

## Evaluation of the Nephroprotective Activity of *Vicia faba* Leaves Extracts against Gentamicin Induced Nephrotoxicity in Rats

H Howyda\*, Mohamed Salih and Ikram Mohamed Eltaeb

\*UMST, Sudan.

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### ABSTRACT

**Statement of the problem:** Acute kidney injury (AKI) is a common renal problem characterized by an abrupt reduction in renal function; acute tubular necrosis is a subtype of AKI caused mainly by medications such as aminoglycosides and cisplatin when used in high or unadjusted doses. *Vicia faba* is a widely used legume; mainly for its nutritional value but has additional uses such as muscle relaxant and for treating kidney stones.

**Aim:** The aim of our present study is to evaluate the protective effect of *V. faba* leaves extracts in experimentally gentamicin induced nephrotoxic model in rats.

**Methodology and theoretical orientation:** Rats were induced to produce kidney injury by injecting them with 80 mg/kg of gentamicin for 7 days in addition to this the ethanolic and aqueous extracts of *V. faba* leaves 500 mg/kg were administered along with the gentamicin for 7 days. On the 8<sup>th</sup> day of the experiment both blood and kidney samples were collected from each rat and then used for estimating levels of creatinine, urea, albumin and total protein.

**Findings:** Rats being injected only with gentamicin resulted in increased levels of creatinine and urea with a decrease in levels of albumin and total protein as compared to normal control rats.

**Conclusion and statistical significance:** All biomarkers were significantly reversed in the rats administering *V. faba* extracts with a p value of 0.000, 0.000, 0.02 for creatinine, urea, albumin, respectively, in the ethanolic extract and 0.008, 0.004, 0.015 for creatinine, urea, albumin, respectively, in the aqueous extract however there was no significant effect on the levels of total protein in neither extracts. Histopathological analysis also reveals disruption of tubular cells and presences of tubular casts which was reduced in rats treated with *V. faba*. These data suggest preventive effect of *V. faba* against gentamicin induced nephrotoxicity, also indicates that the ethanolic extract possess a higher activity.

**Keywords:** *Vicia faba*, Gentamicin, Nephroprotective, Aqueous extract, Ethanolic extract

**Abbreviations:** AKI: Acute Kidney Injury; *V. faba*: *Vicia faba*

**Corresponding author:** H Howyda, B. Pharm, UMST, Sudan, E-mail: howydashim96@gmail.com

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