

2<sup>nd</sup> International Conference on  
**Toxicology and  
Clinical Toxicology**

November 11-12, 2019 | London, UK



Poster



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# TOXICOLOGY AND CLINICAL TOXICOLOGY

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## Possible effects of Microplastic pellets on marine fish

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Marine debris are found floating at the sea surface, on seafloor and on shorelines. Plastics that represent 60–80% of all marine debris are starting to replace images of sewage as a leading cause of pollution particularly in the ocean.

Microplastics considered as plastic debris pollution that constitute a major threat to marine life due to their persistence, ubiquity and vector for transferring persistence bioaccumulative toxins in the environment. Microplastics are small plastic debris less than 5 mm in size and can pose threat to marine organism. Small plastic pellets used for manufacture of plastic products end up in the marine environment through accidental spillage during transport. Owing to their small size and their occurrence in both pelagic and benthic ecosystems, microplastics have the potential to be ingested by marine biota such as zooplankton, mussels, fish, seabirds and whales. Plastic particles accumulating in the intestine of marine organisms can clog the digestive system and cause false sense of satiation leading to less food consumption. Ingestion of contaminated microplastics represents a unique exposure route of highly toxic chemical pollutants into the food web. Microplastics can act as a vector for the transport of sorbed contaminants and chemical additives when ingested by the living organisms. Ingesting microplastics can facilitate the transport of chemical contaminants to the organism. Recently, a study reported, for the first time, that some aged plastics could release estrogenic compounds in marine environment. Contaminants can incorporate into the marine plastic pellets by two possible mechanisms. The first possible mechanism is the adsorption of hydrophobic chemicals into the surface of the plastic resin pellets from seawater and second possible source is the synthetic chemicals contained in the plastic resin pellets as additives. In general, the microplastics ingestion by fish can interfere with biological processes and might cause health hazards.

### Biography

AbdulAziz Al-Khubaizi is a Research Associate in Environment and Life Sciences Research Centre at Kuwait Institute for Scientific Research. He carries out multidisciplinary research in various aspects of environmental sciences. He holds MSc degree in Environmental Resource Assessment from University of Newcastle upon Tyne, UK; and BSc of Honour in Environmental Health and Safety Management from Ferris State University, USA. In addition, He is a member and Certified Personal Trainer at the American College of Sports Medicine, Fitness Nutrition Specialist at the National Academy of Sports Medicine and Sports Nutrition Specialist at the International Society of Sports Nutrition. He holds his highness Prince of Kuwait gold medal for Scientific Excellency. He is a social media influencer in the field of health.

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**Accepted Abstracts**



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### Synthetic cannabinoids-ethyl esters: New Biomarkers of concomitant ethanol/synthetic cannabinoids abuse?

**Vincenzo Abbate**

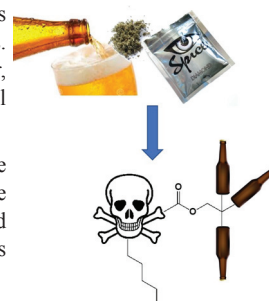
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**Statement of the Problem:** Synthetic cannabinoids (SCs) represent the most widely abused class of novel psychoactive substances and have caused a number of fatal and non-fatal intoxications. Polydrug use including combination of SCs and ethanol misuse is also quite common. However, there have been no reports presenting evidence of transesterification between SCs and ethanol in vitro or in-vivo.

**Methodology & Theoretical Orientation:** The in vitro metabolism of the several carboxylate SCs in the presence of ethanol using human liver microsomes with and without appropriate enzyme inhibitors was studied. Newly identified SC ethyl esters were chemically synthesised and fully characterised. The activity of these SCs and their ethanol transesterification products were assessed using cannabinoid receptor (CB1 and CB2) activation assays.

**Findings:** SCs/ethanol transesterification products were detected and studied using liquid chromatography–high-resolution mass spectrometry. We have shown that the SC ethyl ester formation is mediated by human carboxyl esterase enzymes. However, for certain SCs, chemical transesterification was also observed. Selected ethyl esters exhibited a reduced activity for the CB receptors compared with their parent compounds.

**Conclusion & Significance:** These novel ethyl esters may be useful additional markers of SCs/ethanol concomitant administration and especially so if they prove to have longer half-lives than their parent compounds. Clinical and forensic laboratories should screen for the potential presence of these new potential markers during toxicological analyses.



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## The impacts of Environmental Chemicals on telomere length and adverse effects in A549 Cells

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Human exposure to environmental chemicals is associated with cardiovascular disease, lung cancer, chronic respiratory disease and mortality. In this study, we investigated the exposure of one group of chemicals (oxidizing agents) can lead to adverse effects and change the telomere length as a mechanism of health effects in lung epithelial cells in cell cultures. We selected four oxidizing agents such as Potassium Bromate (KBrO<sub>3</sub>), Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), Sodium dichromate (Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>) and 4Nitroquinoline 1-oxide (4NQO) that can cause DNA damage. The compounds are suggested to be used as positive controls for the generation of DNA strand breaks and/or oxidatively damaged DNA. We measured cytotoxicity effects of cell metabolic activity, cell membrane damage and cell proliferation after 24 hours exposure to all chemicals and oxidative stress levels (ROS generation and antioxidant defense) were measured in short term and long-term exposures after 3 hours exposure to all chemicals and the effect of long-term exposure on the telomere length. The results can be summarized as (1) the short-term exposure for KBrO<sub>3</sub> leads to low cytotoxicity and oxidative stress effect; (2) the H<sub>2</sub>O<sub>2</sub> causes no cytotoxicity effects and moderate oxidative stress effect; (3) the Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> leads to high cytotoxicity and moderate oxidative stress effect and (4) the 4Nitroquinoline 1-oxide (4NQO) leads to high cytotoxicity and oxidative stress effects. The long-term exposure for all the chemicals induces moderate oxidative stress effect in the cells. Long term exposure to all chemicals are associated with no significant change on the telomere length was observed in A549 cells.

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## **Envenomations in humans caused by the venomous beetle *Onychocerus albitarsis*: Observation of two cases in São Paulo State, Brazil**

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**B**eetles (Coleoptera) are the most diverse group of animals in the world with more than 250,000 species distributed throughout the world, except for the Polar Regions. In Atlantic and Amazon rainforests, the scorpion-beetle *Onychocerus albitarsis* (Cerambycidae), can be found. It has venom glandules and inoculators organs in the antenna extremities and can use it as a defensive weapon. It is the only described beetle species capable of inoculating toxins. There are no studies describing their toxins and its composition is still unknown, as the post-sting reactions. Two injuries in humans are reported in this work, showing different patterns of skin reaction after the stings.

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