Molecular Investigation of the Ameliorative Potentials of Cymbopogon citratus Leaves Extract in Carbon tetrachloride-Induced Hepatotoxicity in rats

Olorunfemi Molehin,¹ Olusola O. Elekofehinti,² Ajibade O. Oyeyemi,¹ and Oluwabukola O. Olubaju¹

¹Ekiti State University, Ado-Ekiti; and ²Federal University of Technology Akure

Abstract ID 14418 Poster Board 59

Cymbopogon citratus (C. citratus) is a green leafy vegetable used in traditional practices for the treatment of various diseases, such as hepatotoxicity, inflammation, rheumatism etc. The aim of this study is to evaluate the hepatoprotective potential of aqueous extract of C. citratus leaf extract on carbon tetrachloride (CCl₄) - induced hepatotoxicity in rats thus putting scientific validation on the numerous medicinal relevance of the plant. Thirty Male wister rats were randomly separated into six groups each containing five rats. Hepatotoxicity was induced in rats by the administration of CCl₄ (at 40 mg/kg). Group 1 served as control (distilled water). Group 2 served as the negative control (40 mg/kg of CCl₄ and distilled water). Groups 3, 4 and 5 were administered 40 mg/kg of CCl₄ and treated with 100 mg/kg, 200 mg/kg, 300 mg/kg C. citratus extract twice daily. Group 6 was administered 40 mg/kg of CCl₄ treated with 100 mg/kg silymarin (the standard drug) twice daily for seven days. Animals were sacrificed by cervical dislocation and liver tissues were harvested for molecular studies. The mRNA expression of Heme oxygenase (HO-1), Cytochrome P450 (CYP2D3, CYP3AF), Janus Kinase 2 (JAK2), Caspase 3 and Heat Shock Protein 70 (HSP70) were determined in the liver tissues by RT-PCR. Significant down regulation (p<0.05) of the CYP2D3, CYP3AF, JAK2, Caspase 3, HSP 70 gene were observed in groups treated with C. citratus when compared with the negative control, however HO-1 gene was also upregulated significantly (p<0.05) upon treatment with C. Citratus. This study depicts that the aqueous extract of C. citratus has hepatoprotective effect on carbon tetrachloride-induced hepatic injury.