Cairo University

Faculty of Veterinary Medicine

Department of Pharmacology

Some Pharmacological and Toxicological Studies on Some Constituents of Apricot Seeds.

Thesis submitted by

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Abstract

The present study aimed to investigate some phytochemical, toxicological and pharmacological activities of ethanolic apricot seeds extracts. Different phytochemicals were analyzed. The phytochemical screening was done for determination of total phenolic compounds by Folin–Ciocalteu method, total flavonoids by aluminum chloride colorimetric method, total carotenoids by colorimetric method and amygdalin content by using HPLC. The anti-inflammatory activity and total antioxidant capacity of the extracts were done. The anti-inflammatory activity was done *in vitro* by determination of the half maximal inhibitory concentration (IC_{50}) values for inhibition of the enzymes cyclooxygenase 1, 2 (COX-1, COX-2). The total antioxidant capacity was determined by determination of DPPH (1, 1-diphenyl-2-picryl-hydrazyl) radical scavenging activity. The *in-vitro* cytotoxicity of extracts on normal human lung cell line and liver cancer cells (HepG2) was determined. The toxicological studies (Acute toxicity) of 70% and 99.9% ethanolic extracts were investigated. The oral anti-inflammatory, analgesic, hepatoprotective, antioxidant and anticancer activity were also investigated. Phytochemical screening revealed that the amount of total phenolic compounds was 179.4 and 191.2 µg gallic acid equivalent / g dry extract, the amount of total flavonoids was 226.18 and 509.34 µg rutin equivalent / g dry extract, the amount of total carotenoids was 0.145 and 0.156 mg / g dry extract, the amount of β-carotene was 0.01 mg / g dry extract and the amount of amygdalin was 5.72 g and 10.22 g / 100 g extract for 70 % and 99.9% ethanolic apricot seeds extracts, respectively. IC_{50} was 10.4, 0.33 and 7.45, 0.074 and 15.1, 0.049 and 8.7, 0.064 um for COX-1 and COX-2 for 70 % and 99.9% ethanolic extracts, Celecoxib (standard) and amygdalin, respectively. The percentage of DPPH radical-scavenging activity of 70% ethanolic extract was 93.5, 88.3, 80.2, and 59.4 % for 10, 5, 1.5, 0.5 mg / ml respectively and for 99.9% ethanolic extract was 94.2, 88.9, 87.3, 72.3 % for 10, 5, 1.5, 0.5 mg / ml respectively. IC_{50} of 70 % and 99.9 % ethanolic extracts and amygdalin was 3775.7, 3766.5, 2065 µg/ml for human normal lung cell line and 1653, 1565, 1275 µg/ml for liver cancer cells (HepG2). The acute toxicity revealed that both extracts had no toxic symptoms in rats, no mortalities appear by oral administration of upgraded doses from 1 g to 10 g / kg b.wt. The 70% and 99.9% ethanolic extracts and amygdalin exhibited significant analgesic, anti-inflammatory, hepatoprotective, antioxidant and anticancer activity in a dose of 100 and 200 mg / kg b.wt. for both extracts and 50 mg / kg b.wt. for amygdalin.

Keywords: apricot seeds, phytochemical, toxicological, pharmacological, amygdalin.

Dedicated to

My parents

My husband

My brothers and sisters

Who

Shared the responsibility of bringing me up

To be grateful

and

To all those who taught me.

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*In the name of **Allah** (SWT) the almighty who taught man about matter that he does not know and prayers and peace be upon our holy prophet **Muhammed** (SAW) and his good followers till the Day of Judgment.*

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CONTENTS

LIST OF TABLES

LIST OF FIGURES