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FRUIT AND VEGETABLE PRODUCTION, GROWTH AND NUTRITIONAL QUALITY DEVELOPMENT USING BIOTECHNOLOGICAL APPROACHES AS GENETICALLY MODIFIED (GM) TECHNOLOGY

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Biotechnological approaches are superlative tools for the production of fruits and vegetables. Plant biotechnology helps the community for the purpose of producing reliable and sustainable food sources for the populations around the world. Plant biotechnology employs the fruits, vegetables and other plants for the production and quality development applying technologies like genetically crossing, genetically modified techniques (transgenic production or T-DNA, GMO), tissue/cell culture, inter-stock dwarf grafting, mutation breeding etc. Cell and tissue culture has been successfully carried out in fruits and vegetables from embryonic cell, leaf and shoot tip etc. Millions of fruits and vegetables explants have been produced by cell or tissue culture per year in the plant production industry. In the studies, it has been reported that callus cell and shoot proliferation were higher in BAP and BAP + IAA hormones than the control and NAA from pineapple crown and banana inflorescence. Application of T-DNA from *Agrobacterium* to the plant cell in fruits and vegetables has been a successful DNA recombinant technology. As a results plant genome would be saturated with individual T-DNA integrations in producing high quality fruits and vegetables. From our study, it has been exhibited that antioxidants, pigments (anthocyanin), flavonoid, total phenol, carbohydrate and protein have been improved in fruits (peach, orange, water apple, apple etc.) and vegetables (okra, broccoli, cabbage etc.) using plant hormones as GM technology. It has been noted that seedless fruit like star fruit, orange, grapes, water melon and vegetables like pumpkin, okra, brinjal etc. have been produced commercially applying transgenic technology (T-DNA or direct hormone injection). From the different results it can be concluded that fruits and vegetables production, growth and nutritional quality can be developed by applying plant biotechnological approaches which can be made a significant role for the nutritional and human health benefits in the community.

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