

## Original Article

# Green tea extract attenuates non alcoholic fatty liver disease by decreasing hyperlipidemia and enhancing Superoxide dismutase activity in cholesterol-fed rats

Aicha Labdi<sup>a</sup>, Malek Amiali<sup>b</sup>, Yacine Nait Bachir<sup>c</sup>, Abdelaziz Merouane<sup>d</sup>,  
Amina Dahman-Zouambi<sup>e</sup>, Elhadj Ahmed Koceir<sup>a</sup> and Arezki Bitam<sup>a,b,\*</sup>

<sup>a</sup>Department of Biological Sciences and Physiology, Bioenergetics and Intermediary Metabolism Laboratory, USTHB, Algiers, Algeria

<sup>b</sup>Department of Food Technology and Human Nutrition, Ecole Nationale Supérieure Agronomique (ENSA), El-Harrach, Algiers, Algeria

<sup>c</sup>Department of Process Engineering, Chemical Engineering Laboratory, Faculty of Technology, University of Blida 1, Blida, Algeria

<sup>d</sup>Laboratory of Natural Bioresources, Faculty of Natural and Life Sciences, Hassiba Benbouali University, Chlef, Algeria

<sup>e</sup>Laboratory of Veterinary Histology, National School of Veterinary Sciences, El-Harrach, Algiers, Algeria

Received 27 April 2018; accepted 18 June 2018

### Abstract.

**BACKGROUND/AIM:** Health benefits of green tea for a wide variety of ailments, including the cancer, heart disease, and liver disease, were reported. It is believed to have beneficial effects in the prevention and treatment of many diseases, one of which is non-alcoholic fatty liver disease (NAFLD). This study inspects the protective effect of green tea against atherosclerosis and NAFLD in comparative approach between curative and preventive models.

**MATERIALS AND METHODS:** Twenty four of Wistar rats were studied for 150 days. After 15 days of adaptation period, rats were divided into four groups including normal Group (NG), control Hypercholesterolemic diet Group (CHDG), preventive Group (PG) and curative Group (CG) that followed respectively the following regimens: 1 mL/kg of sunflower oil for 150 days, 1 mL/kg of cholesterol solution prepared at 1.5% (w/v) in sunflower oil span 150 days, 1 ml/kg of cholesterol solution at 1.5% (w/v) in sunflower oil with 3 mL/kg GTLE for 60 days and 1 mL/kg of cholesterol solution at 1.5% (w/v) in sunflower oil for 30 days followed by 3 mL/kg of GTLE for 30 days. These both PG and CG groups were ingested with cholesterol 1.5% (w/v) during remaining period.

**RESULTS:** The results showed significant increase, except for NG, during the 30 first days ( $p \leq 0.001$ ) in lipid serum profiles including Total Cholesterol (TC), Triacylglycerol (TG) and Low-Density Lipoprotein cholesterol (LDL-c). However, the

\*Corresponding author: Dr Arezki Bitam. E-mail: a.bitam@ensa.dz.