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Original Article

Phytochemical and biological potential of Prickly pear (*Opuntia ficus-indica*) extracts from M'sila (Algeria)

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ABSTRACT

The cladodes juice and seeds oil obtained from the prickly pear (*Opuntia ficus-indca*) grown in M'sila, Algeria are investigated in this work. The objective of the present study was to evaluate their physicochemical composition, polyphenols and flavonoid content, antioxidant potential by DPPH test and antibacterial activities. The results of this experimental study showed that leaf bud juice presented the highest yield of 79.02%. Leaf juice was rich in polyphenols (4.6 g/100 g) and flavonoids (38.35 mg/100 g). While, the study revealed that the seeds oil extracts presented a weak yield of 5%. Leafy sap from spiny species shows high antioxidant activity and an antibacterial effect on: *S. aurous*, *E. coli*, *S. typhimirum*, *S. marcesscens*. Whereas, the antibacterial activities were as follows: for leafy sap from spiny species *E. coli*, *P. aeruginosa*, *S. typhimirum* and *K. pneumoniae* strains were relatively resistant to oil, *E. coli* and *S. marcescens* strains were relatively resistant to cold-pressed oil. The three oil varieties cold, 90°, and 160° pressed oil, were the most proven oils to be effective against *E. coli*, *P. aeruginosa*, *S. typhimirum and K. pneumonia.*

1. Introduction

The prickly pear is a succulent plant belonging to the cactus family, more specifically the genus *Opuntia*. It grows in various parts of the world, mainly in arid and semi-arid climates with a low annual rainfall rate such as the Mediterranean and Central America [1, 2]. The genus *Opuntia* includes about 300 species, many of which produce very tender and edible stems and fruits [3]. One of these species is *opuntia ficus indica* (single or thornless), commonly called prickly pear. A greater interest has been observed into its cultivation around other continents in the last decades due to its major thanks to its drought resistance, desertification resistance and high water-use efficiency [4, 5]. The cells of this succulent plant can withstand greater fluctuations in water content than other "normal" plants [6]. *Ficus indica* belongs to the Cactaceae family, which includes about 1600 species, with the greatest center of diversity in Mexico, where 669 species are native [7]. In Algeria, the introduction of cactus is like Morocco and Tunisia in the 17th century [8]. In the Mediterranean regions specially in ALGERIA, prickly pear is cultivated principally for fresh fruit consumption, in the food industry, pharmaceutical and cosmetic industries or as

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