



A Review on Pharmacological Activities of *Prunus persica*

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ABSTRACT

Prunus persica (L.) Batsch, is a member of the Rosaceae family and the Amygdaloideae is subfamily, and a rapidly growing evergreen tree found in India, China and Spain. The peach is largely grown in warm, temperate and subtropical zones for its edible fruit. Peach has many anti-disease properties, including anticancer, antimicrobial, anti-allergic, antibacterial, antitumor and anti-inflammatory. Its high nutritional value makes it an essential part of human diet. This study offers a detailed view of its source, medicinal uses, anatomy, biological activity and its numerous application for human well-being. Due to the high antioxidant and anti-inflammatory effects in the fresh peach pulp, the damage caused can be prevented. Traditionally, constipation, laryngitis, menostasis, dermatopathy and contusion are handled with the herb. The leaves of the peach plant are used in the treatment of leucoderma, whooping cough and also as an anthelmintic, insecticidal, laxative, sedative, and vermifugal. The flowers are used as a purgative and anthelmintic. The fruit is used as an aphrodisiac, antipyretic, anti-scorbid, brain tonic, demulcent, freshener of the mouth, stomachic and useful in thirst, biliousness and "kapha". Seed oil is abortive, fine in dumps, deafness, earache, children's stomach problems. This chapter discusses *Prunus persica*'s phytochemical components and pharmacological activities

Keywords: Peach, *Prunus persica*, Medicinal plant, Anti-inflammatory, Antioxidant property.

INTRODUCTION

It belongs to the family Rosaceae and the subfamily is Amygdaloideae. It is commonly attributed to as "Aaru" and is widely consumed worldwide, in English popularly referred to as "Peach." The fruits of *Prunus* species are soft to mature. They have comparatively very short storage life and can be eaten fresh. Peaches are usually less hardy than drupe fruits. They can also be consumed dry like the plums and apricots. *Prunus*, genus originated in the Asian continent have been taken from Greek 'Prounos' or 'Proumnos'.¹

Peaches can be used as a fresh, dry or frozen fruit and it is an essential part of the human diet. Peaches are crucial in terms of nutrition and economy and they also have an exceptional flavor and taste which makes them among the most popular fruits eaten in the world.²

Peach is the most popular stone fruit crop in many western countries, grown in Europe, North and South America at a good range of different climatic conditions and soil types. Peaches show essential biological activities and are known to prevent many diseases as it contains many secondary metabolites, such as phenolic compounds, tocopherols and carotenoids. However, the research on potential benefits from peach intake to human health are still nascent. In terms of nutrition and economy, peaches are one of the most prevalent fruits enjoyed in the world by different cultures.³

Family- Rosaceae

Synonyms- *Amygdalus persica* L. *Persica vulgaris* Mill
Pygeum persica Linn.

DESCRIPTION

The evergreen trees and shrubs are naturally distributed in temperate regions, deciduous and grow up to 10m tall and are generally from Asia or Southern Europe. Normally, the bark is glabrous acuminate ashy or grayish. The flowers are pinkish-white, small and pedicelled. Green leaves are very useful as astringent, expectorant, demulcent, diuretic, laxative, febrifugal, and parasiticide. Expectorant (used in cough, chronic bronchitis and whooping cough), sedative, demulcent, anti-scorbutic, stomachic, diuretic, are effective bark aid. It has a unique character with wide range of colors and shapes, from yellow to red fruit and skin. *Prunus* species are also attributed as "stone fruit".

Leaves

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

Flowers

In the early spring, the flowers of the peach are produced much before the leaves. They are single or combined with, 2.5–3 cm in diameter, bisexual, pink, sepals pubescent on exterior, petals and stamens, inserted with the petals on the calyx tube, pistil, with 2 ovules.



Fruit

The fruit has a delicate fragrance with a surface that is velvety (peach) or glossy which are also called as nectarines. It has a yellow or whitish flesh covering a seed-containing hard shell, a delicate fragrance. This has a diameter of 1-5 cm, tomentulose, and drupe. The fruit is ripened in the season of August- September.

