

Phytochemical Characterization and *in vivo* Anti-inflammatory and Wound-healing Activities of *Argania spinosa* (L.) Skeels Seed Oil

Hadjira Dakiche^{1,2,*}, Mustapha Khali¹ and Houcine Boutoumi¹

¹ Laboratoire de Protection et de Valorisation des Ressources Agro-Biologiques, Faculté de Sciences de la Nature et de Vie, Université Saâd Dahlab Blida, BP 270, Route de Soumaâ, Blida 09000, Algeria

² Centre de Recherche Scientifique et Technique en Analyses Physico-chimiques, BP 384 Zone Industrielle Bou-Ismaïl RP 42004 Tipaza, Algeria

(Received April 21, 2016; Revised October 27, 2016; Accepted November 1, 2016)

Abstract: The extracted oil of *Argania spinosa* (L.) was investigated in regard to its fatty acid composition and polyphenols by Gas Chromatography-Mass Spectrometry (GC-MS) and Ultra-high Performance Liquid Chromatography-Electro Spray Ionization-Quadruple Time Of Flight-Mass Spectrometry (UPLC-ESI-QTOF-MS), respectively. The reduction rate of topical inflammation of extracted oil was calculated using a mouse model. The skin toxicity of argan oil on intact and damaged skin was assessed using a rabbit model. The findings revealed a rich content of monounsaturated and polyunsaturated fatty acids and presence of phenolic acids. The oil exhibited a reduction of inflammation and facilitated a healing process without any irritation. The experimental study revealed that *A. spinosa* seed oil displays remarkable wound-healing and anti-inflammatory activities related to its chemical composition. Argan oil has positive potential for skin medicinal application.

Keywords: *Argania spinosa* (L.) Skeels; oil; chemical composition; anti-inflammatory; wound-healing. © 2016 ACG Publications. All rights reserved.

1. Introduction

Argan tree, *Argania spinosa* (L.) Skeels, belongs to the *Sapotaceae* family and represents only the species of the genus *Argania* [1].

The species *A. spinosa* is the most original tree of North Africa, and endemic in southwestern Morocco, where it grows over about 828 000 ha [2]. In Algeria, the argan tree can be found in the southwest of the province of Tindouf between Jebel Ouarkziz and Hamada. Unfortunately, it has been ignored by the local population its range is now limited to an area of 3 000 hectares [3, 4]. Some years ago, successful attempts to cultivate this tree were made in many places such as Stidia (a region in Mostaganem province), Chlef and Mascara.

The most valuable part of argan tree is its fruit, which is highly sought after its oil is extracted from its seeds. Argan oil is eaten raw in the southwest of Morocco [4, 5]. Recent studies suggested that dietary argan oil from fruits could protect against cancer [6, 7] and atherosclerosis, and improve plasma lipid profiles, paraoxonase activities and LDL peroxidation in healthy Moroccan men [8]. It is traditionally used for treatment of rheumatism, constipation, diabetes and respiratory difficulties. Moreover, argan oil is used externally for skin diseases, against juvenile acne, flaking and wrinkled or scaly dry skin, as well as for nourishing hair and as a moisturizing oil [9]. This oil has been widely used in traditional medicine for centuries to cure wounds and burns [10, 11, 12].

The multiple virtues of argan oil regarding human health are due to its chemical composition, such as the glyceride fraction (99%), which is rich in polyunsaturated fatty acids like oleic (47.7%) and

* Corresponding author: E-Mail: s-dakiche@hotmail.fr; Phone: +213 555 497 211