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PHARMACOGNOSY, PHYTOCHEMISTRY AND PHARMACOLOGICAL SCREENING OF AMYGDALUS PERSICA – A REVIEW

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ABSTRACT
Alternative medication and natural remedies have been used from the ancient time for the treatment of human, medicinal plants are considered to be effective and most important for the above purposes. The Mother Nature has provided us with a huge count of Flora and fauna some of the natural medicinal plants are common that we use them in daily life without knowing their medicinal importance. Amygdalus Persica is the best example of it. The peach (Prunus Persica) is a decidous tree first domensticated and cultivated in eastern china it bears edible juicy fruits with various characteristics most Called " peaches " and others. Amygdalus persica bark is used to diagnostic problem and hyperplasia and also used to treating the nausea, vomiting. Flowers are also used for to relieve the symptoms of morning sickness and constipation. Amygdalus persica are mainly used in anti- Diabetic and antioxidant and also used in hyperpigmentation and antiheminitic Activity. This review article is since effort to put forward the medicinal importance and chemical details about the plant.

Keywords: Amygdalus persica, Prunus Persica, Pharmacology, Phytochemistry and Pharmacognosy.

INTRODUCTION

In various traditional sources of the medicinal plants have been extensively used for treatments various parts of the plants such as the leaves, fruits, the bark and roots and stems are used to preparation of medicine. The *amygdalus persica are* also been extensively used to traditional medicine in various cultures.

The specific name persica refers to as Persia it belongs to the "genus prunus" which includes cherry, apricot, almond and plum in the rose family. The peach classified with the almond in the subgenus of Amygdalus. The botonical name was prunes persica the leaves and the bark of the plants was used in nausea, vomiting, constipation,. Mainly used in anti-Diabetic and hyper-pigmentation and antimalarial activity. Peach is most popular fruit crop in many waster countries grown in Europe North and South America at the good range of different climatic conditions and soil types peaches show essential biological activity and are known to prevent many disease as it contains many secondary metabolites and are known to prevent many disease as it contains phenolic compounds and tocopherols and carotenoids.

SYNONYMS

Amygdalus Persica, *Pygeum persica* Linn.

TRADITIONAL USES

- Peach leaves in infusion have been recommended in morbid irritability of the bladder and urethra, pertussis, ischuria, hematuria, and nausea as well as in all inflammations of the stomach and abdomen.
- Amygdalus is the remedy for irritation and congestion of the gastric is to control vomiting and assay the extreme irritability of the stomach
- It is also useful for gastric and abdominal tenderness, irritation and congestion with elongated pointed tongue with reddened tips and edges and prominent papillae nausea and vomiting intestinal and bronchial irritation, irritative diarrhoea, and anti-malarial activity extra.
- To relieve the symptoms of morning sickness and constipation.
- It is safe to use and so side effects.

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MORPHOLOGY CHARACTER

The evergreen trees and shrubs are naturally distributed in temperature regions, decidious and grownup to 10 m tall and are generally from Asia (or) southern Europe normally the bark is glabrous acuminate ashy (or) greyish the flowers are pinkish White, small and pedicelled Green leaves are very useful as astringent, expectorant, demulcent, diuretic, laxative, febrifungal and parasiticide, expectorant (used in cough, chronic bronchitis band whooping cough), sedative, demulcent, anti-scorbutic, stomachic diuretic are effective bark aid. It has unique character with wide range of colours and shapes from yellow to red fruit and skin, prunus species are also attributed as "stone fruit "

The leaves of the peach plants are flat alternating long lanceolate, 8-15 cm long, 15-35 mm wide, 1-1.5cm petioles with pinnately veined glands and small stipules.

The flowers are spring the flowers of the peach are produced much before the leaves they are single (or) combined with 2.5-3cm diameter.

The fruits have a delicate fragrance with a surface that is peach (or) glossy which are also called as Nectarines. This has a diameter of 1-5cm.

Seed of red brown around 1.3-2cm long oval is form and in enclosed by a wood like husk varieties of heirlooms are available.

