ing method. The synthetized nanoparticles were functionalized with N-(2-aminoethyl)-3-aminopropyl trimethoxy-silane (EDS) to prepare positively charged amine-nanoparticles. Amine-functionalized silica nanoparticles in different concentrations were used to fabricate reinforced alginate beads for 3D encapsulation of CHO cells. Incorporation of silica nanoparticles markedly enhanced the alginate bead integrity and durability. The MTT cell viability assay results showed that the amine-silica nanoparticles with different sizes have no significant cytotoxicity effect on the CHO cells. The obtained results from the cell proliferation tests revealed that no considerable adverse effect on the cell growth can be observed for the alginate beads incorporated with amine-silica nanoparticles, as compared to that for the bare alginate beads.

Keywords: Alginate beads; Silica nanoparticles; 3D cell culture; Nanocomposites

APP 088

Biological and Green Synthesis of Palladium Nanoparticles using Aqueous Extract of *Pistacia Atlantica* plant's Fruit; A Facile Biological Approach

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This paper describes a novel green method for the synthesis of palladium nanoparticles. Aqueous extract of *Pistacia Atlantica* plant's Fruit was employed for the bioreduction of Pd^{2+} ions to Pd^{0}. Probably phenolic and triterpenoidic compounds in the plant's biological matrix are responsible for reduction of Pd ions and starchy compound is available in this biomass could be acts as a stabilizer agent. The characteristics of the obtained nanoparticles were studied using UV-Vis absorption spectroscopy, scanning electron microscopy (SEM), energy-dispersive spectroscopy (EDX) and X-ray diffraction analysis (XRD). The results indicate that biological synthesis of Pd nanoparticlrs in aqueous media with high stability and without any impurities could be performed with biomass products. Experimental results showed that the average size of synthesized Pd nanoparticles was about 60 nm.

Keywords: Palladium; Nanoparticles; Bio-reduction; Pistacia altantica; Biomass

APP 089

Effect Evaluation of Anatase TiO_2 Nanoparticles on Induction of Chromosomal Damage in Mice Bone Marrow in Vivo

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Due to efficient and unique properties of TiO_2 nanoparticles their application in a widely range of different areas from electronics to cosmetics to biomedicine has been increasingly enhanced. Thus, it is essential to investigate potential genotoxic effects of these nanoparticles on beings health. The aim of this study was to evaluate effects of TiO_2 nanoparticles on bone marrow cells in vivo in male Balb/c mice. In the present research using a sol-gel method TiO_2 nanoparticles were synthesized and characterized by X-ray diffraction (XRD), transmission electron microscopy (TEM), and Fourier transform Infrared technique (FTIR). The results demonstrated that Anatase TiO_2 nanoparticles successfully produced at 300°C have a mean crystal size of 20 nm with the spherical morphology. Moreover, constant Ti-O-Ti covalent bands were observed without any contaminations (organic/inorganic). Then, different doses of nano-TiO_2 were intraperitoneally administered to mice. After treatment for 24 h, animals were sacrificed and their bone marrow cells were investigated using Micronucleus assay to evaluate genotoxicity and abnormality induction. The results indicated an induction of micronucleus formation in a dose-dependent manner, suggesting that TiO_2 nanoparticles have an ability to induce chromosomal damage and genotoxicity in bone marrow cells in vivo.

Keywords: Sol-gel; TiO_2 nanoparticles; Anatase; Micronucleus; Genotoxicity; Bone Marrow; Mice

APP 090

Deposition of Copper Oxide Nanostructured Thin Films and Study of The Influence of Fe^{3+} Doped on The Structural, Optical and Antibacterial Properties of CuO Thin Films

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CuO:Fe nanostructured thin films with different concentration of Fe were deposited on glass substrate using spray pyrolysis. The influence of Fe^{3+} with different dopant concentration $Cu_{1-x}Fe_xO$ (x=0.00, 0.05, 0.10, 0.15) on the structural, optical and antibacterial properties was studied. CuO:Fe thin films were characterized using methods such as X-ray diffraction (XRD), scanning electron microscopy (SEM),) and UV-Vis spectroscopy. The samples show the formation of the CuO monoclinic crystal phase. Optical studies show the increase of optical band gap with doping. The antibacterial activities of the samples were tested against Escherichia coli (Gram negative bacteria) cultures by drop test method.

Keywords: Spray pyrolsis; Nanostructured thin film; CuO; Antibacterial; Drop test

APP 091

The Investigation of Surfactants Detergency in Presence Extracted Nanostructures from Alliaceae Plants

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Glycoside was extracted from Alliaceae plants and studied its amphiphile properties. Also, these properties were compared to synthesized surfactants properties as SDS, CTAB, CPB and Tween 80. This plant was powdered by using high energy ball milling, and then studied obtained nanostructures properties. Also, nano size effect was investigated on the detergency properties of extracted glycoside from Alliaceae plants and was compared to synthesize surfactants as CTAB, SDS and Tween 80. Our investigations showed that the obtained nano powder from this plant has better detergency properties than synthesized surfactants. The synthesized surfactants detergency was modified in presence extracted nanostructures from this plant.

Keywords: Glycoside; Nano size effect; Detergency properties; High energy ball milling; Amphiphile properties