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Phytochemical Analysis and Antioxidant Activity of *Tetraclinis Articulata* Leaves Extract from the Fergoug Forest in Mascara, Algerian Western Region.

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ABSTRACT

Antioxidants derived from plants, particularly phenolics, have garnered significant attention owing to their potential advantages for human health. The purpose of this study was to assess the phytochemical composition and in vitro antioxidant activity of the aqueous extract from *Tetraclinis articulata* leaves. Qualitative examinations were conducted on leaf extracts to identify the total polyphenols. Their concentration was determined spectrometrically using the Folin–Ciocalteu procedure. The antioxidant efficiency was tested using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging method. Phytochemical screening indicated the presence of phenolics, with a total polyphenol concentration of 57.5 mg EGA/g DW. The DPPH method showed a strong radical scavenging activity, exhibiting an inhibition percentage of 88,98% at a concentration of 1mg/ml. Based on these findings, it is evident that *T. articulata* leaves are abundant in secondary substances contributing to their antioxidant activity. Consequently, this plant holds promise as a potential candidate for the formulation of natural drugs or additive preparations.

Keywords: *Tetraclinis articulata*, leaf, total polyphenols, antioxidant activity.

1 Introduction

Tetraclinis articulata, a widely recognized traditional medicinal plant from the Cupressaceae family, has been employed in the treatment of diverse ailments, including diabetes, rheumatism, and infectious diseases [1]. The objective of this study was to characterize and quantify the polyphenolic compounds within the aqueous extract of *T. articulata* leaves and assess its antioxidant properties.

2 Experimental

Phenolics were extracted through a decoction method, and their screening and quantification were conducted using the FeCl₃ test and Folin-Ciocalteu method, respectively. Furthermore, their in vitro antioxidant properties were explored through the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging test [2].

3 Results and Discussion

The outcomes of this study revealed that the aqueous extract of *T. articulata* leaves is abundant in phenolic compounds, with a total phenolic concentration of 57.5 mg EGA/g DW. The extract exhibited a significant DPPH scavenging activity of 88.98% at a concentration of 1 mg/ml. There was a noticeable rise in DPPH scavenging activities corresponding to the increased phenolic components concentration, as shown in figure 1. These findings suggest that the rich phytochemical content of *T. articulata* and its good antioxidant activity may be responsible for its popular and wide traditional use [3].



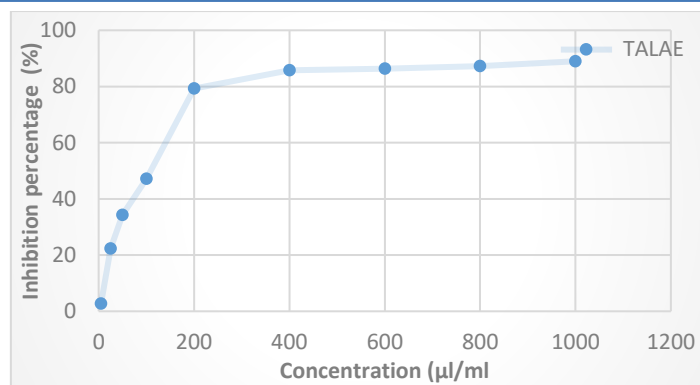


Figure 1: Antiradical activity of TALAE. TALAE: *T. articulata* leaf aqueous extract.

4 Conclusions

These results suggest that *T. articulata* have strong antioxidant potential. Further study is necessary for isolation and characterization of the active antioxidant agents, which can be used to treat various oxidative stress-related diseases.

References

- [1]: Khatib S., Sobeh M., Bouissane L., Tetraclinis articulata (vahl) masters: An insight into its ethnobotany, phytochemistry, toxicity, biocide and therapeutic merits, *Front. Pharmacol* (2022) 01.
- [2]: Schlesier K., Harwat M., Böhm V., and Bitsch R., Assessment of Antioxidant Activity by Using Different In Vitro Methods, *Free Radical Research* (2002) 177.
- [3]: Bourkhiss M., Hnach M., Bourkhiss B., Ouhssine M., and Chaouch A., Composition chimique et propriétés antimicrobiennes de l'huile essentielle extraite des feuilles de *Tetraclinis articulata* (Vahl) du Maroc, *Afrique Science: Revue Internationale Des Sciences et Technologie* (2010) 232.