PHARMACOGNOSY OF AMYGDALUS PERSICAL:

It is very rich in phytochemicals like phenolic compounds, carotenoids, vitamins, volatiles and organic acids. Phenolics, carotenoids and vitamins are known for their antioxidant properties. They exert a number of beneficial effects on cells through free radical scavenging and by participating in cells' signaling pathways. The phenolic compounds in peach-like quercetin, catechins and cyanidin derivatives.

PHYTOCHEMICAL SCREENING OF AMYGDALUS PERSICA:

Chemical Compound in Amygdalus Persica:

AMYDALUS PERSICA contains cyanogenetic glycosides, amygdalin and prunasin along with glycerides, sterols and emulsin as the main isolated components of the seeds. Rho et al. (2007) identified a new, persicaside which is an alkaloid compound and is isolated from the seed's methanol-soluble extract. The stem bark of the plant contains 6-hydroxy4-methoxy 2-O-β-Dglucopyranoside, 8-O-β-D-glactopyranoside crysophenol, β-sitosterol and quercetin. The leaves of the plant contain caffeic acid, chlorogenic acid, p-coumaric acid, kaempferol, quercetin, quercetin-3- glycoside, quercetin-3-rhamnoside, tannin, urosolic acid, and zeaxanthin. The plant's essential oil includes the 130 compounds, of which benzaldehyde, limonene, 1- methylhydrazine, 4-ethenyl-1, 4-dimethyl cyclohexene and 3-carene are the most significant.

Pharmacological Properties of Amygdalus Persica:

Gastrointestinal effect:

The effect of ethyl acetate extract of Amygdalus persica flowers on gastrointestinal motility was evaluated using isolated colon model. The extract showed strong effects in vitro. It (10-8-10-5 g/ml) caused a concentration-dependent stimulatory effect in rat colonic tissue. Ketotifen, cimetidine, and pyrilamine produced a significant inhibition of contractions caused by the extract. Immuno fluorescence and toluidine blue staining revealed increased numbers of mast cells in the extract treated rats, and it increased histamine release from the colonic tissues. The extract possessed significant prokinetic activity mainly via mast cell degranulation. The aqueous crude extract of the leaves of Amygdalus persica was studied for its gut stimulatory effects in isolated Guinea pig ileum and rabbit jejunum preparations. The extract at the dose of 1-10 mg/ml caused a moderate degree of spasmogenic effect. Pretreatment of the tissue with atropine completely abolished the contractile effect of the plant extract similar to that of acetylcholine which is suggestive of a cholinergic mechanism. In isolated rabbit jejunum preparations, the extract produced a week spasmogenic effect followed by relaxation of the spontaneous contractions at higher doses. Bioassay-directed fractionation revealed that the spasmogenic activity was in the aqueous fraction, while the spasmolytic activity was concentrated in the ethyl acetate fraction. When tested against K+ induced contraction, both the extract and its ethyl acetate fraction caused a dose-dependent inhibition, suggesting calcium channel blockade.

Anti-inflammatory, analgesic and Anti-Pyretic effects:

The anti-inflammatory effects of the methanol extract of Amygdalus persica aerial parts (leaves, fruits and twigs) was investigated in glial cells. The extract inhibited the production of pro inflammatory mediators and cytokines in lipo polysaccharide (LPS)-stimulated BV2 cells by suppressing NF-κB translocation and mitogen-activated protein kinase signaling pathways. It also inhibited NO production and NF-κB translocation in cultured primary astrocytes. The alkaloid compound (persicaside) isolated from the methanol soluble extract of Amygdalus persica seed, inhibited nitric oxide and prostaglandin E 2 (PGE 2) production via suppression of inducible nitric oxide synthase and cyclooxygenase2expression in rat osteoblast sarcoma cells in concentration dependent manner. Administering Prunus persica var. nuci persica kernel extract (50 and 100 mg/kg) in rats reduced carrageenan induced paw edema by 11 and 47% in 1 h, 24 and 33% in 2 h, and 23 and 32% in 4 h. At the higher dose (100 mg/kg), Amygdalus persica var. nuci persica kernel extract increased the reaction time in the hot-plate model and produced a significant decrease in the rectal temperature of the pyretic rats while both doses

produced 52 and 59% of writhing inhibition compared to the control group.

