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Research Article

## Alterations of Apoptotic and Epigenetic Genes Associated with Gatifloxacin-Induced Oxidative Stress in Rat Liver

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### Abstract

In order to investigate the alterations in the expression of genes involved in epigenetics and apoptosis associated with gatifloxacin-induced oxidative stress in rat liver, adult rats were exposed to 10 mg/kg, 20 mg/kg, 40 mg/kg and 80 mg/kg gatifloxacin for five days orally. Biomarkers of oxidative stress were assessed spectrophotometrically while the levels of expression of Bcl211, caspases 3, 8 and 9 as well as Dnmt1, Hdac5, Prdm2, Eid3, Suv39h1 and Ehmt2 were assessed using relative reverse transcription polymerase chain reaction. The results showed that the dose-dependent increase in oxidative stress was associated with increase in the expression of proapoptotic genes. Gatifloxacin treatment also resulted in significant ( $p < 0.05$ ) increase in the expression level of DNA and histone methylating genes. These changes observed at the lowest dosage of 10 mg/kg showed that gatifloxacin exposure could result in apoptosis and trigger epigenetic changes in the liver.

**Keywords:** word; Gatifloxacin, oxidative stress, epigenetics, apoptosis

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