Oxidative stress, cytoxicity, and cell mortality induced by nano-sized lead

in aqueous suspensions

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This paper reports on the effect of aqueous and nano-particulated Pb on oxidative stress (lipid peroxidation),

cytoxicity, and cell mortality. As determined by the Thiobarbituric Acid Reactive Substances

(TBARS) method, only 6 h after incubation aqueous suspensions bearing nano-sized PbO2, soluble Pb(II),

and brain-homogenate only suspensions, were determined to contain as much as ca. 7, 5, and 1 nmol

TBARS mg protein\_1, respectively. Exposure of human cells (central nervous system, prostate, leukemia,

colon, breast, lung cells) to nano-PbO2 led to cell-growth inhibition values (%) ca. 618.7%. Finally, as estimated

by the Artemia salina test, cell mortality values were found to show high-survival larvae rates.

Microscopic observations revealed that Pb particles were swallowed, but caused no mortality, however.