

H205, Effects of Bio-ceramics on Growth and Secondary Metabolites Production in Tissue Culture of Some Medicinal Plants

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Some ceramic powders were known to so called far red light radiation ceramics which absorbed almost all wavelength of lights, and then emit far red light heat energy. Recently, these ceramics are in use at medicinal and technical province for various purpose. In this work, we were carried out to examine the effect of two kinds of ceramics on growth and secondary metabolites production in being cultured calli, adventitious root, hairy root and plantlets of some medicinal plants. In disorganized callus culture of *A. japonica*, 0.05% B ceramic-treatment exhibited enhancement of growth than control. In adventitious root or hairy root culture, there was stimulation effect in *H. niger*, *P. grandiflorum*, *S. parviflora*, especially, it was showed about 2 times of growth stimulation in *H. niger* adventitious root with 0.05% B treatment. In young plantlets, in the case of *A. japonica*, there were positive effects of 23% and 10% in 0.05% A and B treatment, individually. Based on these results, the effects of ceramics on productivity of some secondary metabolites of samples being effect examined. In major tropane alkaloids production of *H. niger* and polyacetylene production of *P. grandiflorum* with ceramic 0.05% B treatment yields increased about 35%, 30%, respectively.

H206 Genetic Transformation of Red pepper (*Capsicum annuum* L.): Bombardment with *agrobacterium*/tungsten suspension.

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An efficient transformation protocol has been developed for red pepper (*Capsicum annuum* L.) by bombarding meristem and immature embryos with *Agrobacterium*/tungsten suspension. The hypervirulent *Agrobacterium* strain EHA105 carrying a binary vector pIG121 was mixed with tungsten particles and bombarded to the shoot apical meristem of red pepper. Various physical and biological parameters including helium gas pressure, addition of acetosyringone in the medium and preculturing of tissues were optimized in order to get highest transient expression. More than 80% transient expression of β glucuronidase gene was observed by staining with x-gluc after 48 hrs of bombardment. More than 30% of *gus* gene expression was observed when growing meristem seedlings were stained after 15 days of bombardment. Standardized conditions with *GUS* gene were used to transform red pepper meristem and immature embryos with the coat protein of the pepper mild mottle virus (pmmv-cp) and *Brassica* small GTP binding protein genes. The putative transformants after screening on kanamycin have been shifted into soil and initially analyzed by PCR and finally subjected to RT PCR and Northern blotting.