CHEMICAL AND PHARMACOLOGICAL STUDIES ON THE SEEDS OF PRUNUS MAHALEB

A THESIS
SUBMITTED BY

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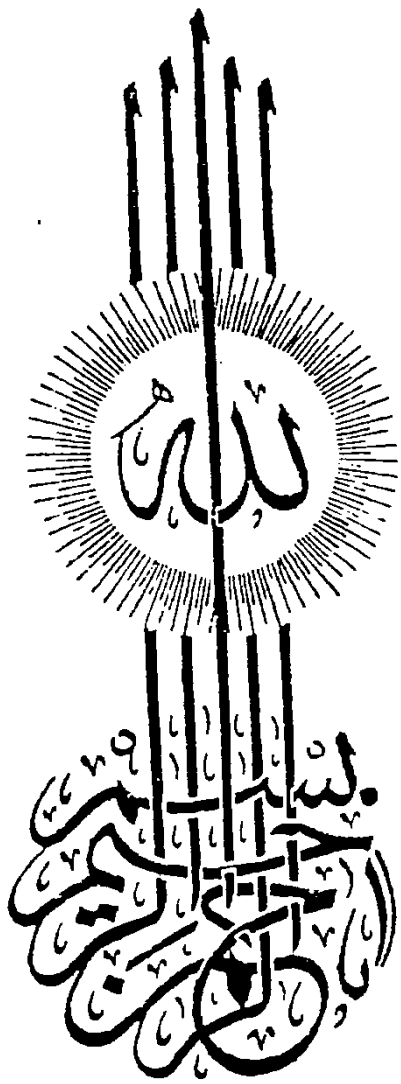

سبحانك

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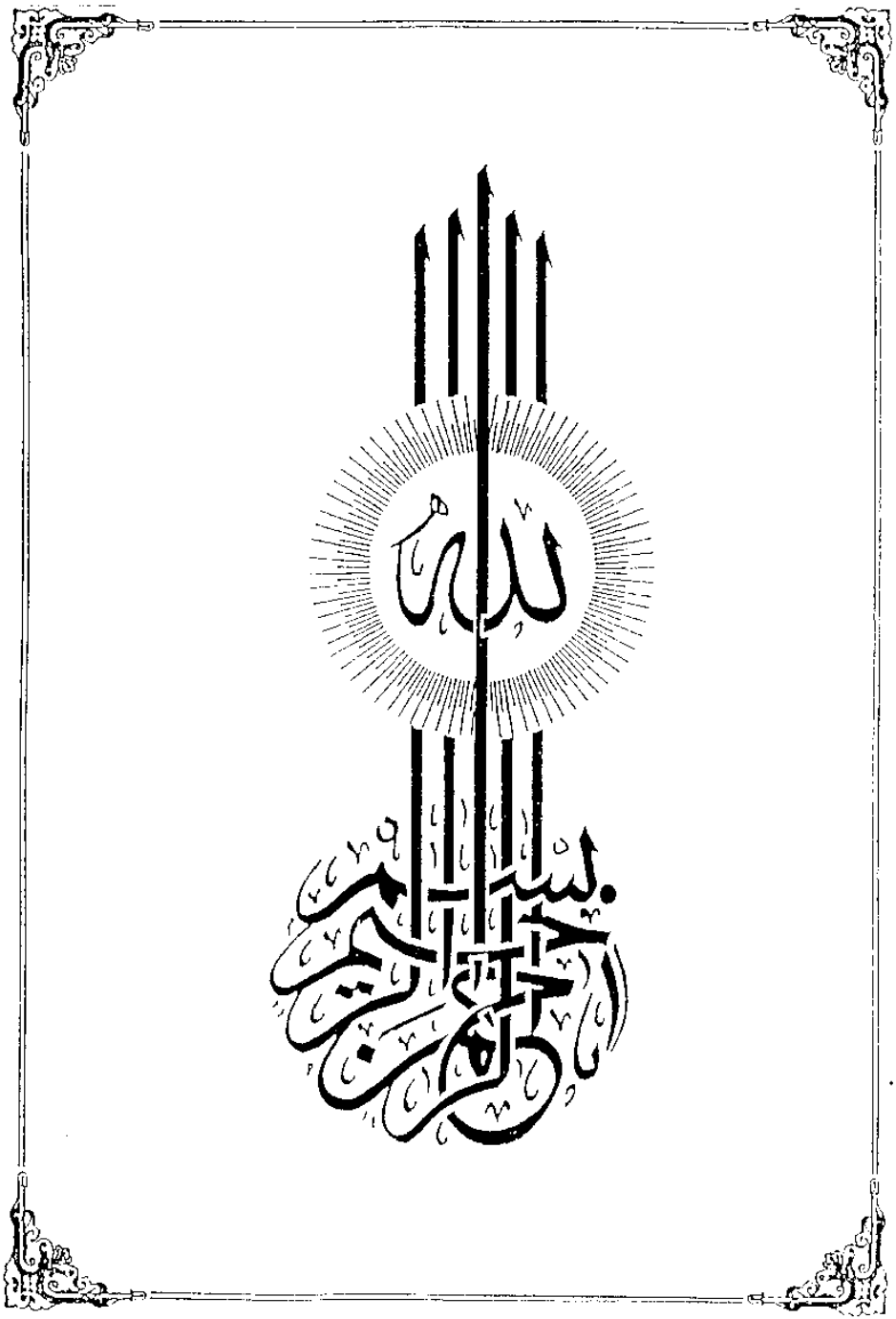

