Prunus persica var. persica

Scientific Name

Prunus persica **(L) Batsch var. persica**

Synonyms

Amygdalus persica L., *Amygdalus persica* [unranked] *aganonucipersica* Schübler & Martens, *Amygdalus persica* var. *aganonucipersica* (Schübler & Martens) T. T. Yü & L. T. Lu, *Amygdalus persica* [unranked] *aganopersica* Reichenbach, *Amygdalus persica* var. *compressa* (Loudon) T. T. Yü & L. T. Lu, *Amygdalus. persica* [unranked] *scleronucipersica* Schübler & Martens, *Amygdalus. persica* var. *scleronucipersica* (Schübler & Martens) T. T. Yü & L. T. Lu, *Amygdalus persica* [unranked] *scleropersica* Reichenbach, *Amygdalus persica* var. *sclerpersica* (Reichenbach) T. T. Yü & L. T. Lu, *Persica ispahanensis* Thouin, *Persica platycarpa* Decaisne, *Persica vulgaris* Mill., *Persica vulgaris* var. *compressa* Loudon, *Prunus persica* (Linnaeus) Batsch, *Prunus persica* var. *compressa* (Loudon) Bean, *Prunus persica* subsp. *platycarpa* (Decaisne) D. Rivera et al., *Prunus persica* var. *platycarpa* (Decaisne) L. H. Bailey.

Family

Rosaceae

Common/English Names

Peach, Peach Tree, Peaches

Vernacular Names

Albanian: Bukuroshe;
Arabic: Khawkh, Khokh, Khoukh;
Brazil: Nectarina, Pêssego, Pessegueiro;
Bulgarian: Praskova;
Catalan: Préssec;
Chinese: Da Tao Ren, Hao Ren, Mao Tao, Shou Tao, Tao, Tao Ren, Tao Zi;
Croatian: Breskva;
Czech: Broskvoň Obecná;
Danish: Fersken;
Dutch: Perzik, Perzikboom;
Eastonian: Harilik Virsikupuu;
Finnish: Persikka;
French: Pêcher, Pêcher Commun;
German: Echter Pfirsich, Pfirsich, Pfirsichbaum;
Greek: Robakinon;
Hebrew: Afarseq;
Hungarian: Barrack, Kerti Őszibarack, Őszibarack;
Icelandic: Ferskja;
India: Adoo, Aru (Hindu), Pichesu (Kannada), Chumbhrei (Manipuri), Pishu (Oriya), Aaruu (Urdu);
Indonesia: Persik;
Italian: Persico, Pesco;

T.K. Lim, *Edible Medicinal And Non-Medicinal Plants: Volume 4, Fruits*,
DOI 10.1007/978-94-007-4053-2_57, © Springer Science+Business Media B.V. 2012

Korean: Boksanamu, Poksunga, Poksunganamu;
Japanese: Ke Momo, Momo, Piichi;
Laotian: Khai;
Latvian: Persiks;
Lithuanian: Persikas;
Malaysia: Persik;
Maltese: Ħawħ;
Persian: Hulu;
Philippines: Peras (Tagalog);
Polish: Brzoskwinia, Brzoskwinia Zwyczajna, Przerzedzanie Brzoskwin;
Portuguese: Pessego;
Romanian: Piersica;
Russian: Persik Obyknovennyj;
Serbian: Breskva;
Slovenia: Breskev, Broskyňa Obyčajná;
Spanish: Albérchigo, Durazno, Melocotonero, Pavía, Persico, Prescal, Melocotón;
Swedish: Persika, Persiketräd, Prunusväxter;
Thai: Hung Mon, Makmuan, Tho;
Turkey: Şeftali;
V***ietnamese***: Đào;
Zulu: Umumpetshisi.

Origin/Distribution

Peaches probably originated from China, being one of the first fruit crop domesticated about 4,000 years ago. Cultivars grown today are derived largely from ecotypes native to southern China, an area with climate similar to that of the southeastern USA, a major peach growing region. Peaches were introduced to Persia (Iran) along silk trading routes and was given the species epithet *persica* denoting Persia which was then believed to be its source of origin. Along the route of migration secondary centres of diversity originated (Middle Asia, Transcaucasus). Greeks and especially Romans distributed the peach throughout Europe and England around 300–400 BC. During the sixteenth to seventeenth centuries, Portuguese explorers brought the peach to south America and the Spaniard explorers introduced it to the northern Florida coast of North America. Native Americans and settlers distributed the peach across North America into southern Canada.

