Abstract
The target of this study is to use Allium cepa roots as model to evaluate the potential use of three antioxidants scavengers [vitamin C (VC), vitamin E (VE) and butylated hydroxytoluene (BHT)], either singly or in combination, in mitigation of genotoxic and cytotoxic effects of silver nanoparticles (AgNPs). The results indicated that AgNPs manifested mitodepressive and genotoxic symptoms, represented as decrease in mitotic index (MI), elevated total chromosome aberrations (TCA) and tail DNA (tDNA), associated with oxidative stress markers represented by increase in malonaldehyde (MDA) and hydrogen peroxide (H2O2) contents. Each of VC, VE and 1:1:1 mix of VC, VE and BHT ameliorated the harmful effects of AgNPs with best performance recorded for VE. Though, BHT decreased AgNPs-generated MDA and H2O2; it enforced the mitodepressive and genotoxic properties associated with application of nanoparticles. The results also reflected superiority of pretreatment over co-treatment with antioxidants in mitigation of the AgNPs-associated hazards.

Keywords
Antioxidants; Chromosome aberrations; Comet assay; Mitotic index; Onion; Silver nanoparticles