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Research Abstract

Callus Production of *Medicago sativa* as a Natural Source of Nanoparticles

MA Dávila-Uribe¹, JJ Torres-Ruíz¹, J Orozco-Villafuerte², F Cruz-Sosa³, E Villagrán-Vargas¹, L Buendía-González^{1*}

¹Facultad de Ciencias, Universidad Autónoma del Estado de México, México.

²Facultad de Química, Universidad Autónoma del Estado de México, México.

³Departamento de Biotecnología, Universidad Autónoma Metropolitana-Iztapalapa, México.

Abstract: In recent years, remarkable progress has been made in developing nanotechnology. Metallic nanoparticles have a variety of applications due to their unique properties. Several biological systems are able to produce metallic nanoparticles at ambient temperature and pressure without requiring hazardous agents and generating poisonous by-products. The aim of this work was the callus production of *Medicago sativa* and biomass proliferation as a natural source of metallic nanoparticles production. Explants from seedlings germinated in aseptic conditions, were inoculated in test tubes containing Murashige and Skoog (MS) medium supplemented with different concentrations of 2,4-dichlorophenoxyacetic acid (2,4-D) with 6-benzyladenine (BA) or kinetin (KIN). The cotyledon and hypocotyl were the explant that showed the highest percentage of callus induction (100%) in MS medium containing 1.0 mg/L 2,4-D and 1.5 mg/L BA. Additionally, other cell line was proliferated, which showed the capability of synthesizing pigments. On the other hand, was initiated the establishment of cell suspension cultures, corroborating that the produced callus showed high friability in liquid medium. *Medicago sativa* has been employed in studies for nanoparticles production, but the characteristics biomass was associated to the quality of nanoparticles. So far, the biomass production through of plant cell tissue can be a natural source under conditions controlled.

Keywords: Medicago sativa, Plant Tissue Culture, Nanoparticles, Plant Biomass

