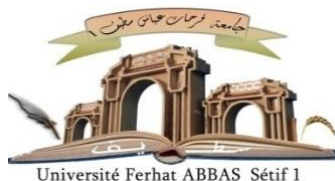


الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي والبحث العلمي

Université Sétif 1, Ferhat
ABBAS
Faculté des Sciences de la
Nature et de la Vie



جامعة ، سطيف 1 ، فرحات عباس
كلية علوم الطبيعة والحياة

DÉPARTEMENT DE BIOTECHNOLOGIE

N°.....

MEMOIRE

Présenté par

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Pour l'obtention du diplôme de

MASTER

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THEME

**Storage of expires pesticide products and their associated environmental
and health issues**

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Dedication

This work is dedicated with all my love and gratitude to those who have truly shaped my journey.

To my **mother**, the soul of our home your endless love, prayers, and comforting words have been my greatest strength.

To my **father**, whose wisdom, sacrifices, and quiet support have always guided me thank you for believing in me, even when you didn't say it out loud.

Also, i dedicate this achievement to my **sister** and **little brother**, with love and pride. May this milestone inspire you as much as your presence has motivated me.

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Bounefla Mohamed Ali

المخلص :

تُعدّ إدارة مخزونات المبيدات المنتهية الصلاحية تحديًا حيويًا، لا سيّما في البلدان النامية حيث تفتقر البنية التحتية والتنظيم والتوعية المجتمعية. تهدف هذه الدراسة إلى تقييم آثار المبيدات المنتهية الصلاحية على البيئة وصحة الإنسان، مع التركيز على آليات التحلل، ومسارات التعرض، والتأثيرات السامة للنواتج الثانوية المتحللة. من خلال مقارنة متعددة التخصصات تشمل التكنولوجيا الحيوية وعلم الأمراض، تكشف الدراسة عن مخاطر هذه المواد على جودة التربة والمياه، وتنوع الكائنات الحية الدقيقة، والجهاز الفسيولوجي للإنسان، لا سيّما من خلال تأثيراتها العصبية، والهرمونية، والسرطانية، والوراثية اللاجينية. كما تسلط الضوء على ثغرات في النظام التنظيمي في الجزائر. تُختتم الدراسة بتوصيات لتحسين أساليب الجمع والمراقبة والوقاية بما يتماشى مع الواقع المحلي.

الكلمات المفتاحية: المبيدات المنتهية، السمية، نواتج التحلل، التأثير الصحي، التلوث البيئي، التكنولوجيا الحيوية، إدارة المخاطر.

Abstract :

The management of expired pesticide stocks remains a critical challenge, particularly in developing countries where regulatory enforcement, infrastructure, and public awareness are limited. This research investigates the environmental and human health impacts of expired pesticides, focusing on their degradation mechanisms, pathways of exposure, and the systemic toxicity of their by-products. Through an interdisciplinary approach that integrates biotechnology and pathology, the study highlights the risks posed by degraded compounds on soil and water quality, microbial biodiversity, and human physiology particularly through neurotoxic, endocrine, carcinogenic, and epigenetic effects. The research also identifies structural deficiencies in Algeria's regulatory and disposal systems. Recommendations are proposed to support safe collection, monitoring, and preventive strategies adapted to local contexts.

Keywords: Expired pesticides, toxicology, degradation products, health impact, environmental pollution, biotechnology, risk management.

Résumé :

La gestion des stocks de pesticides périmés constitue un enjeu majeur, notamment dans les pays en développement où les infrastructures, la réglementation et la sensibilisation du public sont insuffisantes. Ce mémoire analyse les impacts des pesticides périmés sur l'environnement et la santé humaine, en étudiant leurs mécanismes de dégradation, les voies d'exposition, ainsi que la toxicité systémique de leurs sous-produits. En mobilisant une approche interdisciplinaire entre biotechnologie et pathologie, l'étude révèle les effets néfastes des résidus dégradés sur les sols, les eaux, la biodiversité microbienne et la santé humaine en particulier par des effets neurotoxiques, endocriniens, cancérigènes et épigénétiques. L'étude met aussi en lumière les limites du cadre réglementaire algérien. Des recommandations sont proposées pour améliorer la collecte, la surveillance et la prévention, adaptées au contexte local.

Mots clés : Pesticides périmés, toxicologie, produits de dégradation, santé humaine, pollution environnementale, biotechnologie, gestion des risques.