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Evaluation of Phytochemical Composition and Antioxidant Potency of Two Algerian Cultivars of *Olea Europaea* Leaves

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ABSTRACT

In Mediterranean countries, *Olea europaea* L. is among the most important fruit trees widely cultivated. This plant has a wide range of biological activities that have increased their interest in the medical and health fields. The aim of this study was to quantify total phenols and flavonoids compounds and evaluate the antioxidant potential of two Algerian cultivars olive leaves (Sigoise and Chemlal). The two olive leaves exhibited meaningful phenolic and flavonoids content with superiority for Chemlal extract ; the contents are respectively 238,32 mg GAE/g and 79,37 mg QE/g, the antiradical effect toward DPPH and B-carotene assays showed that Chemlal cultivar is the most active, with 82,33% and 72%, respectively. These findings provide evidence that *Olea europaea* bark and roots are potential sources of antioxidant which have many benefits towards human health.

Keywords *Olea europaea*, Polyphenols, Flavonoids, Antioxidant.

1 Introduction

In Mediterranean countries, *Olea europaea* is among the most important fruit trees widely cultivated. This plant has a wide a wide range of biological activities that have increased their interest in the medical, food and health fields. These activities are due to the presence of various secondary metabolites such as polyphenols and flavonoids, with different biological activities and modes of action. The growing interest in this compounds is attributed to different mechanisms like the inhibition of reactive oxygen species (ROS) accumulation that, in turn, promote cellular damage [1]. The aim of this study was to quantify total phenols and flavonoids compounds and evaluate the antioxidant potential of two algerian cultivars of *Olea europaea* leaves (Sigoise and Chemlal).

2 Experimental

The sample extracts of the two varietees were obtained by maceration using methanol. The amount of total polyphenolic content was determined by using Folin-Ciocalteu reagent. Aluminium chloride method was applied to estimate total flavonoids. The antioxidant activity was assessed using two different methods; DPPH and β -carotene bleaching test.

3 Results and Discussion

Each cultivar showed a different phenolic content. It ranged from 141.18 ± 2.27 to 238.32 ± 3.21 mg GAE/g of extract in Sigoise and Chemlal, respectively. Total flavonoids, instead, varied from 23.08 ± 1.98 to 79.37 ± 4.32 mg QE/g in Sigoise and Chemlal, respectively (Table I).

Table I: Total phenolic and flavonoids contents in Chemlal and Sigoise cultivars

Cultivars	Chemlal	Sigoise
Total phenolic content (mg GAE/g)	238, 32 \pm 3.21	141.18 \pm 2.27
Total flavonoids (mg QE/g)	79.37 \pm 4.32	23.08 \pm 1.98

On the other hand, results demonstrated that Chemlal cultivar showed the highest antiradical activity with



88, 32% inhibition of DPPH and β -carotene bleaching inhibition method (72 %). A high positive correlation was observed between total phenolic content and DPPH and β -carotene bleaching inhibition (Fig.1).

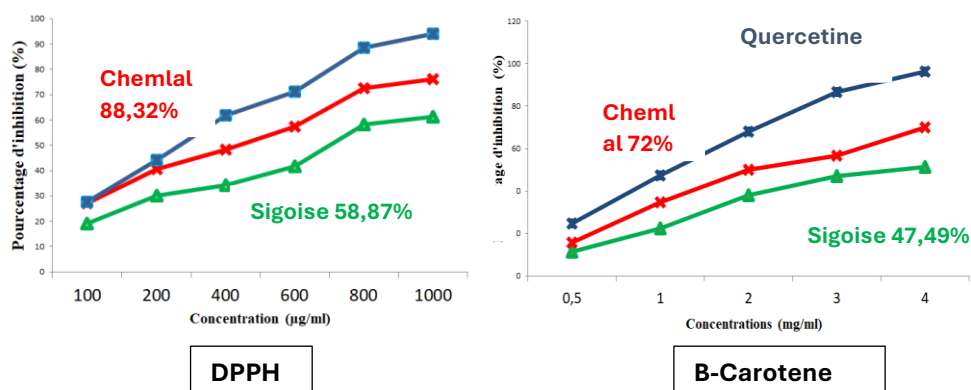


Figure 1: Antiradical activity (DPPH) and β -carotene bleaching inhibition of Chemlal and Sigoise cultivars.

This result is in agreement with those obtained in previous studies [2]. This is probably attributed to the presence of one or more hydroxyle groups on their aromatic ring [3].

4 Conclusion

Results of this study demonstrated that *Olea europaea* leaves (Sigoise and Chemlal) can represent an important natural source of high antioxidant potential and could contribute with different benefits in pharmaceutical field, food preparation and cosmetics due to the presence of bioactive compounds.

5 Acknowledgements

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