Agroecology

Peach is a cool climate species that adapts well to temperate or sub-temperate areas with cool winters and a warm summer. Peach tree requires a winter chilling period for flowering and fruiting. On average, most cultivars have chilling requirements of 600–900 h. It grows best in full sun. The tree is not frost hardy. Peach trees are extremely sensitive to poorly drained soils. In areas of poor drainage, roots will die, resulting in stunted growth and eventual death of the tree. Although peach trees will grow well in a wide range of soil types, a deep soil ranging in texture from a sandy loam to a sandy clay loam is preferred. Sites previously established with peaches should be avoided since they succumb the tree to peach decline disease referred to as "peach tree short live", which greatly affects its growth, development and productivity. A ring nematode (*Criconemella xenoplax*) has been implicated as the predisposing agent for PTSL, and they move fastest in sandy soils.

Edible Plant Parts and Uses

Cultivated peaches are divided into "freestone" and "clingstone" cultivars, depending on whether the flesh adheres to the stone (endocarp). Both kinds can have either white or yellow or orangey yellow flesh. Peaches with white flesh typically are very sweet, while yellow-fleshed peaches typically have an acidic tang coupled with sweetness, though this also varies greatly. The ripe fruit and skin can be eaten fresh out of hand. Most suitable for this and also for freezing are "freestone" cultivars. The "clingstone" types are suitable for processing to juices, jams, pies, pastries or used in ice-cream. The fruit can also be cooked and dried for later use. Special cultivars with high sugar content and intensive flavour can be used for distillery.

Flowers are edible, eaten in salad or used as a garnish. A tea can be brewed from the flowers. A white liquid can be distilled from the flowers, having a flavour similar to the seed. The seed kernel can be eaten raw or cooked. However it is best avoided raw especially if it is bitter because of hydrocyanic acid as cases of toxicity have been reported. The gum from the stem has been reported to be used for chewing.

Botany

A small deciduous, branched tree, 3–8 m tall with a broad and more or less horizontally spreading crown and dark reddish brown, scabrous bark. Branchlets are dark brownish-green, glabrous, and lenticellate. Winter buds are conical, pubescent, with obtuse apex and occur in fascicle of 2–3. Petiole robust, 1–2 cm, with or without 1 to several nectaries. Leaves are alternate, simple, green, lanceolate, oblong-lanceolate, elliptic-lanceolate, or obovate-oblanceolate, 7–15 × 2–3.5 cm, abaxially with or without a few hairs in vein axils, adaxially glabrous, base broadly cuneate, margin finely to coarsely serrate, apex acuminate (Plates 3, 4, 5). Flowers are bisexual, pentamerous, shortly pedicellate or subsessile with a reddish-green, campanulate, sparsely pubescent hypanthium; sepals ovate to oblong, pubscent, as long as hypanthium; petals pink, deep pink (Plates 1 and 2) or white, oblong-elliptic to broadly obovate; stamens 20–30; anthers purplish red; ovary pubescent with a style, nearly as long as stamens. Fruit a drupe, usually globose to oblate, also ovoid to broadly ellipsoid, 4–12 cm diameter, tomentulose (velvety), greenish white to orangey yellow, usually with red blushes on exposed side with a conspicuous ventral suture (Plates 3, 4, 5, 6). Mesocarp (flesh) is white, greenish-white, yellow, orangey yellow, or red, succulent, sweet to acid-sweet, fragrant; endocarp is large, hard, ellipsoid to suborbicular, compressed on both sides, surface longitudinally and transversely furrowed and pitted, free from mesocarp or compactly adhering to it, apex acuminate. Seed is red-brown, oval shaped and 1.5–2 cm long, bitter.

There is also a flattish, doughnut-shaped, sweet, white-fleshed and small-seeded peach cultivar (Plates 7, 8, 9) which is commercially grown in Australia.

