



A service of the National Library of Medicine  
and the National Institutes of Health

My NCBI   
[\[Sign In\]](#) [\[Register\]](#)

All Databases PubMed Nucleotide Protein Genome Structure OMIM PMC Journals Books

Search PubMed for

Limits Preview/Index History Clipboard Details

Display AbstractPlus Show 20 Sort by Send to

All: 1 Review: 0 

1: [Int J Hyg Environ Health](#). 2005;208(6):481-8. Epub 2005 Oct 10.

**ELSEVIER** Links  
FULL-TEXT ARTICLE

### Chlorinated river and lake water extract caused oxidative damage, DNA migration and cytotoxicity in human cells.

[Yuan J](#), [Wu XJ](#), [Lu WQ](#), [Cheng XL](#), [Chen D](#), [Li XY](#), [Liu AL](#), [Wu JJ](#), [Xie H](#), [Stahl T](#), [Mersch-Sundermann V](#).

Department of Occupational and Environmental Health, Tongji Medical College of Huazhong University of Science and Technology, Wuhan, PR China.

Consumption of chlorinated drinking water is suspected to be associated with adverse health effects, including mutations and cancer. In the present study, the genotoxic potential of water from Donghu lake, Yangtze river and Hanjiang river in Wuhan, an 8-million metropolis in China, was investigated using HepG2 cells and the alkaline version of the comet assay. It could be shown that all water extracts caused dose-dependent DNA migration in concentrations corresponding to dried extracts of 0.167-167 ml chlorinated drinking water per ml medium. To explore whether the intracellular redox status is regulated by chlorinated drinking water, we determined lipid peroxidation (LPO) and depletion of reduced glutathione (GSH). The malondialdehyde (thiobarbituric acid (TBA)-reactive aldehydes) concentration increased after chlorinated drinking water treatment of HepG2 cells in a dose-dependent manner, the GSH content decreased. The activity of lactate dehydrogenase (LDH) increased in chlorinated drinking water treated HepG2 cells indicating cytotoxicity. In accordance with former studies which dealt with in vivo and in vitro micronucleus induction the present study shows that chlorinated drinking water from polluted raw water may entail genetic risks.

PMID: 16325558 [PubMed - indexed for MEDLINE]

Display AbstractPlus Show 20 Sort by Send to

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

### Related Links

Genotoxicity and cytotoxicity assessment in lake drinking water pi [Mutagenesis. 2004]

DNA damage caused by extracts of chlorinated drinking water [Toxicology. 2004]

Studies on the in vivo and in vitro mutagenicity and the lipid [Mutat Res. 2002]

[Genotoxicity and lipid peroxidation caused by organic [Wei Sheng Yan Jiu. 1999]

Use of the Comet test and micronucleus assay on human [Environ Mol Mutagen. 2005]

[See all Related Articles...](#)

Jul 17 2006 06:31:01