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APPLICATION OF ION-BEAM IRRADIATION ON CASSAVA SEEDS

Cassava (*Manihot Esculenta* Crantz) is an important food crop, providing staple starch as well as material for a range of different industries including biofuel production. Vietnam has identified cassava as the most suitable crop supplying starch for bioethanol production. KM94 is currently the most popular variety occupying more than 70% of the cassava growing area. However, KM94 has a number of undesirable traits including high-branching, easy lodge and susceptible to many diseases. In order to overcome these drawbacks of KM94, we studied heavy-ion beam irradiation of seeds from KM94 at different doses of 100 Gy, 200 Gy, 300 Gy and 400 Gy. The irradiated embryos were isolated and cultured in embryo rescue media. Explants developed from irradiated embryos are designated M1 plants. From each well-developed M1 plant, 15-20 new plants were asexually reproduced and maintained *in vitro*. Our result indicated that heavy-ion beam irradiation dose of 100 Gy already created a wide-range of observable morphological changes from the beginning of cassava embryo development. Irradiation doses of 200 Gy and higher severely affected embryo germination and its ability to regenerate a whole plant. As far as we know, this is the first study in Vietnam using heavy-ion beam irradiation in combination with plant tissue culture for the improvement of cassava KM94 as well as crop plants in general.

Country or International Organization

Vietnam

Author: Dr NGUYEN, Anh Vu (Agricultural Genetics Institute)

Co-author: LE HUY, Ham (Institute of Agricultural Genetics)

Presenter: Dr NGUYEN, Anh Vu (Agricultural Genetics Institute)

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