Cytotoxic effect:

The anti-tumor activity of amygdalin, prunasin, amygdalinic acid, mandelic acid D-glucopyranoside, benzyl b –D gentiobioside and benzyl b -D-glucopyranoside, isolated from Amygdalus persica seeds was examined in both in vitro and in vivo assays. All of the compounds significantly inhibited the Epstein-Barr virus early antigen activation induced by tumor promoter. The compounds produced a delay of two-stage carcinogenesis on mouse skin that comparable in potency to (-)-epigallocatechin gallate from green tea. In studying of cytotoxic activity of 1 mg/ml of ethanol leaves extract, ethanol leaves extract loaded in solid lipid nanoparticle (SLNs), extractfree-SLNs, and kaempferol 3-O-b-4C1- (6-O-3,4-dihydroxyphenylacetyl glucopyranoside) isolated from the leaves, they caused significant reduction in cell viability of human keratinocytes over 24 h (93%, 90%, 95%, and 89% of the cells survived), respectively . The tumor growth and lung metastasis of MDA-MB-435 breast cancer cells were inhibited by Amygdalus persica polyphenolics in a dose range of 0. 8-1. 6 mg/day, these effects were mediated by inhibition of metalloproteinases gene expression. Modulation of metalloproteinase-2, metalloproteinase-3 and metalloproteinase-13 gene expression may be some of the molecular targets for anti-metastatic activity of Amygdalus persica polyphenolics. Adding of ethanol extract of root of Amygdalus persica in the culture medium inhibited the growth of HepG2 cells in a dose and time-dependent way. It caused sustained M/G2 phase arrest. The expression of mitosis-related protein Cdc25c was impaired upon treatment. The treatment notably suppressed the migration of HepG2 cells and the expression of extracellular matrix metallo protease, MMP3 and MMP9.

Furthermore, administration of the extract significantly inhibited in vivo tumor growth in nude mice. The protective effect of the ethanol extract of the flowers of Amygdalus persica against UVB-induced non-melanoma skin cancer was investigated in mice. The topical application of the extract before UVB exposure resulted in a delay of tumor development compared to the control. In tumor multiplicity, low and high concentration of the extract resulted in 25. 9 and 53.9% reduction at the end of the experiment.

Antioxidant effect:

DPPH radical scavenging assay showed that Amygdalus persica fruit extract possessed high percentage inhibition (86. 14±1. 33%) and a very low IC50 (17. 5±0. 89 µg/ml) was required for free radical scavenging . The antioxidant activity of the leaves extracts was evaluated using DPPH, ABTS and b-carotene bleaching tests. In all tested samples, a concentration-dependent antioxidant activity was recorded. In the DPPH assay, kaempferol 3-O-b4C1-(6-O-3,4dihydroxyphenylacetyl glucopyranoside) isolated from the leaves showed the highest scavenging activity followed by ethanol leaves extract loaded in solid lipid nanoparticle (SLNs) and then ethanol leaves extract. The IC50 values were 6. 35±3.40 µg/ml, 8.79±2. 70 µgml, and 10.5 ± 1.81 µg/ml respectively compared to vitamin C used as a standard with an IC50 of 2 ± 0. 01µg/ml. The same ranking of activity was also observed against ABTS radicals with IC50 value of 3. 91 ± 1.43µg/ml, 4.29 ± 1.12 µg/ml, and 6.10 ± 0.62 µg/ml, respectively, compared with the standard vitamin C with an IC50 of 0. 96 ± 0.02µg/ml. The antioxidant activities of different fractions (hexane, ethyl acetate, n-butanol and aqueous fractions) of Amygdalus persica fruit were studied using (DPPH), H2O2 scavenging, superoxide radical scavenging, iron chelating and reducing power properties. The ethyl acetate and n-butanol fractions possessed the maximum antioxidant activities that were well correlated with total phenolic and flavonoid contents. The reducing power, inhibition of per oxidation using linoleic acid system, and DPPH free radical scavenging activity of the peel and pulp parts of different peach varieties, were investigated in vitro. Reducing power of peel and pulp extracts (12. 5 mg/ml) was varied from 2. 57-2. 77 to 1. 54-1.99. The inhibition of linoleic acid peroxidation and DPPH scavenging activity of the extracts were varied from 70. 8-80.9% and 66.8-76.5% in peels, and 51.9- 60.1% and 43. 4- 49.1% in pulps respectively. The antioxidant and anti-photoaging activities of 2-methoxy-5- (2-methyl propyl) pyrazine (MMPP) isolated from Amygdalus persica were investigated in terms of matrix metalloproteinase (MMP)-1 and type-1 pro collagen expression in ultraviolet (UV)-irradiated human skin fibroblasts. MMPP displayed radical scavenging activity, suppressed MMP-1 expression, and increased type1 pro collagen expression.

