ABSTRACT

**Aims:** This study was undertaken to investigate the potential effect of methanol extract of *Origanum elongatum* (OEME) given orally by gavage against intraperitoneal injection a single dose of Carbon tetrachloride (CCl₄)(0.6 ml/kg) induced hepatotoxicity in rats.

**Study Design:** Biochemical analysis, histological examination and in vivo study.

**Place and Duration of Study:** Laboratory of Biology and health (Faculty of Science), between June 2012 and August 2012.

**Methodology:** Hepatoprotective activity of OEME at four doses of 250 mg/kg, 500 mg/kg, 1000 mg/kg and 2000 mg/kg body weight. The degree of protection was estimated by biochemical analysis of serum liver biomarkers: AST, ALT, ALP and by liver histopathological examination.

**Results:** The total phenolic content of OEME (83.61 ± 0.19 mg AGE / g extract) and total flavonoid content (10.85 ± 0.05 mg QE / g extract) were found significantly high. The
The liver is the most complex organ in the body. It plays a vital role in regulating metabolism processes, performing many essential functions in order to maintain life, such as glycogen storage, production of necessary biochemicals for digestion, plasma protein synthesis and detoxification [1,2].

These functions are carried out generally by hepatocytes especially for the process of blood filtration, for chemical digestion of medications, but also against environmental pollution toxins, and alcohol intoxication which can have largely damaging effects over long periods of exposure or abuse [3].

Yet, the remarkable progress in phytotherapy remains insufficient. Only a small number of medicinal plants, in our country, that are used in folklore medicine -for curing ailments related to liver - are scientifically evaluated for its activities [4]. In our search for new natural hepatoprotective agents, we chose Origanum elongatum, a plant belonging to the Lamiaceae family (Emb. & Maire). It’s 30-80 centimeters tall and has dark green oval or elongated oval leaves. It grows in shale or limestone soils between 400 and 1,500 meters of altitude. It is known for its rarity and white inflorescence attached to vertical rods. It blooms from June to October [5]. This plant is an endemic herb originally from the north of Morocco which is widely used for its therapeutic virtues against various diseases such as diarrhea, respiratory infections and urinary tract infections, and as an aromatic plant for its flavor or as a food preservative [5]. The use of some halogenated alkanes such as carbon tetrachloride (CCl₄) classified as a potential human carcinogen, increases the frequency of liver tumors in experimental animals. It’s widely used as a model for the study of agents that cause liver damage by formation of trichloromethyl and trichloromethyl peroxyl radicals by a free-radical mechanism [6]. Recently, many natural agents possessing antioxidative properties have been reported to prevent and treat liver damages caused by free radicals induced by CCl₄ in experimental animal’s model [7].

However, the literature survey revealed that this plant has not been scientifically investigated. Thus, we take this opportunity to study the hepatoprotective activity of methanol extract of Origanum Elongatum leaves against CCl₄ induced liver damage in the Wistar albino rats.

2. MATERIALS AND METHODS

2.1 Material and Extraction

The Origanum elongatum (Emb. & Maire) used in this research was collected in September 2011, from the Banu Aammart area in the Rif Mountains, over a height of 1,240 meters. (al-Husaima, Morocco). The plant was identified and authenticated by Pr ENNABILI Abdesalam (National Institute of Medicinal and Aromatic Plants, Taounate, Morocco). Samples were...