# PHARMACOGNOSTICAL AND BIOLOGICAL STUDIES Of *PLUMBAGO AURICULATA* Lam.

**A Thesis**

**Submitted for the Degree of Doctor of Philosophy in Botany**

**By**

Adawia Mahmoud Kitaz
**{M. Sc.}**

**Under Supervision**

Dr. Magdy Mohamed Mourad
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***Department of Tannins Chemistry and Leather Technology, NRC***

Dr. Magda Tohamy Ibrahim
***Lecturer of Pharmacognosy***
***Faculty of Pharmacy (Girls), Al-Azhar University***

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**2005**

**Approval Sheet**

**Title of Thesis:** Pharmacognostical and biological studies of *Plumbago auriculata* Lam.

**Name of student:** Adawia Mahmoud Kitaz

**Degree**: Ph. Dr. in Science

**This thesis for the degree of Doctor of Philosophy in Botany**

**Has been approved by:**

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***Dr. Fatma Abdel Kader Moharram**

***Dr. Mohamed Soubhi Marzouk**

***Dr. Magda Tohamy Ibrahim**

**(Committee in Charge)**

**Date: / /2005**
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# A Thesis

## Submitted for the Degree of Doctor of Philosophy in Botany

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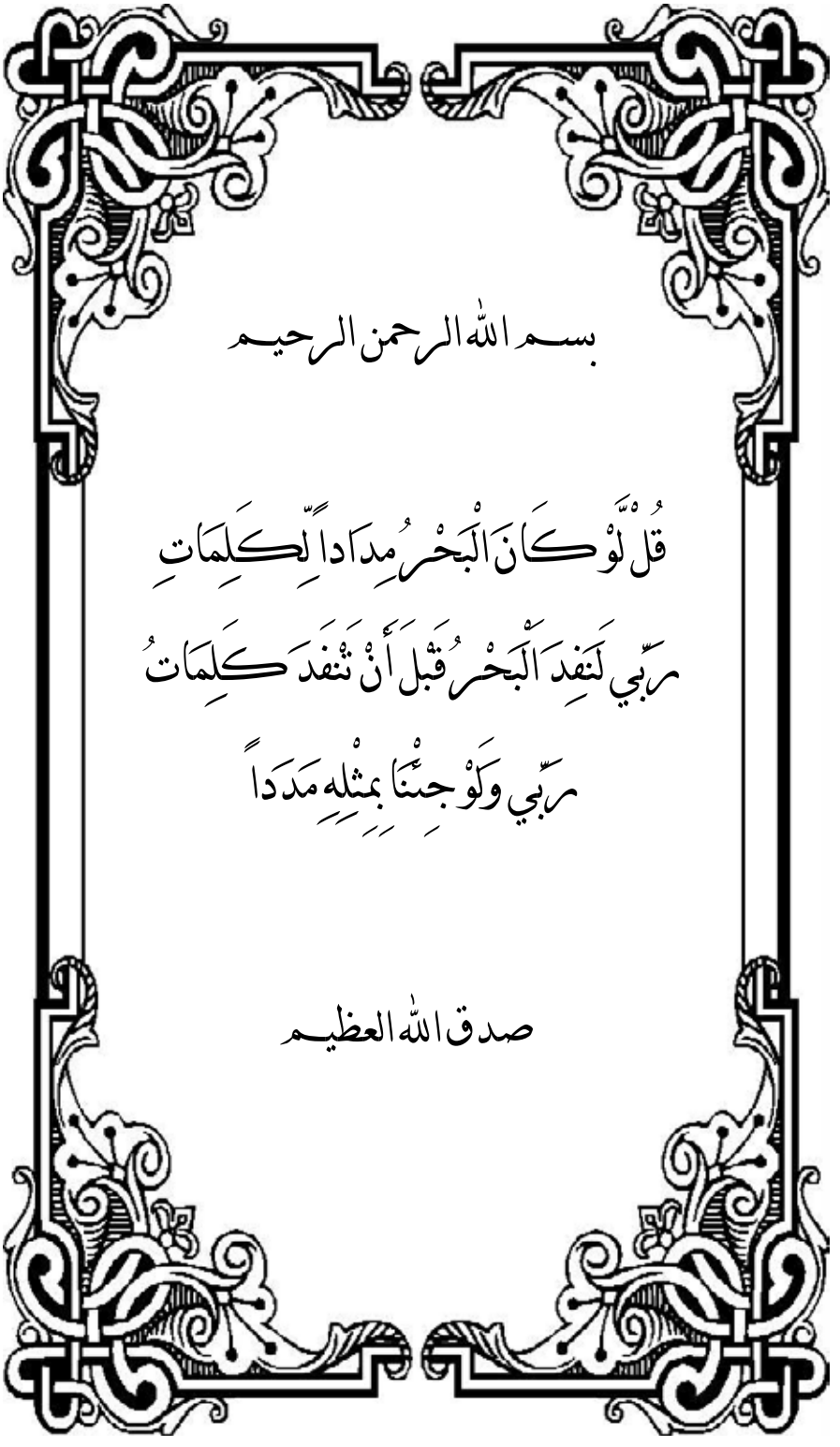
**Head of Botany Department**
**Prof Dr. Raeefa A. Hasanin**

