

Anti-oxidative Stress Effect of Bambara Groundnut (*Vigna subterranean* (L.) Verdc) Pre-treated Seeds and Products on Wistar Rat Kidney After Lipopolysaccharide-induction

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Abstract

Lipopolysaccharide (LPS) induction triggers several biological activities, including kidney injury similar to oxidative stress. Underutilised and neglected legumes have widely received attention because of their ability to modulate oxidative stress. BGN seeds, milk, and probiotic beverage were accessed for kidney protection from oxidative stress induced by a single intraperitoneal injection of LPS. Kidney lipid peroxidation, antioxidant capacity, and antioxidant enzymes biomarkers were analysed using a Multiskan Spectrum plate reader assay. The effect of BGN products on kidney architecture was studied under a light microscope and photographed using a digital camera. The difference between the non-LPS BGN-fed and LPS BGN-fed groups was not statistically significant on lipid peroxidation, while the antioxidant capacity and antioxidant enzymes were statistically different. Duncan's multiple range test showed the differences in the catalase, FRAP, glutathione, and ORAC means. Histology sections of the kidney demonstrated specific alteration in LPS rats, while BGN feeding revealed improvements in kidney alterations. It could be postulated that BGN seeds, milk, and probiotic beverage had a protective effect against kidney injury resulting from oxidative stress.