

JOINT EVENT

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&amp;

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**Enhanced production of *Bacillus thuringiensis* subspecies israelensis delta endotoxin by the use of rotten pineapple juice and fish-amino acid as medium ingredients****C Gopinathan and Sonia Sharma**  
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Mosquito borne diseases not only cause loss of lives but also impose heavy health and economic burdens. Extensive use of chemical insecticides for the control of malaria and other mosquito borne diseases has led to the development of resistance in mosquitoes to these insecticides and are hazardous to the environment. Biolarvicides of the strain *Bacillus thuringiensis* israelensis (Bti), serotype H-14 is highly effective against mosquito larvae. Even though Bti products are efficient controls for mosquito and black fly larvae, their use in developing countries is limited by their cost. Thus, there is a need to reduce the overall production cost of Bti in order to make it competitive in the market. It depends on many factors; however, the raw material cost is one of the most important criteria which may comprise >70% of the overall production cost. Fruit wastes are available in plenty and contain mainly fructose as the carbon source, which is easily fermentable and can substitute costly substrates like glucose. Channelizing huge quantities of rotten/waste pineapples which otherwise are discarded can substantially reduce production cost of Bti. Similarly fish-amino acid produced by fermenting rotten fish and jaggery/molasses has proved to be excellent as a medium supplement; especially to overproduce the much wanted delta endotoxin produced by Bti. India is one of the countries leading in fruit and vegetable production. It is also blessed with one of the longest coastline in the world of approximately 7516.6 km. The total annual catch is around 4 million metric tons. In addition it is second after Brazil in sugarcane cultivation with an annual yield of 3412 million metric tons. The massive availability of fruit wastes (pineapples) and huge quantities of rotten /discarded fish, which are freely available, all can be channelized for cost effective production of this value added product, substantially lowering the media cost of Bti production when scale-up is attempted. Results show biomass increase of up to 27% compared to control when pineapple juice was used as the main carbon source. The toxicity improvements with fish-amino acid supplemented medium, shows considerable reduction in killing time of *Aedes aegypti* larvae.

**Biography**

C Gopinathan is working as a Associate Professor in the Department of Biotechnology at the University of Calicut. He has finished his MSc, MTech in Biotechnology. His specialization is towards Bioprocess Technology/Fermentation Technology. He is the former member of Academic Council, University of Calicut, American Society for Microbiology and Association of Microbiologists of India.

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