

33rd Conference on
Clinical Neuroscience and Neurogenetics
March 25, 2022 | Webinar


The Use of Natural Products Extract as a Neuroproductive Agent in Environmental Toxicants-Induced Neurotoxicity

Atrazine (ATZ) is a widely used herbicide with documented dopaminergic neurotoxicity, capable of altering striatal neurochemistry and causing dopaminergic neuron loss and oxidative stress in the substantia nigra. Kolaviron (KV), isolated from *Garcinia kola* seed, has been shown to possess wide pharmacological properties such as antioxidant, anti-inflammatory and neuroprotective effects. This study investigated the chemopreventive and neuroprotective effect of KV on ATZ-induced neurotoxicity in male Wistar rats.

A two-week study was conducted with 65 male Wistar rats weighing between 150-180g randomly distributed into 5 groups of 13 animals each. Neurotransmitter assay carried out showed an increase in dopamine transporter (DAT) level in ATZ only group indicating the neuropathologic damage caused by Atrazine in the striatum. However, cotreatment with KV (100 and 200mg) ameliorated this effect. There was a significant deficit in the exploratory behavior of the ATZ only treated group when compared with the control indicating loss of cognitive and motor functions. However, treatment with KV ameliorated this effect with 200mg dosage showing more therapeutic property. There was an increase in the level of oxidative stress markers such as hydrogen peroxide (H₂O₂) in the striatum of ATZ group resulting in an increase in the activities of antioxidant enzymes including catalase. Increase in activities of markers of apoptosis and autophagy such as Caspase 3, GRP 78, XBP1 in the striatum of the ATZ treated group suggests increase in cell death along the dopaminergic neuron. However, treatment with KV ameliorated the effect with 200mg showing more therapeutic effect.

Biography

Ogungbemi, [Oluwajuwonlo Justina](#) is a Biochemist and Researcher in the field of [neurotoxicology](#), with research experience in effects of toxicants on neuronal function. She's a graduate of [Biochemistry](#) with First Class honor (4.52/5.0) cum de laude. She recently completed her Masters program in [Molecular Drug Metabolism and Toxicology Laboratory](#), University of Ibadan, Nigeria. She have been opportune to work with and under the supervision of great researchers on [chemoprevention](#) and neuroprotective studies using natural bioflavonoids. Her experience thus far has driven her enthusiasm to go for a Ph.D. with specific research interest in diagnosis, prognosis and treatment of neurodegenerative diseases.



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Received: February 12, 2022; **Accepted:** February 14, 2022; **Published:** March 25, 2022