Nutritive/Medicinal Properties

Food value of raw, peach fruit (refuse 4% pit) per 100 g edible portion was reported as follows (USDA 2011): water 88.87 g, energy 39 kcal (165 kJ), protein 0.91 g, total lipid (fat) 0.25 g, ash 0.43 g, carbohydrate 9.54 g; fibre (total dietary) 1.5 g, total sugars 8.39 g, sucrose 4.76 g, glucose 1.95 g, fructose 1.53 g, maltose 0.08 g, galactose 0.06 g; minerals – calcium 6 mg, iron 0.25 mg, magnesium 9 mg, phosphorus 20 mg, potassium 190 mg, sodium 0 mg, zinc 0.17 mg, copper 0.068 mg, manganese 0.061 mg, fluoride 4 µg, selenium 0.1 µg; vitamins – vitamin C (total ascorbic acid) 6.6 mg, thiamine 0.024 mg, riboflavin 0.031 mg, niacin 0.806 mg, pantothenic acid 0.153 mg, vitamin B-6 0.025 mg, folate (total) 4 µg, total choline 6.1 mg, betaine 0.3 mg, vitamin A 326 IU (16 ug RAE), β-carotene 162 µg, β-cryptoxanthin 67 µg, lutein + zeaxanthin 91 µg, vitamin E (α tocopherol) 0.73 mg, γ-tocopherol 0.02 mg, vitamin K (phylloquinone) 2.6 µg, phytosterols 10 mg, total saturated fatty acids 0.019 g, 16:0 (palmitic acid) 0.017 g, 18:0 (stearic acid) 0.002 g, total monounsaturated fatty acids 0.067 g, 16:1 undifferentiated (palmitoleic acid) 0.002 g, 18:1 undifferentiated (oleic acid) 0.065 g, total polyunsaturated fatty acids 0.086 g, 18:2 undifferentiated (linoleic acid) 0.084 g, 18:3 undifferentiated 0.002 g, tryptophan 0.010 g, threonine 0.016 g, isoleucine 0.017 g, leucine 0.027 g, lysine 0.030 g, methionine 0.010 g, cystine 0.012 g, phenylalanine 0.019 g, tyrosine 0.014 g, valine 0.022 g, arginine 0.018 g, histidine 0.008 g, alanine 0.028 g, aspartic acid 0.418 g, glutamic acid 0.056 g, glycine 0.021 g, proline 0.018 g and serine 0.032 g.

Sugars (glucose, fructose, sucrose and sorbitol) and organic acids (citric, malic, shikimic and fumaric acid) in fruits were identified in all peach and nectarine cultivars studied in Slovenia (Colaric et al. 2004). Sucrose was the major sugar and malic and citric acids were the predominant organic acids. The content of fructose ranged from 6.76 to 12.97 g/kg, glucose from 5.43 to 11.11 g/kg, sucrose from 46.14 to 70.7 g/kg and sorbitol from 0.40 to 2.80 g/kg of fruits. The content of

Plate 1 Peach blossoms

Plate 2 Close-up of peach blossoms

citric acid ranged from 1.71 to 8.34 g/kg, malic acid from 3.2 to 8.05 g/kg, shikimic acid from 127 to 809 mg/kg and fumaric acid from 1.56 to 6.09 mg/kg of fruits. The content of total sugars ranged from 61.53 to 93.70 g/kg and the content of total organic acids ranged from 7.06 to 14.69 g/kg of fruits.

The phenolic compounds hydroxycinnamates, procyanidins, flavonols, and anthocyanins were detected and quantified in peach cultivars (Tomás-Barberán et al. 2001). As a general rule, the peel tissues contained higher amounts of phenolics, and anthocyanins and flavonols were almost exclusively located in this tissue. No clear differences in the phenolic content of peaches were detected or between white flesh and yellow flesh cultivars. There was no clear trend in phenolic content with ripening of the different cultivars. Some cultivars, however, had a very high phenolic content. Among white flesh peaches, cultivars Snow King (300–320 mg/kg hydroxycinnamates and 660–695 mg/kg procyanidins in

Plate 3 Immature peaches and leaves

Plate 4 Near-ripe peaches and leaves

Plate 5 Ripe peaches

Plate 6 Harvested peaches

Plate 7 Doughnut peach cultivar (*top* and *bottom* views)

Plate 8 Doughnut peach (*top* and *lateral* views)

flesh) and Snow Giant (125–130 mg/kg hydroxy-cinnamates and 520–540 mg/kg procyanidins in flesh) showed the highest content. Chlorogenic acid, catechin, epicatechin, rutin and cyanidin-3-glucoside were detected as the main phenolic compounds of ripened peach fruits (Andreotti et al. 2008). The concentration was always higher in peel tissue, with average values ranging

Plate 9 Flat, sweet, white-fleshed and small seeded doughnut peach

from 1 to 8 mg/g dry weight (DW) depending on cultivar.

