

5<sup>th</sup> Annual Congress on

## CHEMISTRY IN DRUG DISCOVERY &amp; DESIGNING

April 16-17, 2018 Dubai, UAE

**The protective and antioxidant role of betanin in atrazine-induced liver toxicity**Aziz Eftekhari<sup>1</sup>, Elham Ahmadian<sup>1</sup>, Ahmad Yari Khosroushahi<sup>2</sup> and Mohammad Ali Eghbal<sup>2</sup><sup>1</sup>Maragheh University of Medical Sciences, Iran<sup>2</sup>Tabriz University of Medical Sciences, Iran

Organophosphates pesticides are among the most commonly used insecticides in agricultural, home application. However, a great deal of work report their ruinous effects in different body tissues and signaling pathways. In current study we examined the role of betanin (a natural pigment) in mitigation of atrazine-induced hepatotoxicity in primary rat hepatocytes. Cell viability, lactate dehydrogenase (LDH) leakage, reactive oxygen species (ROS) formation, lipid peroxidation (LPO), glutathione (GSH) depletion and mitochondrial depolarization were evaluated as toxicity markers. The results revealed that betanin (25  $\mu$ M) considerably augmented cell viability, plunged ROS formation and LPO, restored cellular GSH pools and protected mitochondria after atrazine (400  $\mu$ M) treatment. Taken together, all data suggests the potential protective role of betanin in atrazine hepatotoxicity in which the mechanism is appears to be inhibition of ROS formation and mitochondrial protection.

**Recent Publications**

1. Hasanzadeh M, Eftekhari A (2017) Poly arginine-graphene quantum dots as a biocompatible and non-toxic nanocomposite: Layer-by-layer electrochemical preparation, characterization and non-invasive malondialdehyde sensory application in exhaled breath condensate. *Materials Science and Engineering: C*; 75: 247-58.
2. Eftekhari A, Ahmadian E, Panahi-Azar V, Hosseini H, Tabibiazar M, Maleki Dizaj S (2017) Hepatoprotective and free radical scavenging actions of quercetin nanoparticles on aflatoxin B1-induced liver damage: *in vitro/in vivo* studies. *Artificial Cells, Nanomedicine, and Biotechnology*; 19:1-0.

**Biography**

Aziz Eftekhari is currently working as an Associate Professor at Department of Pharmacology and Toxicology, Maragha University of Medical Sciences, Iran. He is also a Member of Toxicology Research Center in Maragha University of Medical Sciences in Iran. He has published numerous research papers and articles in reputed journals and has various other achievements in the related studies. He has extended her valuable service towards the scientific community with his extensive research work.

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