siRNA, thus generated, was capable of reducing DENV in TM and blocking the transmission of DENV. Challenging tests based on DENV showed the RNAi effector gene is able to block the transmission of DENV serotypes 2 and 4. Currently, research is underway to design a new RNAi gene construct to block DENV serotypes 1 and 3 transmissions in TM. In addition to the strategy mentioned above, research work has been undertaken to engineer TM based on the Sterile Insect Technique (SIT) known as Release of Insect Dominant Lethal Gene and SIT TM based on CRISPR-associated sequence 9 (CRISPR/Cas9). The development of a TM based vector control strategy will have national importance because it will be able to control DENV transmission and mosquito population more effectively than other vector control strategies in place, reducing DENV incidence amongst Sri Lankans. This research is not only involved in developing products to fight against DENV but also has advanced cutting-edge technologies that can be applied to control both mosquito-borne diseases and other pest insects, which will be of great importance to the Sri Lankan population of 20.95 million.
## Calendar of Events

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<td><strong>BANGLADESH</strong></td>
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<td><strong>INDIA</strong></td>
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<td>8th Training Workshop on Regulatory Requirements for Product Commercialization and Dossier Development</td>
<td>Indian Council of Agricultural Research, South Asia Biosafety Program, ILSI Research Foundation, Institute for International Crop Improvement - Donald Danforth Plant Science Center, and Biotech Consortium India Limited</td>
<td>September 20, 2019 New Delhi</td>
<td><a href="https://icar.org.in/">https://icar.org.in/</a></td>
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<td>5th International Conference on Plant Genetics and Genomics: Germplasm to Genome Engineering</td>
<td>Select Biosciences India Pvt Ltd. (supported by National Academy of Agricultural Sciences)</td>
<td>October 17-18, 2019 New Delhi</td>
<td><a href="http://www.selectbioindia.com">http://www.selectbioindia.com</a></td>
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<td><strong>INTERNATIONAL</strong></td>
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<td>Course: Basic Laboratory Training on GMO Analysis</td>
<td>International Center for Genetic Engineering and Biotechnology (ICGEB) and National Biotechnology Development Agency, Abuja, Nigeria</td>
<td>September 15-21, 2019 Abuja, Nigeria</td>
<td><a href="https://www.icgeb.org/courses/course-basic-laboratory-training-on-gmo-analysis/">https://www.icgeb.org/courses/course-basic-laboratory-training-on-gmo-analysis/</a></td>
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The South Asia Biosafety Program (SABP) is an international developmental program implemented in India and Bangladesh with support from the United States Agency for International Development. SABP aims to work with national governmental agencies and other public sector partners to facilitate the implementation of transparent, efficient, and responsive regulatory frameworks for products of modern biotechnology that meet national goals as regards the safety of novel foods and feeds, and environmental protection.

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