

## Protective Effects of *Camellia sinensis* Leaf Extract against Carbon Tetrachloride-Induced Liver Injury in Rats

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### ABSTRACT

The present study appraised the hepatoprotective effects of aqueous leaf extract of *Camellia sinensis* against carbon tetrachloride (CCl<sub>4</sub>)-induced liver injury in rats. The 100 and 200 mg kg<sup>-1</sup> b.wt. of *Camellia sinensis* and 100 mg kg<sup>-1</sup> b.wt. Silymarin was administered orally to separate groups of rats for 7 days prior to CCl<sub>4</sub> administration. A significant decrease (p<0.05) was observed in both the groups treated with 100 and 200 mg kg<sup>-1</sup> b.wt. of the leaf extract and Silymarin on the levels of the enzymes and non-enzyme markers of tissue damage and lipid peroxidation, with no significant changes in the relative organ weight of the treated groups. This result shows that the leaf extract of *Camellia sinensis* contains some phytochemical(s) that can protect the liver against CCl<sub>4</sub>-induced injury in rats.

**Key words:** *Camellia sinensis*, carbon tetrachloride, hepatotoxicity, liver, rats

### INTRODUCTION

*Camellia sinensis* (Green tea) from the genus *Camellia* of flowering plant in the family Theaceae is a native to mainland of China, South and Southeast Asia but it is today cultivated across the world in tropical and subtropical regions. It is an evergreen shrub that is usually trimmed and the leaves and leaf buds are used to produce tea that is processed differently to attain a different level of oxidation (Mahmood *et al.*, 2010) and it contains certain minerals and vitamins which increase the antioxidant potentials of this type of tea (Cabrera *et al.*, 2003). *Camellia sinensis* extract is fast becoming ubiquitous supplement in consumer products such as shampoos, creams soaps, cosmetics, vitamins, drinks, lollipops and ice creams (Mukhtar and Ahmad, 2000).

In recent times more attention has been paid to the protective effects of natural antioxidants against drug-induced toxicities (such as CCl<sub>4</sub>) especially whenever free radical generation is involved (Wakawa and Hauwa, 2013) and several plants and other animal products have been shown to protect the liver against such damages (Dahiru *et al.*, 2005, 2010; Obidah *et al.*, 2010; Hamad *et al.*, 2011; Khan and Alzohairy, 2011; Al-Fartosi *et al.*, 2012). Also medicinal plants are used in preparations of herbal remedies and these herbal remedies which are perceived to be a cheaper means of treatment have often attained popularity for historic and cultural purposes (WHO., 1999), thus a large number of the world's population depends on plants to treat many common ailments (Shri, 2003). The search for new and effective antioxidants in plants has given a new dimension to the antioxidant research (Guzdek and Nizankowska, 1996).