

Tropentag, September 9-11, 2020, virtual conference

"Food and nutrition security and its resilience to global crises"

Nutritional and Hepatoprotective Effects of *Senna occidentalis* Ethanolic Extract on Diethyl Nitrosamine-induced Toxocity in Rats

Ojochenemi Ejeh Yakubu

Federal University Wukari, Biochemistry, Nigeria

Abstract

They are well known environmental and industrial toxicant that once adequately exposed to can cause oxidative damage to membrane lipids, cellular proteins and DNA. Recently, the use of medicinal plants as prophylactic or therapeutic agents against certain diseases has become popular. This study assessed the hepatoprotective effects of partially purified ethanolic extract of Senna occidentalis leaves on diethylnitrosamine intoxicated rats. Fractionation was carried out using solvent of increasing polarity. The fractions were subjected to 1,1-diphenyl,2-pycryl hydrazyl (DPPH) radical scavenging activity. The fraction (fraction 6) that possessed the highest antioxidant activity was used for the *in vivo* hepatoprotective study. Twenty rats, each weighing on the average 150 to 250 g were randomly selected into four groups of five rats each. Hepatotoxicity was induced using single intraperitoneal dose of diethyl nitrosamine (DEN) at the 200 mg kg⁻¹ body weight. Treatment was carried out for 3 weeks orally: Group A, normal control; group B, DEN control; group C, DEN + fraction (10 mg kg⁻¹); group D, DEN + silymarin (5 mg kg⁻¹). The results showed that diethylnitrosamine intoxication significantly (p < 0.05) increased liver alanine transaminase (ALT) and aspartate transaminase (AST) activities and increased the level of thiobarbituric acid reactive substance (TBARS) and bilirubin but decreased the concentration of total protein (TP) and albumin (ALB). However, treatment of rats with the extract significantly (p < 0.05) reduced the concentrations of TBARS, ALT, AST, and Bilirubin, but increase the concentration of TP and ALB, which shows hepatoprotective potentials of the fraction. Furthermore, GC-MS scan of fraction 6a revealed the presence of five important compounds with anticancer, antioxidant and anti-inflammatory properties confirming its high chance for exploration as an anticancer agent.

Keywords: Antioxidant, hepatoprotective, nutritional, Senna occidentalis, toxicity

Contact Address: Ojochenemi Ejeh Yakubu, Federal University Wukari, Biochemistry, Katsina-Ala Road, Wukari, Nigeria, e-mail: oj4real_2007@yahoo.co.uk