Anti-obesity effect:

The fruit extract showed anti-lipase activity. The main active compound of anti-lipase activity was oleanolic acid (IC50: 12. 64±0. 65µg/ml). Flowers of Amygdalus persica possessed anti-obesity effects by improving hepatic lipid metabolism in obese mice. The anti-obesity effects of the water extract flower of Amygdalus persica and its underlying mechanism were investigated in high-fat diet-induced obese mice. The extract significantly reduced body weight, abdominal fat mass, serum glucose, alanine transaminase and aspartate aminotransferase levels, and liver and spleen weights compared to the high- fat diet 24 control groups. The extract suppressed lipogenic gene expression, including stearoyl-CoA desaturase-1 and -2 and fatty acid synthase, and up-regulated the fatty acid β-oxidation gene and carnitine palmitoyltransferase-1, in the liver. The anti-obesity effects of an herbal extract mixture of *Amygdalus persica* and *Nelumbo nucifera* (HT077) were studied in high-fat diet (HFD) - induced obesity mice. HFD containing 0.1, 0.2, or 0. 4% HT077was given for 12

weeks. HT077 significantly reduced final body weights, weight gain, abdominal fat weights, liver weights, and hepatic levels of triglycerides and total cholesterol. It also lowered glucose, cholesterol, ALT, AST, and leptin levels and increased AST/ALT and adiponectin/ leptin ratios and adiponectin levels. HT077also decreased the expression of lipogenic genes and increased the expression of fatty acid oxidation- related genes in adipose tissue. Compounds isolated from Amygdalus persica flowers (mandelamide, methyl caffeate, ferulic acid, chlorogenic acid and naringenin) significantly inhibited adipogenesis. Among them, mandelamide exhibited the maximum inhibitory activity with an IC50 of 36. 04 ± 1.82 μM. Furthermore, mandelamide down regulated the expression of key adipogenic markers (extracellular signal-regulated kinase, cJun-N-terminal kinase, P38, CCAAT/enhancer-binding protein α, CCAAT/enhancer-binding protein β, peroxisome proliferator activated receptor γ, and glucocorticoid receptor) .

Acetylcholine esterase inhibitory effect:

The acetyl cholinesterase inhibitory effects of orally administered Amygdalus persica extracts were examined on the cholinesterase activity in the brain and plasma of rats. After the sequential solvent fractionation of the methanol extract of Amygdalus persica, the highest inhibitory effect was caused by chloroform fraction (75%, withIC50 value of 5. 6 microg/ml). Oral administration of water extract or tacrine caused a dose-dependent inhibition of brain and plasma cholinesterase activities. The ID50 values of these compounds for brain cholinesterase activity were 2.7 g/kg and 8.9 mg/kg, respectively. On the other hand, the ID50 values for plasma cholinesterase activity were 18. 6 g/kg and 27.5 mg/kg, respectively. The ratios of the ID50 (plasma < brain) were 6.0 and 3.1, respectively. These results suggest that orally administered Amygdalus persica extract penetrated into the brain and inhibited cholinesterase there and that the extract was potent inhibitor of brain cholinesterase in comparison with plasma cholinesterase *in vivo*. The anti-dementia activities of different parts of peach plant were estimated by an acetylcholine esterase (AChE) inhibitory assay. (+)-4'-O-methylcatechin (IC50:70. 19±1. 79 μg/ml), 4, 2', 4'-trihydroxy-6'-methoxychalcone 4'-O-β-Dglucopyranoside (IC50: 85. 21±0. 94μg/ml) and ferulic acid (IC50: 97. 36±2. 85μg/ml) were the main active compounds of anti-dementia activity with potent acetyl cholinesterase inhibitory activity