Peaches were found to contain the following organic acids – citric acid, malic acid, tartaric acid, quinic acid, mucic acid, galacturonic acid, chlorogenic acid and neo-chlorogenic acid (David et al. 1956) and the following tannins – catechin, catechol, tannic acid and chlorogenic acids (Johnson et al. 1951). The anthocyanin in freestone peach was identified as a J-mono-glucoside of cyanidin (Hsia et al. 1965) and a leucocyanidin was obtained from immature Elberta peaches (Hsia et al. 1964). The presence of (2R: 3S) (+)-catechin and certain chlorogenic acids with their isomers were confirmed.

The gum exudate polysaccharide from the trunk was found to compose of Ara, Xyl, Man, Gal, and uronic acids in 37:13:2:42:6 M ratio and had Mw 3 of 5.61 × 106 g/mol for peach gum polysaccharide (Simas-Tosin et al. 2009). Peach tree gum had structures similar to those of polysaccharide from nectarine tree gum, although in different proportions and with a lower molecular weight. From the heartwood of peach β-sitosterol and its D-glucoside, hentriacontane, hentricontanol and the flavonoids naringenin, dihy-drokaempferol, kaempferol and quercetin were isolated (Chandra and Sastry 1988).

Peaches are rich in antioxidant phenolic compounds which impart to it anticancer, photogenotoxic-protective and other pharmacological properties.

Antioxidant Activity

In selected clingstone peach cultivars, inhibition of low-density lipoprotein (LDL) oxidation was found to vary from 17.0% to 37.1% in peach flesh extract, from 15.2% to 49.8% in whole peach extract, and from 18.2% to 48.1% in peel extract (Chang et al. 2000). Total phenols were 432.8–768.1 mg/kg in flesh extract, 483.3–803.0 mg/kg in whole extract, and 910.9–1922.9 mg/kg in peel extract. The correlation coefficient between relative LDL antioxidant activity and concentration of total phenols was 0.76. The lowest polyphenol oxidase (PPO) and specific activities were found in the Walgant cultivar, followed by Kakamas and 18-8-23. These three cultivars were found to combine the desirable characteristics of strong antioxidant activity, low PPO activity, and lower susceptibility to browning reactions.

The ranges of total ascorbic acid (vitamin C) (in mg/100 g of fresh weight) were 6–9 mg (white-flesh peaches), and 4–13 mg (yellow-flesh peaches) (Gil et al. 2002). Total carotenoids concentrations (in µg/100 g of fresh weight) were 7–20 µg (white-flesh peaches) and 71–210 µg (yellow-flesh peaches). Total phenolics (in mg/100 g of fresh weight) were 28–111 mg (white-flesh peaches) and 21–61 mg (yellow-flesh peaches). The contributions of phenolic compounds to antioxidant activity were much greater than those of vitamin C and carotenoids. There was a strong correlation (0.93–0.96) between total phenolics and antioxidant activity.

Carotenoid content was higher in yellow-flesh (2–3 mg β-carotene/100 g fresh weight) than in white or red-flesh peaches (0.01–1.8 mg β-carotene/100 g fresh weight) (Vizzotto et al. 2006). Antioxidant activity (AOA) as evaluated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) was about twofold higher in red-flesh varieties than in white/yellow-flesh peach varieties. Among the peaches, the AOA was best correlated with phenolic content. Studies in three different peach cultivars showed that Trolox equivalent antioxidant capacity (TEAC), measured from harvest to 7 days postharvest, was influenced mainly by vitamin C content, whereas polyphenols and carotenoids seemed to play a secondary role (Valle et al. 2007).

