الجمهورية الجزائرية الديمقراطية الشعبية وزارة التعليم
العالي والبحث العلمي

Setif-1University Ferhat Abbas
Faculty of Nature and Life Sciences

جامعة سطيف-1 فرحات عباس
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DEPARTMENT OF BIOCHEMISTRY

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MEMORY

Presented by

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This thesis is for the purpose of obtaining for the degree of :

MASTER

Field: Biological Sciences

Special filed: Applied Biochemistry

TOPIC

Extraction, ethnopharmacological study and evaluation of *in vitro* antioxidant, anti-inflammatory activities of *Urtica dioica* L .

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ACKNOWLEDGEMENTS

AND

DEDICATION

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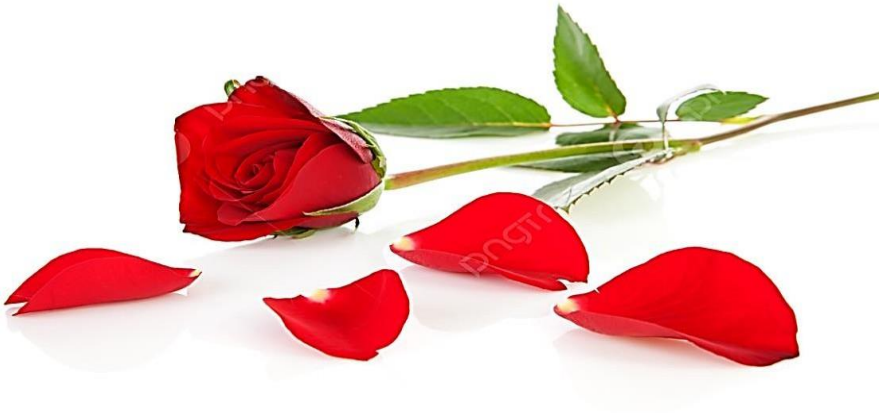

Dedication

To Allah Almighty, all praise is due to Him at the beginning and the end, for He is the source of success and the giver of strength at all times.
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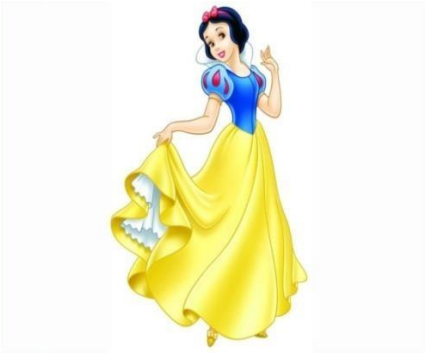

IKRAM

Dedication

In the name of God, and with His praise I begin, and to Him be praise always and forever, to those who, after God, have the credit for every success I have achieved, to those who planted in my heart the love of knowledge, and awakened in me ambition, and stayed up all night raising and educating me.

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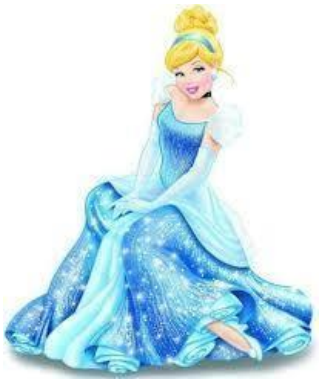

AYA

ABSTRACTS

الملخص

تُعد نبتة القراص (*Urtica dioica* L.) من النباتات الطبية تنتمي لعائلة القراصيات(*Urticaceae*) ، وقد استُخدمت منذ القدم في الطب التقليدي وكغذاء في العديد من البلدان، لا سيما في منطقة حوض البحر الأبيض المتوسط. يهدف هذا البحث إلى دراسة الخصائص الإثنوفارماكولوجية، والأنشطة المضادة للأكسدة، والمضادة للالتهاب لمستخلص منقوع نبات القراص في المختبر.أُجري مسح إثنوفارماكولوجي لتوثيق الاستخدامات التقليدية لهذا النبات في الطب الشعبي. بالإضافة إلى ذلك، أُجري تحليل كمي لتحديد محتوى البوليفينولات والفلافونويدات والتانينات. تم تقييم الفعالية المضادة للأكسدة باستخدام طريقة تثبيط الجذور الحرة DPPH ، إلى جانب تقييم النشاط المضاد للالتهاب في المختبر وكذلك اختبارات السمية. أظهرت البيانات الإثنوفارماكولوجية أن 78.8٪ من المشاركين أفادوا باستخدام هذا النبات في الطب التقليدي. وكشفت النتائج الكمية أن مستخلص المنقوع يحتوي على البوليفينولات (12.83 ± 0.11 ميكروغرام مكافئ حمض الغاليك) ، الفلافونويدات (1.74 ± 0.19 ميكروغرام مكافئ كيرسيتين)، والتانينات (14.35 ± 2.00 ميكروغرام مكافئ كاتيشين) لكل من المستخلص الجاف على التوالي. أظهر المستخلص نشاطاً ملحوظاً كمضاد للأكسدة بقيمة IC_{50} بلغت 0.15 ملغ/مل. كما أظهر نشاطاً مضاداً للالتهاب بشكل واضح وبطريقة تعتمد على الجرعة .علاوة على ذلك، لم يُظهر المستخلص أي علامات سمية عند جرعة 2 غ/كغ. تُعزز هذه النتائج العلاقة بين الاستخدامات التقليدية لنبات *Urtica dioica* L. وفعاليته المثبتة علمياً، مما يدعم إمكانية استخدامه مستقبلًا في التطبيقات العلاجية القائمة على أسس علمية.

الكلمات المفتاحية :*Urtica dioica* L.، مسح إثنوصيدلاني، بوليفينولات، نشاط مضاد للأكسدة، نشاط مضاد للالتهاب، سمّية.

Abstract

Urtica dioica L. is a medicinal plant belonging to the *Urticaceae* family. It has long been used in traditional medicine and as food in many countries, particularly in the Mediterranean region. The present study aimed to investigate the ethnopharmacological study, *in vitro* antioxidant and anti-inflammatory activities of infusion extract of *Urtica dioica* (AqE). An ethnopharmacological survey was conducted to document its traditional uses in folk medicine. Furthermore, a quantitative analysis was carried out to determine the content of polyphenols, flavonoids, and tannins in this plant. The antioxidant activity was evaluated using the DPPH radical scavenging method, along with *in vitro* anti-inflammatory activity and toxicity assessments. The ethnopharmacological data revealed that 78.8% of the participants reported using this plant in traditional medicine. Quantitative results showed that the AqE present an amount contents of polyphenols, flavonoids, and tannins were 12.83 ± 0.11 µg gallic acid equivalents, 1.74 ± 0.19 µg quercetin equivalent, and 14.35 ± 2.00 µg catechin equivalent/mg dry extract, respectively. The AqE exhibited a significant antioxidant activity with an IC_{50} value of 0.15 mg/ml. In the *in vitro* anti-inflammatory effect, the extract exhibited a significant and dose dependent anti-inflammatory activity. Furthermore, the AqE showed no toxicity at a dose of 2 g/kg. This consistency between the results and the traditional uses of the plant *Urtica dioica* L. in folk medicine strengthens the credibility of its medicinal efficacy and supports the scientific basis for its potential use in future therapeutic applications.

Key words: *Urtica dioica* L., ethnopharmacological survey, polyphenols, antioxidant activity, anti-inflammatory activity, toxicity.