

Plant Biotechnology: Standardization of Nutrient Media and Plant Hormones for Tissue Culture

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ABSTRACT

Plant tissue culture is a collection of techniques that are used to develop and maintain plant cells, tissues, and organs under sterile conditions. The long-term goal for this study is to apply tissue culture techniques in crop improvement. The short-term of this research project is to standardize the best possible nutrient media for tissue culture. Effect of various combinations of different media (MS Basal Medium with Vitamins, LB Agar, MS Basal Salt Mixture, and MS Basal Medium with Gamborg Vitamins) and different hormones (BAP, 2,4-D, NAA, IBA, Kinetin, and IAA) were investigated. Plants that were used in the study were both monocot and dicot: alfalfa, corn, pea, peanut, sunflower, and tobacco. MS Basal Medium with Vitamins supplemented with BAP, 2,4-D and kinetin was the most suitable for callus formation with the highest percentage of response: The data in this study is supported by previous studies in which, BAP and 2,4-D induced a high percentage of callus response.

BIOGRAPHY

Dr. Kambhampati holds a Ph.D. from Jackson State University in Environmental Science and a Ph.D. from Andhra University, India in Ecology. Over the years, he established excellent collaborations with Brookhaven National Laboratory (BNL) in Long Island, New York; Dowling College, Tulane University, Louisiana State University's Louisiana Biomedical Network, and the Louisiana Universities Marine Consortium (LUMCON), Cocodrie, LA to place students for summer internships and ecological field trips. He is an active research mentor for undergraduates; and serves as the PI and Co-PI on funded state and federal grants and is SUNO's Beta Kappa Chi/National Institute of Science chapters' sponsor. His work as a mentor resulted in his receiving several awards including the 2012-2013 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) and a National Role Model Faculty Award from Minority Access, Inc., in 2008. His research interests are: Phytoremediation, Environmental Toxicology, Ecological Studies on Coastal Ponds, and Environmental Biotechnology.