

# Genotoxic Effects Of Zinc Oxide Nanoparticles

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### Genotoxic Effects Of Zinc Oxide

#### **Time-Dependent Toxic and Genotoxic Effects of Zinc Oxide ...**

wide range of metal oxide NP, titanium dioxide (TiO<sub>2</sub>) and zinc oxide (ZnO) belong to the most commonly used materials, especially in manufacturing paints and in the cosmetic industry [4] Previous studies have shown different genotoxic and cytotoxic risk potential of ZnO-NP in ...

#### **Genotoxic effects of zinc oxide and titanium dioxide ...**

Abstract: Nanogenotoxicity is an emergent field, relevant for estimating the potential genotoxic risk of nanomaterials In this study we investigated the genotoxic potential of zinc oxide (ZnO, ≤35 and 50 nm) and titanium dioxide (TiO<sub>2</sub>, 21 and 50 nm) nanoparticles

#### **Original Research Genotoxic Potentials of Biosynthesized ...**

Pol J Environ Stud Vol 29, No 1 (2020), 111-119 Original Research Genotoxic Potentials of Biosynthesized Zinc Oxide Nanoparticles Medine Güllüce<sup>1</sup>, Mehmet Karadayı<sup>1\*</sup>, Abdussamed Yasin Demir<sup>2</sup>, Ceyda Işık<sup>2</sup>, Burak Alaylar<sup>3</sup>, Neslihan Hidroğlu İspirli<sup>2</sup> <sup>1</sup>Department of Biology, Faculty of Science, Atatürk University, Erzurum, Turkey <sup>2</sup>Graduate School of Natural and Applied Sciences

#### **Molecular Mechanisms of Zinc Oxide Nanoparticle-Induced ...**

Abstract: Background: Zinc oxide nanoparticles (ZnO NPs) are among the most frequently applied nanomaterials in consumer products Evidence exists regarding the cytotoxic effects of ZnO NPs in mammalian cells; however, knowledge about the potential genotoxicity of ZnO NPs is rare, and results presented in the current literature are inconsistent

#### **Phytotoxic and genotoxic effects of ZnO nanoparticles on ...**

Phytotoxic and genotoxic effects of ZnO nanoparticles on garlic (*Allium sativum* L): A morphological study zinc, and zinc oxide) on seed germination and root growth of six higher plantspecies

## 10. EVALUATION OF HUMAN HEALTH RISKS AND EFFECTS ...

no-effect level for pulmonary inflammation from exposure to zinc oxide fume 1023 Risks of zinc deficiency Zinc is an ubiquitous and essential element Dietary reference values for zinc for adults range from 6 to 15 mg/day (depending upon the bioavailability factor used) However, large numbers of

### Research Paper Determination of Genotoxic Effects in vitro ...

These areas of use can cause unexpected effects on the living organism and environment (Handy et al, 2008; Dağlıoğlu and Yılmaz Öztürk, 2018) In this study, the ZnO/TiO<sub>2</sub> NPs composing the most commonly used metal oxide NPs (ZnO and TiO<sub>2</sub>) in nanotechnology were evaluated for their genotoxic and cytotoxic potential by in vitro

### Comparative study of the cytotoxic and genotoxic ...

effects caused by them on the health of individuals as well as the environment The aim of the present study was to evaluate the toxic effects of ZnO and TiO<sub>2</sub> NPs in humans compared with their respective salts using a battery of cytotoxic, and genotoxic parameters so that their use is limited or else used in safe doses Also, present study has

### ZINC OXIDE

(Zinc Oxide) 9 III Hazard identification number 90 Tunnel code (E) No Special precautions for users IMO / IMDG Classification UN3077

Environmentally hazardous substance, solid, nos (Zinc Oxide) Marine Pollutant (Zinc Oxide) 9 III EMS F-A, S- F No Special precautions for users

IATA Class UN3077 Environmentally hazardous substance, solid,

### A-ESSE s.p.a.

Zinc Oxide - Green Seal, Zinc Oxide - Gold Seal, Zinc Oxide - Silver Seal, Zinc Oxide - Red There are no known effects and / or specific symptoms 43

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION GERM CELL MUTAGENICITY No biologically relevant genotoxic activity, (Chemical

Safety report (CSR) zinc oxide 2010)

## 3. HEALTH EFFECTS

ZINC 22 3 HEALTH EFFECTS compounds add relevant information to the discussion on zinc Any general comments regarding the lack of data on zinc refer to both zinc and its compounds Because there are differences in toxicity between the various zinc compounds following inhalation

### A review of the scientific literature on the safety of ...

A review of the scientific literature on the safety of nanoparticulate titanium dioxide or zinc oxide in sunscreens Page 4 of 32 studies, with 15 of the 16 indicating an inability of ...

### Photocatalytic Activity of Methylene Blue Using Zinc ...

environmentally hazardous dyes Zinc Oxide (Zn) belongs to a category of n-type semiconductors having wide energy band gap of 3.37eV Recently, Zn has attracted much attention as a promising photocatalytic material for removal of organic pollutants, which present in ...

### Determination of Titanium Dioxide in Commercial Sunscreens ...

genotoxic<sup>38,39</sup> In order to prevent the deleterious effects enumerated above, the surface of the TiO<sub>2</sub> must be deactivated Consequently, coating of ultrafine TiO<sub>2</sub> is a topic of active research The coating has the added advantage that it ensures good dispersability of the very fine particles

However, it has been noted that surface treatment

### Modulatory effect of zinc oxide nanoparticles on gamma ...

However, this may exert adverse effects on plant growth, development, fertility, and crop production due to oxidative stress and cellular damage Post

irradiation protection using nanoparticles could reduce or reverse deleterious effects after exposure to ionizing radiation We monitored the effect of zinc oxide nanoparticles (ZnO NPs at

### **Nanoparticle Technology as a Double-Edged Sword: Cytotoxic ...**

Zinc oxide nanoparticles (ZnO) Nasal mucosa cells Cytotoxic, genotoxic and pro-inflammatory effects [77] Hepatocytes : and genotoxic effects [56] Inflammatory Renal cells Cytotoxicity [78] Neurons : Neurotoxic effect by disturbing the electrical activity of neuronal networks [7] Lung epithelial cells

### **SAFETY DATA SHEET**

ZINC OXIDE SCOPE This SDS is compliant with GHS and regulations for United States, Canada, Mexico, Brazil, Thailand, etc and most global jurisdictions This SDS is not valid where zinc oxide is listed as transportation regulated which includes, but not limited ...

### **TITANIUM DIOXIDE AND ZINC OXIDE NANOPARTICLES ARE ...**

titanium dioxide and zinc oxide nanoparticles (NPs) Two different NP sizes (between 1-50 and 50-100 nm) of each NP were used The results Furthermore, the genotoxic effects of ZnO-NPs

### **3. HEALTH EFFECTS**

3 HEALTH EFFECTS sheet metal workers exposed to patina dust (copper-hydroxide-nitrate, copper-hydroxide-sulfate, copper silicate, copper oxide), 6 of the 11 examined workers had increased vascularity and superficial epistatic vessels in the nasal mucosa (Askergren and ...