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DEPARTMENT OF BIOLOGY AND ANIMAL PHYSIOLOGY

DISSERTATION

Presented by

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TOPIC

Evaluation of biological activities of olive oil (*Olea europaea* L.) of some local varieties cultivated in Setif regions

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Panel discussion

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Dedication

To my dear parents Miloud, Saida

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Heyem.

Titre : Évaluation des activités biologiques des huiles d'olive (*Olea europaea* L.) de quelques variétés locales cultivées dans la région de Sétif

Résumé

Cette étude vise à évaluer les activités biologiques et la teneur en composés bioactifs des huiles d'olive extraites de trois cultivars locaux algériens : Aguenaou, Sigoise et Agrarez, cultivés traditionnellement dans la région de Sétif. L'objectif de ce travail est d'examiner leur potentiel d'utilisation en tant qu'agents thérapeutiques et cosmétiques en analysant la teneur en polyphénols et l'activité anti-inflammatoire in vivo. Les analyses spectrophotométriques ont révélé une forte teneur en composés phénoliques, notamment dans l'huile de Sigoise. Le modèle d'œdème de la patte induit par le carraghénane a montré de puissants effets anti-inflammatoires : les taux d'inhibition étaient de 95,31 % pour Sigoise, 89,4 % pour Aguenaou et 94,27 % pour Agrarez après 5 heures de traitement. Ces résultats confirment que ces huiles locales, en particulier celle de Sigoise, possèdent un fort potentiel thérapeutique et peuvent être intégrées dans des formulations cosmétiques et médicinales naturelles. Il est recommandé de poursuivre les recherches afin d'identifier précisément les composés actifs et de développer des produits thérapeutiques améliorés.

Mots clés : *Olea europaea* L., huile d'olive, activité anti-inflammatoire, potentiel thérapeutique, molécules bioactives, valorisation**.**

Title: Evaluation of biological activities of olive oils (*Olea europaea L.*) of some local varieties cultivated in Setif regions.

Abstract

This study aims to evaluate the biological activities and bioactive compound content of olive oils extracted from three local Algerian cultivars: Aguenaou, Sigoise, and Agrarez, traditionally cultivated in the Setif region. The objective of this work is to investigate their potential use as therapeutic and cosmetic agents by analyzing the polyphenol content and in vivo anti-inflammatory activity. Spectrophotometric analyses revealed a high content of phenolic compounds, especially in Sigoise oil. The carrageenan-induced paw edema model showed strong anti-inflammatory effects: inhibition rates were 95.31% for Sigoise, 89.4% for Aguenaou, and 94.27% for Agrarez after 5 hours of treatment. These results confirm that these local oils, particularly Sigoise oil, possess high therapeutic potential and can be incorporated into natural cosmetic and medicinal formulations. Further research is recommended to accurately identify the active compounds and develop improved therapeutic products.

Key words: *Olea europaea* L., olive oil, anti-inflammatory activity, therapeutic potential, bioactive molecules, valorization.

العنوان: تقييم الأنشطة البيولوجية لزيوت الزيتون (*Olea europaea* L.) لبعض الأصناف المحلية المزروعة في منطقة سطيف

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الملخص

يهدف هذا البحث إلى تقييم الأنشطة البيولوجية ومحتوى المركّبات النشطة بيولوجيًا لزيوت الزيتون المستخلصة من ثلاث أصناف محلية جزائرية: أڤيناو، سيڤواز، وأغرارز، المزروعة تقليديًا في منطقة سطيف. هدف هذا العمل هو دراسة إمكانية استخدامها كعوامل علاجية وتجميلية من خلال تحليل محتوى البوليفينولات، والنشاط المضاد للالتهابات في الجسم الحي. كشفت التحاليل الطيفية عن محتوى عالي من المركّبات الفينولية، خاصة في زيت سيڤواز. أظهر نموذج وذمة المخلب المستحثة بالكاراجينين تأثيرات مضادة للالتهابات قوية: نسبة التثبيط بلغت 95.31% لسيڤواز، 89.4% لأڤيناو 94.27% لأغرارز بعد 5 ساعات من المعالجة. تؤكد هذه النتائج أن هذه الزيوت المحلية، خصوصًا زيت سيڤواز، تمتلك إمكانات علاجية عالية ويمكن إدماجها في مستحضرات تجميلية وطبية طبيعية. يوصى بمواصلة الأبحاث لتحديد المركّبات النشطة بدقة وتطوير منتجات علاجية محسّنة.

الكلمات المفتاحية:
. زيت الزيتون، النشاط المضاد للالتهابات، الإمكانات العلاجية،، المركّبات النشطة بيولوجيًا، التثمين.Olea europaea L