# Declaration

**This thesis has not been previously submitted for a degree at this or at any other University**

**Adawia Mahmoud Kitaz**



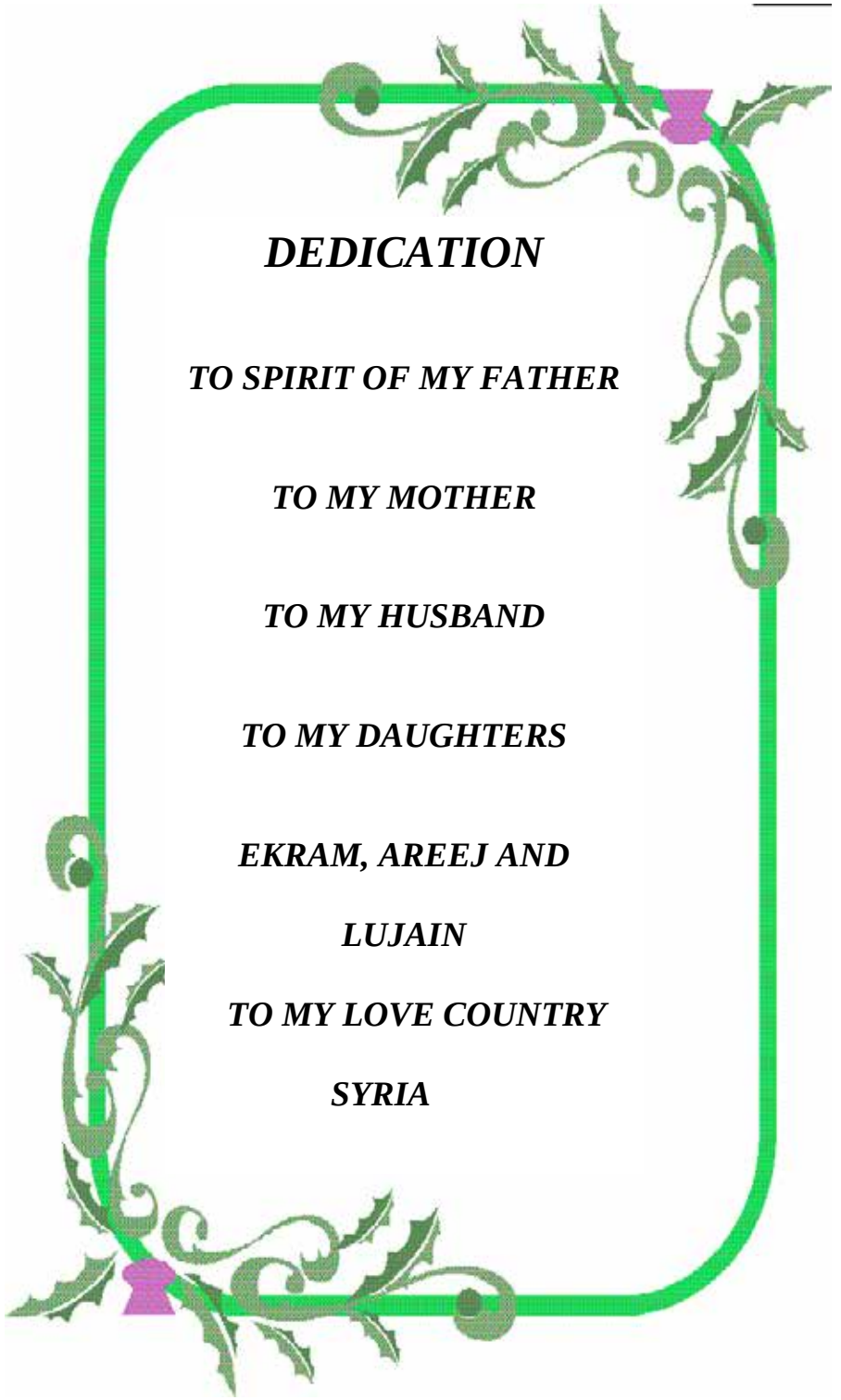
بسم الله الرحمن الرحيم

قُلْ لَّوْ كَانَ الْبَحْرُ مِدَاداً لِّكَلِمَاتِ

رَبِّي لَنَفِدَ الْبَحْرُ قَبْلَ أَنْ تَنْفَدَ كَلِمَاتُ

رَبِّي وَلَوْ جِئْنَا بِمِثْلِهِ مَدَداً

صدق الله العظيم



# *DEDICATION*

***TO SPIRIT OF MY FATHER***

***TO MY MOTHER***

***TO MY HUSBAND***

***TO MY DAUGHTERS***

***EKRAM, AREEJ AND***

***LUJAIN***

***TO MY LOVE COUNTRY***

***SYRIA***

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# Abbreviations

| | |
|---|---|
| **Amm.** | **A**mmonia |
| **$^{13}$C-NMR** | **$^{13}$C**arbon-**N**uclear **m**agnetic **r**esonance |
| **$^{1}$H-NMR** | **P**roton **n**uclear **m**agnetic **r**esonance |
| **2D/PC** | **T**wo **d**imensional **p**aper **c**hromatography |
| **BAW** | **B**utanol: **A**cetic acid: **W**ater |
| **BIW** | **B**utanol**: I**sopropanol: **W**ater |
| **CC** | **C**olumn **c**hromatography |
| **ESI** | **E**lectrospray **i**onization |
| **GLC** | **G**as **l**iquid **c**hromatography |
| **$LD_{50}$** | **L**ethal **d**ose **&** the dose causing death of 50% of the tested animal |
| **NA/PE** | **N**atural **p**roduct/ **p**oly**e**thylene glycol |
| **OD** | **O**ptical **d**ensity |
| **PC** | **P**aper **c**hromatography |
| **PPC** | **P**reparative **p**aper **c**hromatography |
| **Rpm** | **R**evolution **p**er **m**inute |
| **TLC** | **T**hin **l**ayer **c**hromatography |

# List of Tables