TO
MY DEAREST FATHER
AND MOTHER

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Summary

The research investigations presented in this thesis deal with chemical studies of *Prunus mahaleb L.* kernels besides pharmacotoxicity screening of certain organic extracts and the oil fraction isolated therefrom.

The text of this thesis includes:

1- Comprehensive review of published reports in literature on the chemical constituents of *Prunus mahaleb L.* kernels notably with reference to coumarins and lipid fraction contents.

2- The phytochemical study of the coumarins fraction resulted in the isolation of three compounds; one of them isolated for the first time.

These compounds were identified by:

UV, IR, MS, ^{1}H-NMR and ^{13}C-NMR.

* The new compound: 2-glucosyloxy-4-methoxy methyl *trans* cinnamate $C_{17}H_{22}O_9$

* Coumarin $C_9H_6O_2$

and * 7-methoxy coumarin $C_{10}H_8O_3$

3- The fractionation of the oil resulted in the isolation and identification of the following by gas chromatography and gas chromatography/ mass spectrometry techniques:-

a) The fatty acids which indicated the presence of 20 fatty acids, 17 one of them were identified;

from which oleic acid ($C_{18:1}$) and linoleic acid ($C_{18:2}$) were the major constituents.

b) The hydrocarbons fraction resulted in the isolation and identification of 18 hydrocarbons (n-C_{10} - n-$C_{32unsat}$)

c) The sterols fraction comprising:-

1- Cholesterol

2- Stigmasterol

3- β-Sitosterol

and 4- Campesterol

4- The mucilage fraction represented the presence of only one sugar which was identified as Arabinose.

5- The pharmacotoxicity studies were carried out on the total and defatted ethanolic extracts as well as the oil fraction:-

* The acute toxicity determinations were undertaken to define the limits of the lethal toxic doses; using the method of Litchfield and Wilcoxon for statistical evaluation of dose mortality data yielding the following estimates:-

	i.p.LD_{16}	i.p.LD_{50}	i.p.LD_{84}
Total extract	3	7	9
Defatted extract	3.35	4.5	6

The oil fraction proved to be extremely safe and free from any acute lethal toxicity in graded i.p. and oral doses up to 100ml/kg B.W.

* *In-vivo* assessment of [illegible] efficacy afforded by 7 days course of daily medication