

Guarana Seed Extract Prevents Nephrotoxicity Caused by Gentamicin Treatment in Mice

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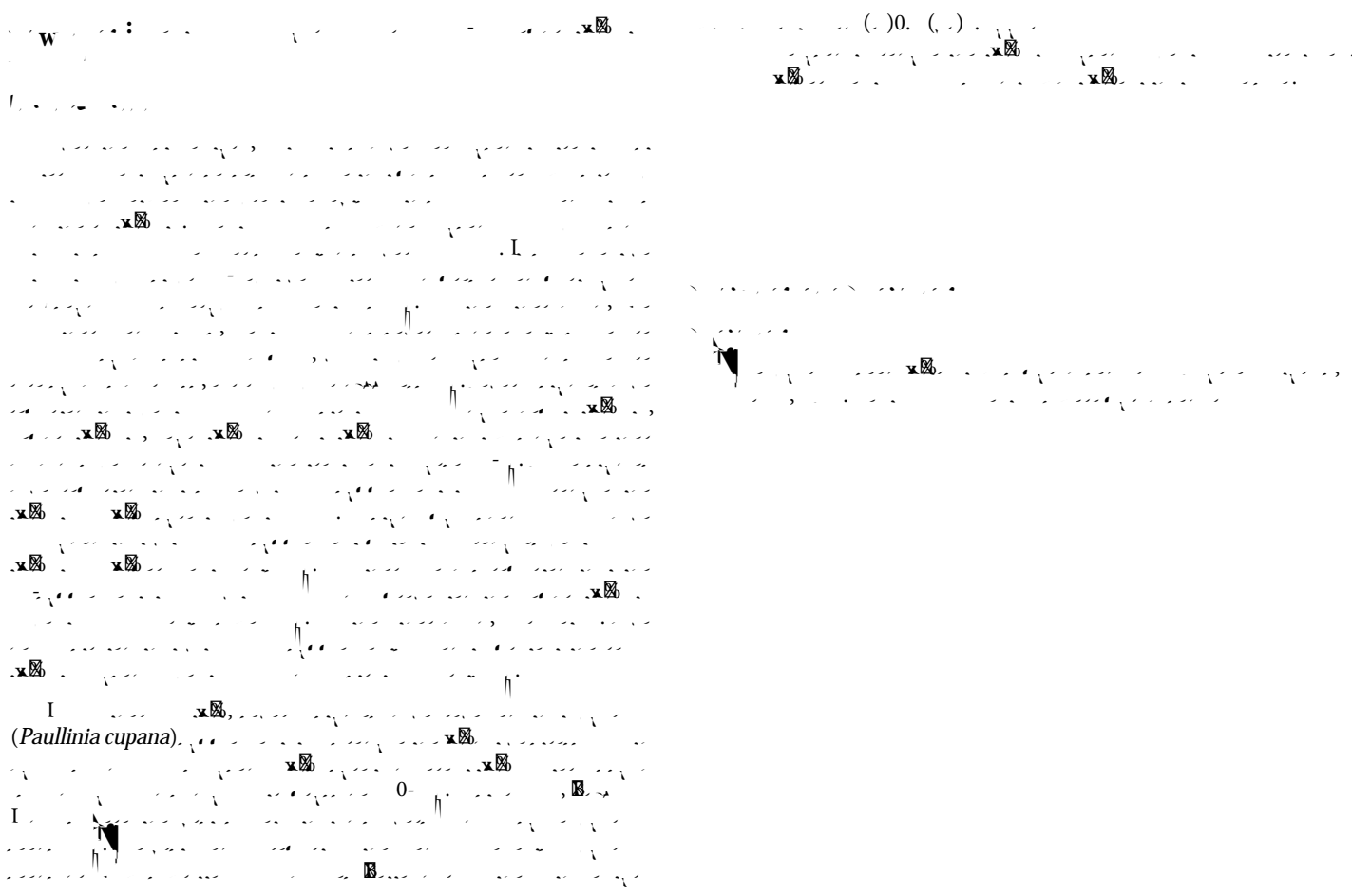
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Abstract

