

Antioxidant Activity of Selected Medicinal Plants of Pakistan

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Abstract

In the current study an effort was carried out to investigate the fruits of some selected plants with highest antioxidant potential. For this purpose ethanolic crude extracts of selected plants fruits, frequently used for various medicinal purposes in Pakistan were subjected to 2,2-diphenyl-1-picrylhydrazyl radical scavenging assay at different concentrations ranging from 100 to 500 µg/ml. The results obtained revealed that the ethanolic crude extract of *Juglans regia* have DPPH scavenging activity of 95.42% at 500 µg/ml. This plant showed the highest DPPH scavenging capacity of all the tested plants. *Elaeagnus angustifolia* showed 43.90% inhibition of DPPH radical at 500 µg/ml. The ethanolic crude extract of

Keywords

Elaeagnus angustifolia (Russian Silverberry, Oleaster, or Russian-olive) is a species of *Elaeagnus*, native to western and central Asia, from southern Russia and Kazakhstan to Turkey and Iran. Its common name comes from its similarity in appearance to olive. The shrub can fix nitrogen in its roots enabling it to grow on bare, mineral substrates. The fruits are edible and sweet. The fruit of many members of this genus is a very rich source of vitamins and minerals, especially in vitamins A, C and E, flavonoids and other bio-active compounds. The dried powder of the fruits mixed with milk is used for rheumatoid arthritis and joint pains. The fruit contains flavonoids, terpenoids and cardiac glycosides, which may exhibit the anti-inflammatory and analgesic effects. *Cydonia oblonga* is the sole member of the genus *Cydonia* and native to warm-temperate southwest Asia. It is a small deciduous tree. Several studies have showed that *Cydonia oblonga* is a good and low cost natural source of phenolic acids and flavonoids [12,13]. Some and p-coumaric acid and flavonol glycosides have been isolated from *Cydonia oblonga* leaf [14]. The fruit of the plant are recognized as an important dietary source of health promoting compounds, due to its antioxidant, antibacterial and anti-ulcerative properties [15-17].

of food are thought to prevent diseases caused by oxidative stress [5,6]. For the current study the fruits of seven plants were selected. The selection of these plants was based on the observation that these plants are being used by local healers intensively for treatment of different ailments. The details of these plants are as follows.

Walnut (*Juglans regia*) belongs to family Juglandaceae. The fruits of the plant are receiving increasing interest as healthy food stuff, because their regular consumption has been reported to decrease the risk of coronary heart disease [7,8]. The health benefits of walnuts are usually attributed to their chemical composition. Walnuts are good source of essential fatty acids and tocopherols [9]. Linoleic acid is the major fatty acid, followed by oleic acid, palmitic acid and stearic acid [10]. Its high contents of polyunsaturated fatty acids have been suggested to reduce the risk of heart disease by decreasing the total LDL-cholesterol and increasing HDL-cholesterol [11]. Walnuts possess a higher content of α-tocopherol, a vitamin E family compound, which has a very high antioxidant activity, mainly in the prevention of lipid oxidation.

Morus alba commonly known as white mulberry. The species is native to northern China, and is widely cultivated and naturalized elsewhere in the world. It is widely cultivated to feed the silkworms, employed in the commercial production of silk. Five flavonol glycosides, i.e., rutin, isoquercetin, quercetin, astragaloside and kaempferol have been

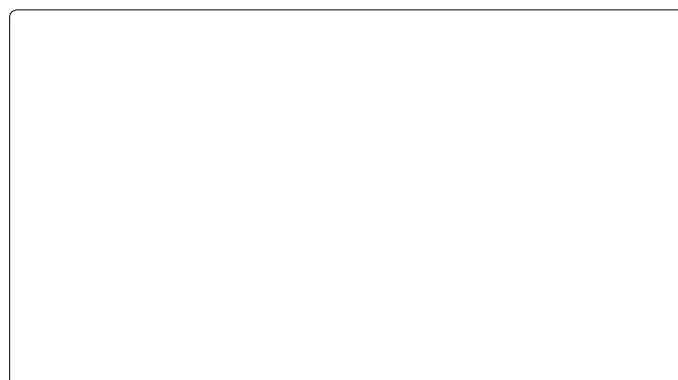
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reported in mulberry leaves [18-20]. *M. alba* is used in folk medicine to treat diarrhea, asthma, cough, dyspepsia, eye problems, intestinal ulcers, headaches, hemoptysis, hepatopathy, hoarseness, lumbago, melancholia, scabies, smallpox and splenopathy [21-24]. *Psidium guajava* belongs to myrtle family (Myrtaceae). The genus *Psidium* contains about 100 species of tropical shrubs and small trees. They are native to Mexico, Central America, and northern South America. A number of phenolic compounds such as gallic acid [25], protocatechuic acid [19], caffeic acid [25], ferulic acid [26] and ellagic acid [27] have been isolated from *Psidium guajava*. Besides these phenolic compounds some flavonoids like quercetin [25], leucocyanidin [28], kaempferol [25], quercetin-3-O-L-arabinofuranoside and quercetin-3-O-glactoside have also been isolated from *Psidium guajava*. These plants showed a variety of pharmacological uses like curing wounds, boils, skin and soft tissue infectious sites, etc. [29]. *Ziziphus jujuba* is commonly called red date or Chinese date. The plant belongs to Rhamnaceae. It is a small deciduous tree or shrub. The fruits of the plant are very delicious and taste like an apple. These can be eaten fresh, dried like dates or cooked in puddings, cakes, breads, jellies, soups, etc. It contains about 8.7% sugars, 2.6% protein, 1.4% ash, 1.7% pectin and 1.3% tannin. *Phoenix dactylifera* commonly known as date palm is widely cultivated for its edible sweet fruits. The date fruit pulp is rich in phytochemicals like phenolics, sterols, carotenoids, anthocyanins, procyanidins and flavonoids. The ratio and concentration of these constituents depend upon the type of fruit, stage of fruit picking, location and soil condition. The leaves are antipyretic and reduce obesity. The fruit is cooling, digestible, tonic, aphrodisiac, laxative and removes biliousness, burning sensations,



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