

## Protective effect of safranal against gentamicin-induced nephrotoxicity in rat

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### Abstract

Gentamicin is an important aminoglycoside antibiotic. However its use is limited to serious and life threatening gram negative infections, because of its high nephrotoxicity potential in patients. There are reports that safranal, the active ingredient of saffron with antioxidant properties, exerts protective effect against ischemic injuries occurred by certain nephrotoxins including gentamicin. Therefore, in the present study, we examined the protective effect of safranal against gentamicin-induced nephrotoxicity in rat. After acclimatization, animals were randomly divided to three groups (4 rats /each group). On day one, each animal was placed separately in a metabolic cage for collecting 24-hour urine samples. On day two, after collecting urine samples for measuring glucose and protein, the rats in group 1 received saline 1 ml/kg for 3 days, those in group 2 received gentamicin 80 mg/kg/day for 3 days, and the remaining rats in group 3 received safranal 0.5 ml/kg followed by gentamicin 80 mg/kg/day for 3 days. Injections were intraperitoneally. All the animals were euthanized 24 hours after the last dose. Blood samples were collected by cardiac puncture, and concentration of blood urea, creatinine, and urinary glucose and protein, as the indicators of nephrotoxicity were measured. Our results showed that in group 3, concentration of blood urea nitrogen  $p < 0.01$ , creatinine  $p < 0.05$ , urinary glucose  $p < 0.01$ , and protein  $p < 0.01$  were significantly increased compared with the control and safranal-treated groups. There was no significant difference between the control and safranal-treated groups. Safranal exerts protective effects against gentamicin-induced nephrotoxicity in rat.

### Reaxys Database Information

### Author keywords

Gentamicin; Nephrotoxicity; Safranal

### Indexed Keywords

**EMTREE drug terms:** creatinine; gentamicin; glucose; protective agent; protein; safranal; unclassified drug; urea

**EMTREE medical terms:** animal experiment; article; blood sampling; controlled study; creatinine blood level; glucose urine level; nephrotoxicity; nonhuman; protein urine level; rat; renal protection; urea blood level; urinalysis

**Chemicals and CAS Registry Numbers:** creatinine, 19230-81-0; gentamicin, 1392-48-9; glucose, 50-99-7; protein, 67204-70-0; urea, 57-13-7

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