



Scienxt Journal of Recent Trends in Drug Delivery System  
 Volume-2 || Issue-1 || Jan-June || Year-2024 || pp. 1-12

## *Alterations of apoptotic and epigenetic genes associated with gatifloxacin-induced oxidative stress in rat liver*

<sup>1</sup>Solomon Oladapo Rotimi, <sup>2</sup>Iyanuoluwa Temitayo, <sup>3</sup>Olugbemi and  
<sup>4</sup>Oluwakemi Anuoluwapo Rotimi

Biochemistry Unit and Molecular Biology Research Laboratory, Department of Biological Sciences, Covenant University, Ota, Ogun State, Nigeria.

## **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 Bcl2l1, 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