Antiparasitic effect:

The crude methanolic extracts as well as its fractions were examined for their insecticidal activity against Tribolium castaneum, Rhyzopertha dominica and Callosbruchus analis. The methanolic and petroleum ether fraction showed moderate activity against *Callosbruchus analis* and *Rhyzopertha dominica*. The dichloromethane fraction possessed moderate activity against *Rhyzopertha dominica*, with no activity against *Tribolium castaneum* and *Callosbruchus analis*. The chloroform fraction exhibited moderate activity against *Rhyzopertha dominica* and *Callosbruchus analis*, while it showed no activity against *Tribolium castaneum*.

Antimicrobial effect:

The crude methanolic extracts as well as its fractions were investigated against Escherichia coli, *Klebsiella pneumonia, Pseudomonas aeruginosa, Enterococcus faecalis, Staphylococcus aureus, Bacillus subtilis, Salmonella typhi and Shigella flexenari.* The petroleum ether fraction possessed significant activity against E. coli, moderate activity against *S. aureus* low activity against *K. pneumonia* and *E. faecalis* and no activity against *P. aeruginosa*, *B. subtilis*, *S. typhi* and *S. flexenari*. The dichloromethane fraction also showed good activity against *E. coli, K. pneumonia and S. aureus*. The ethyl acetate fraction showed significant activity against *K. pneumonia* and *E. faecalis*. While, the crude methanolic fraction ofAmygdaluss persica significantly inhibited the growth of *K. pneumonia and E. faecalis.* The crude methanolic extracts as well as its fractions were investigated for antifungal activity. *Aspergillus flavus, Microsporum canis, and Fusarium solani were* sensitive to dichloromethane, chloroform and methanol fractions.

Antidiabetic effect:

Quercetin rich ethyl acetate fraction of leaves of *Amygdalus persica* (100 and 200 mg/kg, orally) was evaluated for anti-diabetic, anti-oxidant and anti-adipogenic activities in streptozotocin- induced diabetic rat model. At 200 mg/kg, quercetin rich ethyl acetate fraction significantly possessed hypoglycaemic activity and improved body weight in diabetic rats. DPPH free radical scavenging method showed dose dependent scavenging. Preadipocyte differentiation assay showed significant inhibition of differentiation. The extract of flowers of Amygdalus persica exhibited an insulin secretion effect in a glucose-stimulated insulin secretion assay; the compounds isolated from the extract were screened for their efficacy in INS-1 rat pancreatic β-cells. Caffeic acid, methyl caffeate, ferulic acid, chlorogenic acid, naringenin, nicotiflorin, and astragalin increased glucose- stimulated insulin secretion without inducing cytotoxicity. The glucose- stimulated insulin secretion effect of methyl caffeate was similar to gliclazide. It enhanced the related signaling proteins of the activated pancreatic and duodenal homeobox-1 (PDX-1) and peroxisome proliferator-activated receptor-γ (PPAR-γ), the phosphorylation of the total insulin receptor 25 substrate-2 (IRS-2), phosphatidylinositol 3-kinase (PI3K), and Akt, which influence β-cell function and insulin secretion. The crude extract of peach leaves (1000 mg/kg) suppressed the postprandial elevation in the blood glucose leveldosedependently after an oral administration of soluble starch to mice, by inhibiting the absorption of

glucose in the small intestine of mice. The glucose absorption inhibitory activity was attributed to the acetylated kaempferol glycoside multiflorin A (MFA), which isolated from the methanolic extract of leaf of the edible peach Prunus persica. The inhibitory effect of MFA against glucose absorption was demonstrated in the dose dependent manner in mice.

