

Nephroprotective Activity of Ethanolic Extract of *Ginkgo biloba* Linn. (ကမ္ဘာဦးပင်) Leaf in against Gentamicin-induced Nephrotoxicity in Rats

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Abstract

The nephrotoxicity in the form of acute renal failure occurs in 10-30% of patients receiving gentamicin in long term use. Gentamicin can induce oxidative stress and cause structural changes in the kidney. Gentamicin is an aminoglycoside antibiotic that is still commonly used in the treatment of life-threatening infections. The present study was aimed to evaluate nephroprotective activity of 95% ethanolic extract of *Ginkgo biloba* leaves against gentamicin-induced nephrotoxicity. In phytochemical analysis, alkaloid, phenolic compound, glycoside, reducing sugars, flavonoids, saponins, tannins, amino acids were present in the ethanolic extract of *Ginkgo biloba*. Acute toxicity study was performed according to OECD 425 guideline and LD₅₀ was more than 5000 mg/kg. The nephroprotective activity was done in thirty six Wistar albino rats of both sexes which were divided into six groups of six animals. Group I (normal control) and Group II (toxic control) were given normal saline orally. Group III was served as standard group giving cysteine 5ml/kg/d orally and Group IV, V and VI as test groups which were administered ethanolic extract of *Ginkgo biloba* in the dose of 200mg/kg/d, 400mg/kg/d and 600mg/kg/d orally. After 1 hour, gentamicin 100mg/kg/d was administered intraperitoneally to all test groups except normal control. All the treatments were given for a period of 8 days. On 9th day, all animals were sacrificed and blood and urine samples were collected for biochemical analysis and also kidneys for histopathology. According to the results, the groups of taking 200mg/kg/d, 400mg/kg/d and 600mg/kg/d were significantly decreased in blood urea, serum creatinine and increased creatinine clearance ($p<0.05$) as compared to the toxic group. When the groups of 400mg/kg/d and 600mg/kg/d were compared with the standard group, blood urea and creatinine were significantly decreased and creatinine clearance was increased ($p<0.05$). In the histopathological examination, the toxic group showed tubular alteration, glomerular cells proliferation and interstitial changes but there was no pathological change of the kidneys in the control group and the test groups (400mg/kg/d and 600mg/kg/d). This study proved that the ethanolic extract of *Ginkgo biloba* possesses the nephroprotective activity against gentamicin-induced nephrotoxicity. Therefore, these results gave the scientific information about *Ginkgo biloba* leaf for herbal medicine users and local practitioners.

Keywords : Gentamicin , Nephroprotective Activity, *Ginkgo biloba*