Although TEAC was similar in the three cultivars, only cv 'Luisa Berselli' significantly increased the total radical-trapping potential (TRAP) in human plasma at 1, 2 and 4 hours after ingestion of peaches. Sugar moiety, condensed and glycoside phenols were suggested to be involved in the higher effect on plasma TRAP of cv 'Luisa Berselli'. Polyphenolic compounds at harvest were high in the 3 cultivars rating 288 mg/kg for 'Maria Serena', 405 mg/kg for 'Luisa Berselli' and 549 mg/kg for 'Stark Earlyglo'. Vitamin C at 4 days after harvest rated 85 mg/kg for 'Luisa Berselli', 70 mg/kg for 'Stark Earlyglo' and 52 mg/kg for Maria Serena'. 'Luisa Berselli' had lower levels of carotenoids (lutein, zexanthin, β-cryptoxanthin, β-carotene, β-cis-carotene) than 'Maria Serena' and 'Stark Earlyglo' which had similar contents.

The anthocyanin content of the peaches ranged from 7.64 to 50.01 mg cyanidin 3-glucoside/100 g fresh tissue (Cevallos-Casals et al. 2002). The total phenolics content for peaches ranged from 99 to 449 mg chlorogenic acid/100 g fresh tissue. The antioxidant activity (AOA) ranged from 440 to 1,784 ug equivalent Trolox/g fresh tissue for peaches. Correlation analysis indicated that the anthocyanin content and phenolic content was well correlated with the antioxidant activity. Anthocyanin (red pigments) and phenolic contents were higher in red-flesh than in white/yellow-flesh peaches. Carotenoid (orange pigments) content was higher in yellow-flesh than in white or red-flesh peaches (Byrne et al. 2004). AOA was about twofold higher in red-flesh varieties than in white/yellow-flesh varieties. Among the peaches, the AOA was well correlated with both phenolic and anthocyanin content. These results suggested that red-flesh peach varieties have a greater potential health benefit based on antioxidant content and AOA as compared to the white/yellow-flesh varieties. Antioxidant capacity and contents of total phenolics, anthocyanins, flavonoids, and vitamin C of peach and nectarine were found to be influenced by genotype and flesh colour traits (Cantín et al. 2009).

Studies showed that the extracts of peels and flesh of Maciel, Leonense, and Eldorado peach cultivars presented free radical scavenging activity in all concentrations tested, with a concentration-dependent action (Rossato et al. 2009). The immediate inhibition of chemiluminescence and the duration of this inhibition were significantly higher with the extracts than with the major compound (chlorogenic acid) alone, and it can be due to a synergistic or additive effect of other antioxidants present in the extracts. The 50% inhibitory concentration (IC_{50}) values for peach extract and chlorogenic acid were 1.19 and 8.43 μg/ml, respectively, when total radical-trapping antioxidant potential was evaluated, whereas IC_{50} values of 0.41 and 1.89 μg/ml was found when total antioxidant reactivity was evaluated in peach extract and chlorogenic acid, respectively. Chlorogenic acid presented a good contribution to antioxidant reactivity and potential, but the fruit extracts provided better antioxidant action.

Anticancer Activity

Studies demonstrated that supplementation with PPFE (*Prunus persica* flesh extract) might protect against cisplatin-induced toxicity in cancer patients (Lee et al. 2008). In a xenograft model with the repeated administration of a low-dose cisplatin (5 mg/kg body weight) for 15 days, and in an acute toxicity model with a single administration of a high-dose cisplatin (45 mg/kg body weight) over a 16 hours period, the consecutive administration of PPFE in combination with and prior to the cisplatin injection reversed the cisplatin-induced decrease in the liver weight as a percentage of total body weight, and the cisplatin-induced increases in the serum alanine aminotransferase and aspartate aminotransferase levels caused by liver damage. Moreover, the oral administration of PPFE significantly recovered the reduced glutathione level and inhibited lipid peroxidation in the cisplatin-treated mice. The administration of PPFE alone significantly inhibited the growth of CT-26 colon carcinoma xenografted onto mice without adverse effects (Lee et al. 2009). The combination of PPFE and cisplatin enhanced the inhibitory effect of cisplatin against tumour growth. In a xenograft model involving the repeated administration of low-dose cisplatin for 15 days, and in an acute toxicity model involving a single administration of high-dose cisplatin over a 16 hours period, the administration of PPFE in combination with and prior to the cisplatin injection reversed the cisplatin-induced reduction in the kidney weight. PPFE blocked the increases in the serum blood urea nitrogen and creatinine levels associated with the kidney damage. Moreover, the administration of PPFE induced a significant reduction in cisplatin-induced oxidative stress. These results indicated that PPFE may promote the therapeutic efficacy of cisplatin therapy, while attenuating its inherent nephrotoxicity. Cisplatin (cis-diamminedichloroplatinum II) is one of the most effective chemotherapeutic agents used in the treatment of a variety of human solid tumours.