Antihistaminic and immunological effects:

The methanol extract of the seed of Amygdalus persica inhibited histamine release in human mast cells. Activity-guided fractionation of the methanol extract yielded 3 cyanogenic glycosidesand 5 phenolic compounds. The effects of the isolated compounds were investigated on histamine release and on the gene expressions of TNF-α and IL-6 in human mast cells. Of the tested compounds, phenolic glycosides suppressed histamine release and inhibited the proinflammatory cytokines TNF- α and IL-6 which indicated the anti-allergic inflammatory activity of Amygdalus persica . The ethanol extract of fruits of Amygdalus persica inhibited compound 48/80-induced systemic anaphylaxis and immunoglobulin E- mediated local allergic reactions. Histamine releasing from mast cells was reduced by the extract, the effect of the extract was mediated by modulation of intracellular calcium. The extract also attenuated the phorbol 12myristate 13-acetate and calcium ionophore A23187 (PMACI) - stimulated expression and secretion of proinflammatory cytokines in human mast cells. The inhibitory effect of the extract on pro-inflammatory cytokines was depending on its effect on nuclear factor (NF)-kappa B.

Protective effect:

The protective effect of the pericarp extract of Amygdalus persica was studied against cisplatin- induced acute toxicity in mice. The pretreatment with the extract for 7 days prevented the cisplatin- induced decrease in the relative kidney and liver weights. It significantly inhibited both the cisplatin- induced elevation in serum blood urea nitrogen and creatinine levels caused by kidney damage and the cisplatin- induced increase in serum alanine aminotransferase and aspartate aminotransferase levels caused by the liver damage. The extract also caused recovery of the cisplatin-mediated changes in levels of serum nitric oxide and tissue lipid peroxidation, andreduced glutathione content. The protective effect of bark of Amygdalus persica was evaluated in testosterone induced benign prostatic hyperplasia in rats. It exhibited significant amelioration of the testosterone induced effects as indicated from histo pathological examination, immune histochemistry and biochemical studies. It also showed remarkable anti-inflammatory and antioxidant activity signifying their role in interfering with various possible factors involved in benign prostatic hyperplasia.

Vascular effect:

The effects of Amygdalus persica pulp ethyl acetate extract on Ang II-induced intracellular Ca2+ mobilization, reactive oxygen species (ROS) production and signal transduction events were investigated in cultured vascular smooth muscle cells. Pretreatment with peach ethyl acetate extract inhibited Ang II-induced intracellular Ca2+ elevation in vascular smooth muscle cells. Ang II-induced ROS generation, essential for signal transduction events, was diminished by the ethyl acetate extract. The extract also attenuated the Ang II-induced phosphorylation of epidermal growth factor receptor and myosin phosphatase target subunit 1, both of which are associated with atherosclerosis and hypertension. The Prunus persica extract was tested for vasorelaxation effects. The results showed that the vasorelaxant effect of the extract was endothelium- dependent, and it was related to the NO-sGC-cGMP, vascular prostacyclin, and muscarinic receptor transduction pathway. K+ channels, such as the BKCa, KV, and KATP channels, were partially involved in the extract- induced vasorelaxation. The extract was effective in relaxing serotonin (5-HT) - or angiotensin II-induced contraction. The extract attenuated Ca2+-induced vasoconstriction by IP3 receptors in the sarcoplasmic reticulum membrane, but its vasorelaxant effect was not associated with the influx of extracellular Ca2+ via receptor-operative Ca2+ channels or voltage-dependent Ca2+ channels.

Dermatological effect:

The protective effects of fresh unripe peach extract, was evaluated in UV-B irradiated human 3D skin models by measurements of mRNA. Fresh unripe peach extract significantly improved mRNA levels and partially localizations of collagen type XVIII, suggesting that fresh unripe peach extract ameliorates dermal-epidermal junction damages caused by UV-B irradiation. The ethanol extract of the flowers of Amygdalus persica (Ku-35, 100-1,000 microg/ml) inhibited the amount of 14Carachidonic acid/metabolites release from UVB-irradiated keratinocytes. Ku35 also possessed the protective activity against UV-induced cytotoxicity of keratinocytes and fibroblasts. In addition, Ku-35 protected from UVB-induced erythema formation in Guinea Pig. The ethanol extract of the flowers of Amygdalus persica (50-200 microg/ml) inhibited UVB- as well as UVC-induced DNA damage in the skin fibroblast cell (NIH/3T3). In addition, the extract inhibited UVB- or UVC- induced lipid peroxidation, especially against UVB-induced peroxidation at concentration higher than 10 microg/ml.

