

Hepatoprotective effect of *cichorium intybus* linn(kasni)  
seeds extracts on carbon tetrachloride induced liver  
damage in albino mice

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DEPARTMENT OF CHEMISTRY  
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UNIVERSITY OF MANAGEMENT AND TECHNOLOGY,  
LAHORE, PAKISTAN (2017)

Hepatoprotective Effect of *Cichorium intybus* Linn  
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Liver Damage in Albino Mice

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IN  
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**BY  
AMNA KHALID**

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**SESSION: 2015-2017**

**DEPARTMENT OF CHEMISTRY  
SCHOOL OF SCIENCE  
UNIVERSITY OF MANAGEMENT AND TECHNOLOGY,  
LAHORE, PAKISTAN**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

“One who treads a path in search of knowledge has his path to Paradise  
made easy by God” The Prophet Muhammad (PBUH) (Riyadh us-Saleheen, 245)

## RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis titled “Hepatoprotective effect of *Cichorium Intybus* linn (Kasni) Seeds extracts on Carbon Tetrachloride induced Liver Damage in albino mice” has been carried out and completed by **AMNA KHALID, ID:15005140039**, The quantum and the quality of the work contained in this thesis is adequate for the award of Degree of MS/M.Phil.

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## DECLARATION

I **AMNA KHALID D/O KHALID IBRAHIM: 15005140039** Session **2015-2017** hereby declare that the matter printed in the thesis titled **“Hepatoprotective effect of *Cichorium Intybus* linn (Kasni) Seeds extracts on Carbon Tetrachloride induced Liver Damage in albino mice.”**is my own work and has not been printed, published and submitted as research work, thesis or publication in any form in any University, Research institution etc. in Pakistan or Abroad.

Dated:-----

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(*AMNA KHALID*)

## DEDICATION

*This thesis work is dedicated to my husband, Rehman Qazi, who has been a constant source of support and encouragement during the challenges of study and life. I am truly thankful for having you in my life. This work is also dedicated to my lovely kids, Zinnerah and Abdul Haadi, who have always loved me unconditionally and whose faith have encouraged me to work hard for the things that I aspire to achieve. Special thanks to my mother and mother in law for encouragement, support and love. I love you all.*

## ACKNOWLEDGEMENT

**"In the middle of difficulty lies opportunity."** (Albert Einstein)

All my praises and love belongs to **ALLAH ALMIGHTY**, the most Merciful, the most Beneficent, Ruler of the Universes, who created everything, from the sub-particles of an atom to this universe. He, who's Praise, has no bounds. He has been with me through thick and thin of life and enabled me in tiding over the difficulties. His perpetuate patronage is Treasure of my life.

Many respects and praises for HIS last **PROPHET MUHAMMAD (P.B.U.H)** Who himself has been sent as a teacher for the whole world to enable us to recognize our Creator and understand the meaning of life.

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*Amna Khalid*

## ABSTRACT

Present investigations were carried out to establish the medicinal value of *Cichorium intybus* Linn. synonym chicory,. This medicinal plant belongs to the family Asteraceae. The objective of this research was to evaluate the hepatoprotective effect of *Cichorium intybus* on the damaged liver of Swiss Albino mice by the induction of CCl<sub>4</sub>. The aqueous alcoholic seeds extract of chicory were provided orally in different doses 100 mg/kg, 250 mg/kg and 500mg/kg to albino mice divided into groups, each group had six mice. The dose was given for seven days and on the very next day of last dose followed by CCl<sub>4</sub>, a healthy mouse of each group was sacrificed, blood was taken in EDTA tubes and liver was stored in formalin solution. ALTs kits were used to test the blood of animals. It was observed that the levels of serum enzymes including Serum Glutamate pyruvate transaminase (SGPT), Alkaline Phosphate (ALKP), Serum Glutamate Oxaloacetate Transaminase (SGOT), and bilirubin were decreased. For comparative analysis silymarin was used as a standard drug. The results clearly revealed that , the values of SGPT, SGOT, ALKP and Bilirubin were 56.05, 58.25, 139.11, 0.81 for negative control group, 57.06, 88.28, 137.85, 0.38 for positive control group, 107.89, 119.54, 158.36, 1.43 for *C. intybus* group (100 mg/kg), 91.44, 92.67, 189.41, 1.05 for *C.intybus* group (250 mg/kg) and 80.21, 74.29, 163.24, 0.78 for *C. intybus* group (500 mg/kg) repectively. The histopathological studies of mice liver were also carried out . This study showed that the plant seeds extract of 500mg/kg showed more positive effect rather than 250 mg/kg and 100 mg/kg against CCl<sub>4</sub> induced liverdamage. The results infered that the aqueous alcoholic seeds extract of *Cichorium intybus* showed excellent hepatoprotective effect against CCl<sub>4</sub> induced liver damage in albino mice. This study proved that *Cichorium intybus* acts as an indigenous plant which is highly effective for the liver problems. Further work on *Cichorium intybus* is needed to isolate biological and chemical components from the seeds and to evaluate the biological activity of refined constituents.

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# Chapter 1 Introduction

## 1.1 Liver diseases

Liver disease is one of the major health problems worldwide now a day. World Health Organization reported that 75 % of the world's population depends upon the traditional medicines of plant origin (Rai,2000) for the liver treatment. Liver is the major site of metabolic activities. The production of harmful and toxic fluids or chemicals in the liver results in numerous hepatic problems which could be life threatening.