

P2362**Toxicity enhancement of silver nanoparticles (AgNPs) by co-treatment with iron(III) or copper(II)**

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Purpose: Currently, silver nanoparticles (AgNPs) are being used increasingly in commercial products (e.g., cosmetics, textiles, and food container) due to antimicrobial activity. Thus, the toxicity of AgNPs information is needed for safety. In this study, we investigated the toxic effects of AgNPs (5, 15, and 100 nm) in combination with iron(III) or copper(II). **Methods:** The sizes and morphology of AgNPs were characterized using transmission electron microscopy and scanning mobility particle sizer. For the cytotoxicity evaluations, MTT assay was conducted in the human carcinoma cell lines (HepG2, A549, A375p, and ACHN). Furthermore, Fe₂(SO₄)₃ or CuSO₄ was co-treated whether the toxicity of AgNPs was increased by them. Then, the genotoxicity of AgNPs was evaluated with the chromosomal aberration (CA) test using CHL/IU cells in the combination with Fe₂(SO₄)₃ or CuSO₄. **Results:** At MTT assay, AgNPs showed higher toxicity at 5 nm than others (15 and 100 nm) in the human carcinoma cell lines and 15 nm had a higher toxicity than 100 nm. In HepG2, cytotoxicity of 15 and 100 nm AgNPs is sensitive to compare with other cell lines. Furthermore, in the co-treatment group, the cellular toxicity of AgNPs was increased in combination with iron in HepG2 cell line and with copper in ACHN and A549 cell lines. In addition, the genotoxicity caused by AgNPs, the numerical chromosome aberration (endoreduplication), was also increased by copper at high dose ($p < 0.001$).

doi:10.1016/j.toxlet.2011.05.986

Other

P2363**Modification and validation for the procedure of immunoaffinity column and HPLC method for the determination of aflatoxin B1 in tobacco**

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Propose: The aim of the current study was to adapt several washing buffer to reduce the interfering peak and increase the recovery of the IAC method developed by VICAM. **Methods:** Tobacco samples were spiked with AFB₁ at three levels (1, 2.5 and 5 ng/g) and extracted with methanol and cleaned up using immunoaffinity column. The purification procedures was carried out using five washing solutions, i.e. water, methanol:water (80:20), Tween 0.01% then washing with water, Tween 0.02 then washing with methanol, Tween 0.01% then washing with water. The validation of the best method was carried out. **Results:** The results indicated that cleanup with Tween 0.01% then washing with water showed the best results concerning the amount of AFB₁ found, the recovery percentages and the area of the interfering peak. The values for AFB₁ found recorded 0.67, 2.1 and 4.34 ng/g and the recovery exceeded

75%. The limit of detection (LOD) and limit of quantification (LOQ) were 0.05 ng/kg and 4.46 ng/kg, respectively. The repeatability of measurements, represented by the standard deviation (RSDR) was 7.94%, 6.92%, and 6.24% at the three contamination levels. The relative standard deviation for the within-laboratory reproducibility (RSDR) were 13.44%, 5.77%, and 3.57%. Taken together from the recovery, the reduction of interfering peak and the validation.

doi:10.1016/j.toxlet.2011.05.987

P2364**The determination of Fe, Pb and Cd levels among thalassemia patients and normal population by means of examining whole blood in Turkey**

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Thalassemia is a group of genetic blood disorders that affects the body's ability to produce a protein in the red blood cells called hemoglobin. People belonging to Asia, Mediterranean (Greece, Italy and Turkey), Middle East and Africa tend to have a higher risk of developing thalassemia (especially beta-thalassemia). Beta Thalassemia Major (also known as Cooley's anemia) is the most severe form of thalassemia in which both beta genes fail. Whole blood concentrations of iron (Fe), lead (Pb) and cadmium (Cd) were measured for 50 patients (22 females and 28 males) with thalassemia and for 50 control groups (22 females and 28 males). The range of ages was 18–65 years for patients and 20–63 years for control groups. Fe was analyzed by Fast Sequential Atomic Absorption Spectrometry (FSAAS), however Cd and Pb were assayed using Graphite Atomic Absorption Spectrometry (GFAAS). The averages of Fe, Pb and Cd levels for thalassemia patients were found as 901.58 ± 196.08 ppm, 37.53 ± 17.71 ppb and 0.92 ± 0.71 ppb, nevertheless averages for control groups were measured as 391.24 ± 89.57 ppm, 45.43 ± 18.82 ppb and 1.30 ± 0.88 ppb, respectively. The high significant associations were found for Fe levels ($p < 0.01$), nonetheless, significant relationships were found among control group and patients for Pb and Cd levels ($p < 0.05$). The negative highest correlation coefficient was calculated between the Fe and Cd levels ($p < 0.05$). This study shows the differences among levels of Fe, Pb and Cd of thalassemia patients and normal population by means of examining whole blood in Turkey.

doi:10.1016/j.toxlet.2011.05.988

P2365**Genistein acts as topoisomerase II poison in vivo**

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The naturally occurring polyphenol genistein is one of the major isoflavones present in soy and soy-based products. Beside its association with a broad spectrum of beneficial biological activities, genistein has been shown to be a potent inhibitor of topoisomerase II in various cell lines. Yet, little is known so far about the relevance of topoisomerase poisoning by genistein in vivo. As consumers