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Webinar

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Nephrocurative Effect of Flavonoid-Rich Fraction of *Irvingia gabonensis* Seed Extract against Acetaminophen-induced Kidney Damage in Mice*Madinat Hassan¹, Sunday Zeal Bala², Jemila Saleh¹, Muhibat Komolafe Bolanle¹¹Airforce Institute of Technology, Nigeria²Bayero University, Kano, Nigeria

This study investigated the nephrocurative effect of flavonoids-rich fraction of *Irvingia gabonensis* seed extract in acetaminophen-induced kidney damage in mice. The total flavonoids content of the different fractions of the extracts were reported to be higher in the Ethyl acetate fraction with a value of 47.20mg QE/g followed by Methanol 30.41mg QE/g, Chloroform 20.10mg QE/g, and Petroleum ether with 12.40mg QE/g. Further studies on the flavonoids-rich extract (Ethyl acetate fraction) revealed a significant difference ($p < 0.05$) between the inhibitory power of the flavonoids-rich fraction of *Irvingia gabonensis* (IG) seed extract and that of Vit. C. Accordingly, the IC of the 50 flavonoids-rich fraction of *Irvingia gabonensis* seed extract (47.97 μ g/ml) calculated was observed to be higher than

also revealed the extract to be safe at ≤ 3000 mg/kgbw. This study to an extent has proven that *Irvingia gabonensis* seeds are a promising source of alternative raw material in pharmaceuticals for kidney toxicity treatment. Therefore, the flavonoids rich fraction of *Irvingia gabonensis* seed extract may have curative effect in the treatment of kidney diseases.

Intracellular antioxidant enzymes activity, inhibit the oxidative toxicity pathway and further down regulate the pro-inflammatory cascade of reaction involved in acetaminophen-induced kidney damage. Thus, these evidently deduced that the flavonoids-rich fraction of IG reduced the exacerbation of kidney damage and therefore, could be a potential nephron-curative agent (Mechanism adopted with modification from karthivashan et al.15).



Figure 1:

Hypothetical mechanism of action of flavonoids-rich fraction of *Irvingia gabonensis* (IG) seed extract against acetaminophen-induced kidney damage. It is believed that the flavonoids-rich fraction enhances the activity of GSH-GPx, increase that of Vit. C. standard (25.76 μ g/ml). Studies on the nephrocurative effect indicate a positive result with significant deference across the group and an ultimate normalization of the kidney biomarkers. The curative effect of the extract is assumed to be dose and time depended on a drastic decrease in kidney biomarkers after four weeks of extract administration. Toxicity study of the extract

Recent Publications

- S.Z., Bala, M. Livinus, M. Hassan & S. Bitrus, (2021) SARS CoV-2 Second Wave: Enlightening Nigerians About Latest SARS CoV-2 Variants and the Clinical Manifestation of the Viral Infection in Different Disease Conditions, International Journal of Infectious Diseases and Therapy, 6(2): 50-60, <https://doi.org/10.11648/j.ijidt.20210602.12> International Journal of Infectious Diseases and Therapy, 6(2): 50-60, <https://doi.org/10.11648/j.ijidt.20210602.12>
- S.Z., Bala, M. Hassan & A. Sani, (2021) Effect of Flavonoid Rich Fraction of *Irvingia gabonensis* Seed Extract on Tetrachloromethane (CCl₄) – Induced Liver Damage in Mice, International Journal of Science for Global Sustainability, 7(2), ISSN: 2488-9229
- S.Z., Bala, M. Hassan, A.M., Wudil & A. Nasir (2021) Nephrocurative Effect of Flavonoid-Rich Fraction of *Irvingia gabonensis* Seed Extract against Acetaminophen-induced Kidney Damage in Mice, West J Med & Biomed Sci, 2(2): 117 - 127, <https://doi.org/10.46912/wjmb.44>

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4. J. Saleh, F. Olowoniyi, E. Emmanuel, A. Abdullateef, M.K., Bolanle & M. Hassan, (2021) *Acute Toxicity Assessment of the methanolic leaf extract of Annona squamosa Bark in Male Albino Rats*, The Journal of Phytopharmacology, 10(3): 151-155, <https://doi.org/10.31254/phyto.2021.10301>

Biography

Madinat Hassan is a passionate medical biochemist, with great enthusiasm in the development of new innovations and therapeutic

treatments that will help improve the quality of life. My interest in cancer biology and pathology, drug design and discovery, existing research skills, diverse scientific training and experience has broaden my expertise in the biomedical field and I am excited to show what I can contribute to ensure qualitative health care delivery and longevity.

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