The ethanol extract of the flowers of *Prunus persica* (Ku-35) at 100–1,000 μg/mL inhibited the amount of 14C-arachidonic acid/metabolites release from UVB-irradiated keratinocytes (Kim et al. 2000). It was also demonstrated that Ku-35 possessed the protective activity against UV-induced cytotoxicity of keratinocytes and fibroblasts. In addition, Ku-35 was revealed to protect UVB-induced erythema formation using guinea pigs in preliminary in-vivo study. All these results indicate that the flowers of *P. persica* extract may be beneficial for protecting UV-induced skin damage when topically applied. Further the scientists found that Ku-35 (50–200 μg/mL) was found to inhibit UVB- as well as UVC-induced DNA damage as measured by the COMET assay in the skin fibroblast cell (NIH/3T3) (Heo et al. 2001). In addition, Ku-35 inhibited UVB- or UVC-induced lipid peroxidation, especially against UVB-induced peroxidation at higher than 10 μg/mL. Ku-35 also had a the protective effect against UVB-induced non-melanoma skin cancer in mice. The application of Ku-35 clearly resulted in a delay of tumour development compared to the control. In tumour incidence, 100% mice in the control group and the low dose treatment of Ku-35 had tumours, whereas 94.1% of the mice had tumours after the high dose treatment of Ku-35 at the end of experiment (28 weeks). In tumour multiplicity, low and high treatments of Ku-35 resulted in 25.9% and 53.9% reduction. The findings indicated that Ku-35 protected against photogenotoxicity in NIH/3T3 fibroblasts. The possible action mechanism of Ku-35 may be through its antioxidant activity without pro-oxidant effect. Ku-35 could also show a delay of tumour development against UVB-induced skin carcinogenesis. These results suggested that Ku-35 extract may be useful for protecting UV-induced DNA damage and carcinogenesis when topically applied. They also reported that *P. persica* flower extract clearly inhibited UVB-induced erythema formation dose dependently when topically applied (IC_{50} = 0.5 mg/cm^2) (Kim et al. 2002). It also inhibited UVB-induced ear oedema (49% inhibition at 3.0 mg/ear). From the ethanol extract of peach flowers, four kaempferol glycoside derivatives were successfully isolated. Among the derivatives isolated, the content of multiflorin B was highest (3.3%, w/w). Multiflorin B inhibited UVB-induced erythema formation (80% inhibition at 0.3 mg/cm^2), indicating that this compound was one of the active principles of the extract. All these results suggested that *P. persica* flower extract may be useful for protection against UVB-induced skin damage when topically applied.

Central Nervous system Activity

Prunus persica seed extract (PPE) at 2.5 g/kg and tacrine at 5 mg/kg showed significant effects on acetylcholine concentration in the hippocampus of rats for more than 6 hours (Kim et al. 2003). At these doses, the maximum increases were observed at about 1.5 hours after administration of PPE, and at about 2 hours with tacrine, and were 454% and 412% of the pre-level, respectively. Tacrine (9-amino-1,2,3,4-tetrahydroacridine hydrochloride), is a well-known and centrally acting acetylcholinesterase (AChE) inhibitor, which had been developed for the treatment of Alzheimer's disease. The results suggested that oral administration of PPE and tacrine increased acetylcholine concentration in the synaptic cleft of the hippocampus mostly through AChE inhibition, and that PPE had a potent and long-lasting effect on the central cholinergic system.

Antiaging Activity

Croteau et al. (2010) showed that repair of various oxidative DNA lesions was more efficient in liver extracts derived from mice fed fruit-enriched diets. There was a decrease in the levels of formamidopyrimidines in peach-fed mice compared with the controls. Additionally, microarray analysis revealed that NTH1 repair protein was upregulated in peach-fed mice. The results suggested that an increased intake of fruits might modulate the efficiency of DNA repair, resulting in altered levels of DNA damage and improved genome integrity. DNA damage and oxidative stress are some important contributing factors to aging.

