Plant Cell Technology Research Results

On October 27th, DTU held a workshop presenting a selection of plant cell technology research findings.

Plant cell culture technology was introduced in the south of Vietnam in 1960 and in the early 1970s in the north. This field of study provides methods of maintaining tissue and cell cultures in an artificial nutrition environment in order to grow tissue, organs or complete organisms. Plant cell culture technology is important in biotechnology, as it is the basis of researching and applying other technologies in plant biotechnology.

Dr. Bui Van Thang

Dr. Bui Van Thang presented research results on the application of plant cell technology on some high-value crops, like Gerbera flowers, bananas and strawberries, and on some medicinal plants, such as bristly Anoectochilus, Dendrobium Officinale Kimura et Migo, the Purple Indian Mulberry, the Chinese knotweed, Eucommia Ulmoides and Poor Man's Ginseng. Tissue cultures are uniform in size, develop stably, suffer from few pests and diseases and can be produced economically for sale to business and farmers.

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As far as the reproduction of crops using tissue and cell culture technology is concerned, the Institute has completed mass reproduction processes for many forest plants, such as Eucalyptus, Acacia, Chinaberry, Aquilaria Crassna, Gemelina, Paulownia and Calamus. The group is continuing their research into the reproduction of medicinal plants, such as Ming Aralia, Golden Camellia, Ardisia Silvestris and Stephania Glabra. The creation of new forest plants using high technology has produced particularly noteworthy results on the Chinaberry, with 1.5 times the normal number of genes. This is the first triploid forest tree to be created in Vietnam, which is characterized by rapid growth, large trunk volume, good wood quality and a better resistance to adverse environmental conditions, making it very suitable for large timber plantations.

Dr. Thang also talked about the reproduction and cultivation of edible and medicinal mushrooms, the Oyster Mushroom, Paddy Straw Mushroom, Lingzhi Mushroom and the Cordyceps Militaris, and DNA replication technology for the identification of useful forest crops.

"The Institute of Biotechnology and Forestry successfully researched Cordyceps Militaris mushrooms and plant cell technology is currently making great progress worldwide," said the Director of the DTU Center for Molecular Biology, Dr. Nguyen Minh Hung. *"This is the fundamental technology that will be used in extensive applications to select plant species, including genetically modified ones. Plant cell technology has many important applications, such as cultivating single cells for extraction of bioactive substances and creating genetically modified plants with new characteristics, higher yields, quality, pest and herbicide resistance and so on. The research results of the Institute of Biotechnology and Forestry are scientifically important and highly practical, in accordance with Party and State policies on high-tech agricultural development. DTU is currently expediting a project to implement biotechnology major. This workshop will result in a partnership and technology transfer with the Institute of Biotechnology and Forestry in the near future and create internship opportunities for our students."*

Dr. Bui Van Thang thanked DTU for supporting this workshop for like-minded staff and lecturers, which will serve as a foundation for a long-term collaboration, including the special training to achieve success in research projects that can then be applied to everyday life.

(Media Center)