Seed

Peaches along with cherries plums and apricots are stone fruits (drupes). The single, broad seed is red-brown, around 1.3–2 cm long, oval in form and is enclosed by a wood-like husk. Varieties of heirlooms are available, such as the Indian Peach or Indian Blood Peach, and these arrive in the late summer ranging from red to white to purple.^{4,5}

DISTRIBUTION

Prunus persica is a Chinese and Persian species. In the USA, New Zealand, Australia and Temperate Asia, this plant is also grown. It grows in the subtropics. For edible fruits from the sub-Himalayan region, its daily production has increased up to 2400 m. The discovery of peaches in India can be first traced by Chinese captives during King Kanishka's rule in the 1st century AD. The son of Captain R. C. Lee named Mr. A. N. Lee has planted several types of peaches and plums and other temperate fruits in Himachal Pradesh in the late 19th century. It is harvested in Kashmir, Himachal Pradesh, Uttar Pradesh in India, and in Nilgiris to a limited extent. In Pakistan, Japan and the Deccan region, the plant is also distributed. *Prunus persica* is commonly propagated in Western Asia, Europe, the Himalayas, and India. Nearly 200 species of edible fruits and seeds has been produced by the *Prunus*. It is very well represented in northwestern China, which is its native place. It was first domesticated and cultivated in the north slopes of the Kunlun shan mountain and in the area between the Tarim basin. The core of peach production is in China and was established there four to five thousand years ago. The Chinese wild peach (*P. Consociiflora* Schneid.) also has its origin in China.⁶

CHEMICAL CONSTITUENTS

Prunus Linn's 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-hydroxy-4-methoxy 2-O-β-D-glucopyranoside, 8-O-β-D-galactopyranoside caryophenol, 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.^{7,8}

PHARMACOLOGICAL ACTIVITIES

Antioxidant Activity

All concentrations of ethyl acetate and n-butanol have important inhibitory effects on various antioxidant activities. There was a significantly high coefficient of association between overall antioxidant activity and total phenolic and total flavonoid content. It appears that *P. persica* fractions of ethyl acetate and n-butanol can serve as a new source of natural antioxidants.⁹

Cholinesterase Inhibitory Activity

Oral administration of PPE or tacrine caused a dose-dependent inhibition of brain and plasma cholinesterase activity, but it penetrated the brain satisfactorily and inhibited cholinesterase there, and PPE has been a potent inhibitor of brain cholinesterase compared to plasma cholinesterase in vivo.¹⁰

Anti-inflammatory activity

Prunus persica Linn. possessed anti-inflammatory activity against rat osteoblast sarcoma cells while anti-inflammatory activity at a dose of 250 mg / kg was observed in carragenin paw edema.¹¹

Anti-allergic activity

By the regulation of the release of calcium and signalling NF-κB, the plant's ethanolic extract prevents mast cell-mediated inflammatory allergic reaction.¹²

Anti-photoaging effect

The study of the reaction chain of DPPH, Western blot and reverse transcription-polymerase has shown to have anti-photoaging effect. This test was done by a compound called 2-methoxy-5-(2-methyl propyl) pyrazine isolated from the peach.¹³

Anti-tumor activity

The *Prunus persica* seeds has shown to have cyanogenic glycosides, prunasin and amygdalin that greatly inhibited early activation of the Epstein-Barr virus by the tumor promoter and demonstrated anti-tumor action.¹⁴

Protection against skin carcinogenesis

The plant's Ku-35 extract provided protection when applied topically against UV-induced DNA damage and carcinogenesis.¹⁵

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.¹⁵



Spasmogenic effect

The spasmogenic activity of peach leaf aqueous extract in isolated guinea pig ileum was 1–10 mg / ml depending on the dose.⁷

CONCLUSION

In this study, the investigator has tried to *define Prunus 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, anti-allergic, anti-photoaging and spasmogenic activity. It has shown to be effective against skin cancer and skin damage caused by UV. For *Prunus 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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