Allergy Activity

The lipid transfer protein Pru p 3 and Pru p1 the putative peach member of the Bet v 1 family, were identified as major peach fruit allergens (Ahrazem et al. 2007). A differential distribution between peel and pulp and different solubility properties were found for Pru p 3, Pru p 1, and peach profilin. Mean Pru p 3 levels were 132.86, 0.61, and 16.92 μg/g of fresh weight of peels, pulps, and whole fruits, respectively. The corresponding mean Pru p 1 levels were 0.62, 0.26, and 0.09 μg/g of fresh weight. Most US cultivars showed higher levels of both allergens than Spanish cultivars.

Traditional Medicinal Uses

Nearly all parts of the tree are used locally in traditional folk medicine. The flowers are diuretic, sedative and vermifuge and have been used for treatment of constipation and oedema. The leaves are considered to be astringent, demulcent, diuretic, expectorant, febrifuge, laxative, vermicidal and mildly sedative. Leaf decoctions have been employed for gastritis, whooping cough, coughs and bronchitis, to help relive vomiting and morning sickness during pregnancy. Dried, pulverised leaves has been used to heal wounds and sores. Gum from the stem alterative, astringent, demulcent and sedative and bark demulcent, diuretic, expectorant and sedative. Bark has been used in the treatment of gastritis, whooping cough, coughs and bronchitis. The root bark has been used in the treatment of dropsy and jaundice. The seed is antiasthmatic, antitussive, emollient, haemolytic, laxative, anti-inflammatory, analgesic, and sedative. It has been used internally in the treatment of constipation in the elderly, coughs, asthma and menstrual disorders. In Korea seed extracts have been used for constipation, laryngitis, menostasis, dermatopathy and contusion.

Peach seed like other *Prunus* species seeds contain amygdalin, wrongly dubbed as vitamin B17, Nitriloside or commercially as Laetrile. Laetrile has been spuriously claimed to have anticancer properties and have been illegally used in the treatment of human cancer. Laetrile is not registered for cancer use in USA, Europe and Australia. Recent scientific reviews of research papers and clinical trials all refute the claim that laetrile has beneficial effects for cancer patients and is not supported by sound clinical data (Dorr and Paxinos 1978; Ellison et al. 1978; Moertel et al. 1981, 1982; Milazzo et al. 2007; Queensland Heath 2006). The United States National Cancer Institute (Ellison et al. 1978) and Queensland Health (2006) have issued warnings that read Amygdalin (Laetrile) is a toxic drug that is not effective in treating or controlling cancer. In a large clinical trial conducted in the United States, Moertel et al. (1982) reported that no substantive benefit was observed in terms of cure, improvement or stabilization of cancer, improvement of symptoms related to cancer, or extension of life span. The hazards of amygdalin therapy were evidenced in several patients by symptoms of cyanide toxicity or by blood cyanide levels approaching the lethal range. Toxicity of cyanide poisoning has also been reported by other researchers (Humbert et al. 1977; Sadoff et al. 1978; Morse et al. 1979; Lee et al. 1982).

Other Uses

Various coloured dyes are obtained from the fruit (dark-grey to green) and leaves (green). A semi-drying oil expressed from the seeds are used in cosmetics, often as a substitute for almond oil in skin creams. The oil is also used as fuel in India. The gum from the stem is used as adhesive.

Peaches are revered in China, Japan, Korea, and Vietnam not only for its edible fruit and medicinal attributes, its beautiful ornamental flowers but also for its association with folklores and social ethnotraditions. The peach often plays an important part in Chinese tradition and is symbolic of long life. In China, the peach was said to be consumed by the immortals due to its mystic virtue of conferring longevity on all who ate them. One of the Chinese Eight Immortals, is often depicted carrying a Peach of Immortality. Due to its delicious taste and soft texture, in ancient China "peach" was also a slang word for "young bride". Momotaro, or "Peach Boy" one of Japan's most noble and semi-historical heroes who fights evil, was born from within an enormous peach floating down a stream.

Comments

Commercially, peaches are propagated by asexual methods such as grafting, budding (e.g. T-budding) and stem cuttings as they do not come true to type from seeds.

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