Gentamicin is a widely used aminoglycosidic antibiotics family member since its discovery in 1963. Like any other medications, gentamicin causes nephrotoxicity due to the oxidative stress caused by its pharmacodynamics. This study aims to examine the antioxidant power of the guarana seed extract in protecting renal tissue as a supplement. Forty male mice were divided into four groups (group one normally fed, the second group was treated with 300 mg/kg of guarana seed extract daily, group three was injected intraperitoneally with 100 mg/kg of gentamicin daily and the fourth group was co-treated with both 300 mg/kg of guarana seed extract and with 100 mg/kg of gentamicin daily)

treated group and that changes were not found in the guarana cotreated group. In gentamicin administered mice,

Nef2 while, that did not happen in the guarana seed extract cotreated group. Furthermore, both histopathology and immunohistochemistry slides show that the guarana seed extract prevents the degenerative and necrotic events in epithelial tubular tissues caused by gentamicin toxicity. In conclusion, our data suggest that gentamicin can damage renal tissues when given at 100 mg/kg/day and, however, the guarana seed extract may capable of preventing that event when cotreated with the gentamicin as a supplement.



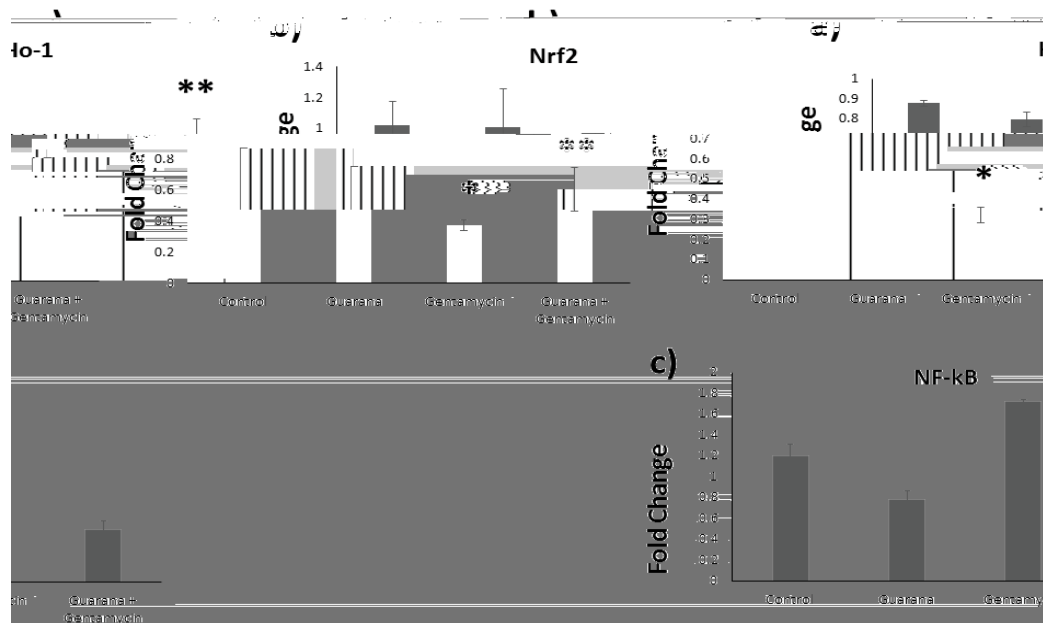
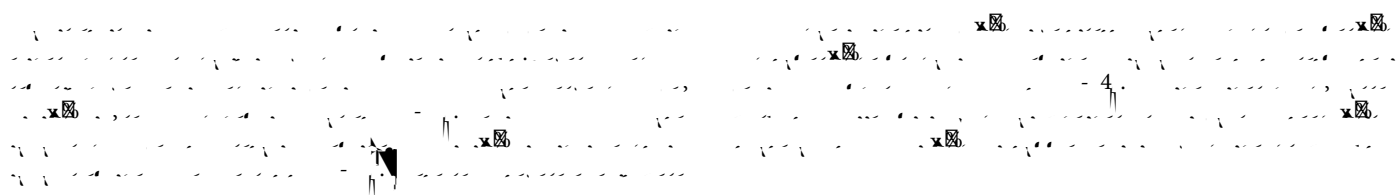
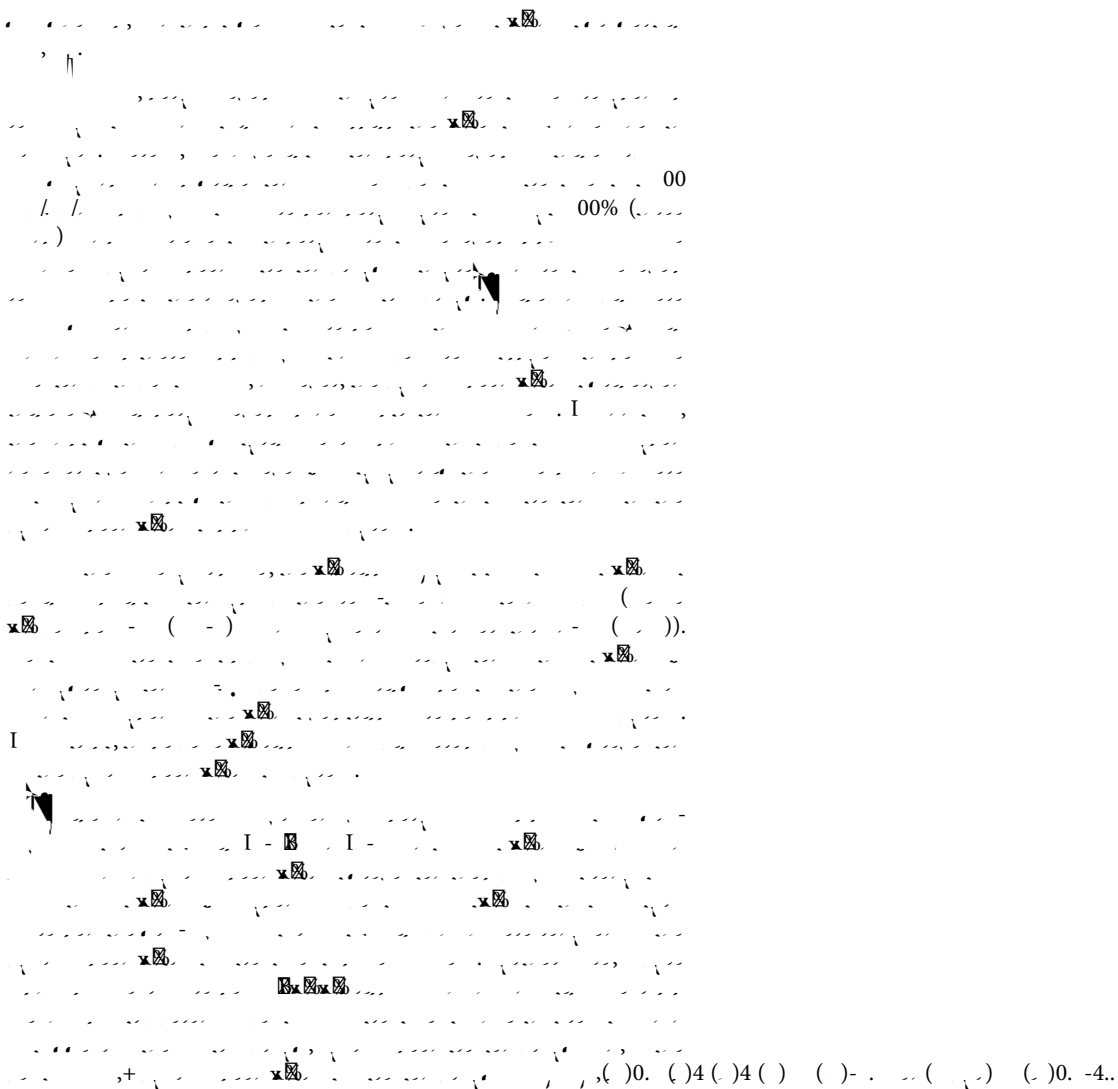


Figure 1:





W. C.

A novel method for the evaluation of proximal tubule epithelial cellular necrosis in the intact rat kidney using ethidium homodimer.

7(2): 1.

Effect of tempol (4-hydroxy tempo) on gentamicin-induced nephrotoxicity in rats.

18(1): 79-83.

Tetramethylpyrazine protects rat renal tubular cell apoptosis induced by gentamicin.

Euro Renal Assoc., 2007; 22(3): 732-739.

Apoptotic pathways of oxidative damage to renal tubular epithelial cells. Antioxidant Redox Signal., 2002; 4(6): 915-924.

herbal preparations containing guarana.

81(4): 691-701.

Antioxidant and antimicrobial activity of guarana seed extracts.

Food Chem., 2007; 104(3): 1258-1268.