Antitussive effect:

Polysaccharide of Amygdalus persica gum consisted of arabinose 43. 2%, xylose 20. 2%, mannose 2. 7% and galagtose 33. 9%. The antitussive activity of polysaccharide was studied in experimental cough induced mechanically in conscious cats. The polysaccharide

exhibited significant cough-suppressing activity, which was higher than that of the nonnarcotic drug.

Anti-asthmatic effect:

Amygdalin can promote synthesis of pulmonary surfactant. Amygdalin is decomposed into benzaldehyde and hydrocyanic acid after oral administration which prevent respiratory center to reach certain level and slow down respiratory movement and produce antitussive and antiasthmatic effect. Amygdalin or laetrile used for prevention of asthma. However, proper antiasthmatic action of amygdalin still not completely understood. Amygdalin do not engulf or kill the type 1 helper T cell response, but it kills the type 2 helper l. Route of Oral administration of amygdalin weakens asthmatic appearances including AHR and airway infection which result in the case of inhibition of Th2 response to allergen.

Anti-photo aging effect:

The study of the reaction chain of DPPH, Western blot and reverse transcription – polymerase has shown to have antiphotoaging effect. This test was done by a compound called 2- methoxy-5-(2-methyl propyl) pryazine isolated from the peach.

Protection against UV-induced skin damage:

The protective effects of the floral extracts of this plant (KU-35) has been tested against ultraviolet (UV)-induced skin damage using in vivo models of UVB-induced erythema in guinea pigs and ear edema in ICR mice. Ku-35, a new cosmetic product, used topical application to guard against UVB-induced skin damage

Hepatoprotective activity:

Activity against the rupture in the natural protective mechanisms of the liver results in the hepatitis or hepatic injury. 1. Methanol: Ethanol (70:30) extract from the fruit of the Amygdalus persica tested for its hepatoprotective activity by Soni et al. in the rats in opposition to Paracetamol and CCl4 induced hepatitis.

Anti-Hyperlipidaemic activity:

In vivo as well as in vitro decrease in the plasma and cholesterol level is called as antihyperlipidaemic activit]. 1. Amygdalus have been reported to show the decrease in the plasma, LDL cholesterol in mild hyperlipidaemic person as well as decrease in liver cholesterol in the hyperlipidaemicrat]. 2. Consumption of the prune at a level of 9.5% forestalls atherosclerosis in apoprotein-E lacking mouse in high cholesterol diet.

Table 1: Taxonomy of Amygdalus Persica

KINGDOM	Plantae
CLADE	Tracheophytes
CLADE	Angiosperms
CLADE	Eudiocots
CLADE	Rosids
ORDER	Rosales
FAMILY	Rosaleae
GENUS	Prunus
SUBGENUS	Prunussubg: Amygdalus
SPECIES	P.Amygdalus

Table 2: Some Economically Important Species of Amydalus:

SUB FAMILY	GENUS	SPECIES	COMMON NAME	USES
Amygyloideae	Prunus	Armeniaca	Apricot	Fresh&processed fruit
		Avium	Sweet Cherry	Fresh&processed fruit
		Cerasus	Tart(sour)Cherry	Fresh&processed fruit
		Domestica	European Plum	Fresh&processed fruit
		Dulcis	Almond	Fresh&processed fruit
		Mume	Mume	Ornamental
		Persica	Peach,Nectarine	Fresh&processed fruit
		Serotina	Black cherry	Timber species

Table 3. Compounds Table for Amygdalus Persica

COMPOUND	R1	R2	R3	R4	R5
1	CN	Glucose	-	-	-
2	Galactose	H	-	-	-
3	Glucose	H	-	-	-
4	Glucose	OH	-	-	-
5	CONH2	Glucose	-	-	-
6	Galactose- Glucose	H	-	-	-
7	CN	Glucose	-	-	-
8	H	H	OH	OH	CH3
9	H	H	H	H	H
10	OH	H	H	H	H
11	H	H	H	OH	H
12	H	H	CH3	O-glucose	CH3
13	H	Glucose	H	OH	CH3

