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Relationship between Induction of Novel Somaclonal Variants and types of Organogenesis in Muskmelon (*Cucumis melo L.*)

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A comparative study on induction of somaclonal variation in muskmelon (Cucumis melo L.) regenerants obtained through two types of organogenesis (e.g. direct and indirect) was carried out. Two different non-meristematic explants e.g. cotyledon and petiole were used for this study. A significantly lower ($p<0.05$) frequency of variation was observed in muskmelon somaclones regenerated via direct organogenesis compared to indirect. Morphological study showed that the somaclones regenerated from proximal cotyledon, petiole and distal cotyledon explants through direct organogenesis showed lower number of morphologically somaclonal variants, when elongated in elongation medium at the concentrations of BAP 0.1, 0.3 and 0.5 mg/l, respectively. In contrast, higher number of variants was obtained from these explants at the same concentration of BAP obtained through indirect organogenesis. Hormone (BAP) free MS medium as well as medium containing different concentrations of BAP, added to the elongation medium showed different types of novel variations e.g. early flowering, slow growth of shoots, higher number of flower formation, stubby shoot apices, flattened stem and leaf with long and thick petiole, etc. These variations could be the prime genetic materials to develop early variety of cucumber, late variety, high yielding variety, dwarf variety needs less nutrients, variety with explicit body configurations, etc. The results suggest that specific concentrations of BAP (direct organogenesis) or combinations of BAP and 2.4-D (indirect organogenesis) have a significant ($p<0.05$) influence on studies will reveal the novel genetic constitutions in DNA level of chromosomes in somaclonal the induction of novel somaclonal variations in muskmelon regenerants. Future cytogenetic and molecular variants confirm cucumber variety development.

Keywords: Muskmelon, novel somaclones, direct organogenesis, indirect organogenesis, variety development.

Biography:

A. K. M. Mohiuddin, Ph.D. is Professor of the Department of Biotechnology and Genetic Engineering of Mawlana Bhashani Science and Technology University, Bangladesh. He was Dean of Life Science Faculty, Chairman of the Department as well as Director of Mawlana Bhashani Research Centre. He has recently been selected as Member of Executive Committee, Bangladesh Association of Plant Tissue Culture and Biotechnology, University of Dhaka, Bangladesh. He was participated in 31 different national and international training and workshop programs as trainee especially in Malaysia, Thailand, Italy and Japan. He has extensively visited over 12 countries in Asia and Europe for performing academic and research activity together with a number of universities and research institutes of Brunei, Malaysia, India, Nepal, Japan, Italy, Singapore and Thailand. He was Visiting Research Fellow and Visiting Scientist of Japan International Research Centre for Agricultural Science. His previous research background was built on rice, muskmelon, cucumber and sugarcane biotechnology. He has published 26 research articles in peer reviewed national, international and ISI indexed journals and presented research findings in about 35 national and international seminar, symposium and conferences.