

2nd International Conference on Agricultural & Horticultural Sciences

Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

In vitro and molecular techniques to propagate berry crops

Samir C. Debnath

Agriculture and Agri-Food Canada, Canada

Berry crops include, but are not limited to the members of the genera: *Fragaria* (strawberry; *Rosaceae*), *Rubus* (brambles: Raspberry and blackberry; *Rosaceae*), *Vaccinium* (blueberry, cranberry and lingonberry; *Ericaceae*) and *Ribes* (currant and gooseberry; *Grossulariaceae*). Berry fruits contain relatively high levels of vitamin C, cellulose, and pectin, and produce anthocyanins which have important therapeutic values, including antitumor, antiulcer, antioxidant and antiinflammatory activities. Tremendous progress in plant tissue culture, resulting in great advances in micropropagation, has been occurred. Although automation of micropropagation in bioreactors has been advanced as a possible way of reducing propagation cost, optimal plant production depends upon better understanding of physiological and biochemical responses of plant to the signals of culture microenvironment and an optimization of specific physical and chemical culture conditions to control the morphogenesis of berry plants in liquid culture systems. However, scaling up of any micropropagation protocol can be hindered by somaclonal variation that can result from genetic changes due to mutation, epigenetic changes or a combination of both. Molecular markers have been introduced in tissue culture research. The paper describes the progress in-depth of various aspects of bioreactor micropropagation, and on the employment of molecular markers for the assessment of genetic fidelity, uniformity, stability and trueness-to-type among donor plants and tissue culture regenerants.

Biography

Samir C. Debnath is a Research Scientist of Agriculture and Agri-Food Canada (AAFC) in St. John's, NL and an Adjunct Professor of Biology at the Memorial University of Newfoundland in Canada. He had been trained/worked in Bangladesh (Professor), India (Ph.D.; 1978-82), Germany (Postdoc; 1984-86) and in UK (Postdoc; 1993-94) before he joined AAFC in 1996. He has authored and co-authored more than 100 peer-reviewed journal articles, has been a keynote speaker at international conferences; was the President of the Newfoundland and Labrador Institute of Agrologists (P.Ag.) and is the President of the Canadian Society for Horticultural Science.

samir.debnath@agr.gc.ca