Fig no 1: T.S of amygadalus persica

Fig no 2: Freshly fruit with endocarp

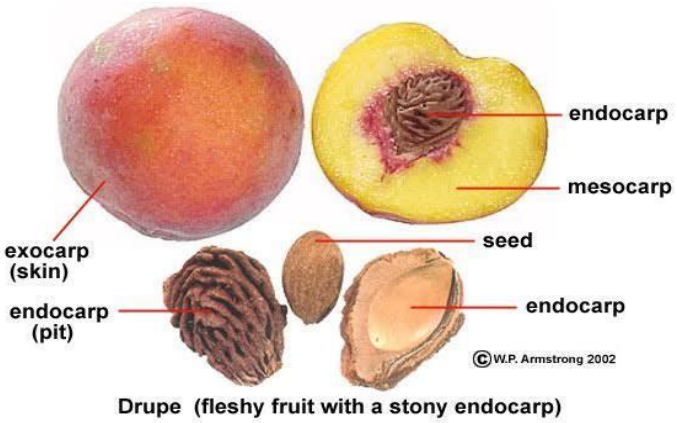


Fig No 3: Flavon 3,4dihydroxy 6 methoxy 7-O-α-L-rhamnopyranoside

Fig No 4: Prunetin-5-O-β-D-glucopyranoside

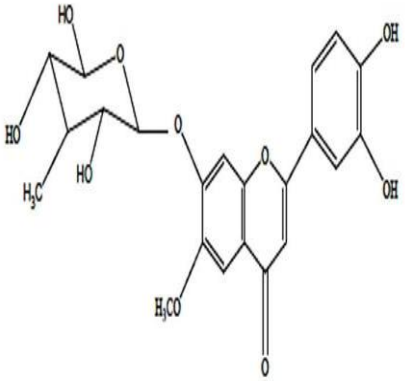


Fig No 5: For compound :1,5,7

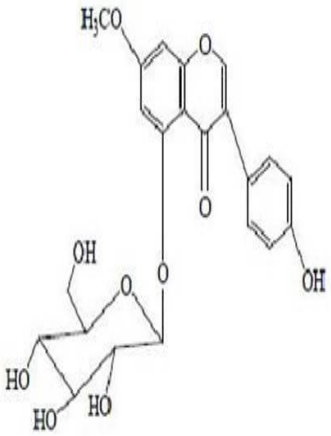
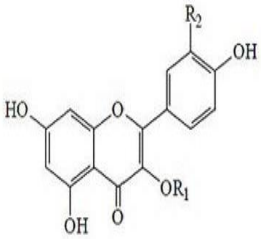


Fig No 6: For compound : 2,3,4,6



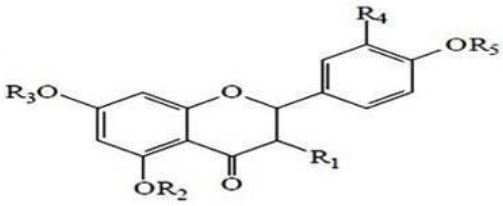
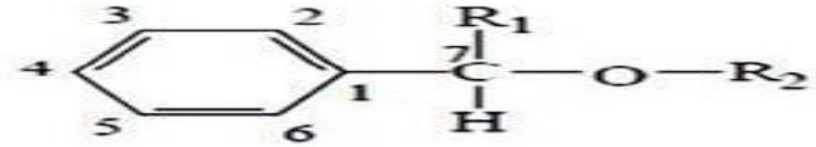


Fig No 7: For compound: 8,9,10,11,12,13



CONCLUSION

In this study, the investigator has tried to define *Amygdalus persica's* active component, classification, dissemination and pharmacological practices. It has several pharmacological functions such as ex vivo, in vivo and in vitro models of anti-oxidant, anti-inflammatory, antiallergic, anti-photoaging and spasmogenic activity. Antidiabetic activity, antimicrobial activity, anti-inflammatory, antiasthmatic effect, anti hyperprotective, anti-hyperlipidemia, anti-analgesic anti pyretic, anti-tumor activity, anti-oxidant. It has shown to be effective against skin cancer and skin damage caused by UV. For *Amygdalus persica*, which is used alone or in conjunction with other pharmacologically active drugs, multiple patents have been obtained. *Prunus persica* can be concluded as an important and useful medicinal plant having a wide range of evidence of medicinal activity.

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