

SOME UNCOMMON FRUITS OF THE AMAZING WORLD

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ABSTRACT

Eating fruit provides health benefits-people who eat more fruits and vegetables as part of an overall healthy diet are likely to have reduced risk of some chronic diseases. Fruits provide nutrients vital for health and maintenance of the body. They reduce risk of heart attacks, stroke, cancers, obesity, type II Diabetes. They may lower blood pressure, risk of developing kidney stones and help to decrease bone loss. Most fruits are naturally low in fat, sodium and calories, none have cholesterol. They are sources of many essential nutrients, e.g., potassium, dietary fiber, vitamin C and folate (folic acid). Diets rich in potassium help to maintain healthy blood pressure, which include bananas, prunes, peaches, apricots, melon etc. Dietary fiber from fruits helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulosis. Vitamin C is important for growth and repair of all body tissues, helps heal cuts and wounds and keeps teeth and gums healthy. Folate helps the body to form red blood cells. Women of childbearing age who may become pregnant should consume adequate folate from foods, and in addition 400 mcg of synthetic folic acid from fortified foods or supplements. This reduces the risk of neural tube defects, spina bifida and anencephaly during fetal development. In this review article, some information regarding the uncommon fruits of the world have been summed up. It will provide researchers all over the world to explore the maximum health benefits of these fruits.

Keywords: Fruits, Medlar, Comelian Cherry, Strawberry, Ribes, Shadbush, Lingonberry, Persimmon, Silverberry, Nanking Cherry, Pawpaw, Shipova, Kiwi.

INTRODUCTION

In botany, a fruit is a part of a flowering plant that derives from specific tissues of the flower, one or more ovaries and in some cases accessory tissues [1]. Fruits are the means by which these plants disseminate seeds. Fruits account for a substantial fraction of the world agricultural output and some such as the apple and the pomegranate have acquired extensive cultural and symbolic meanings [2]. In common language, fruit normally means the fleshy seed associated structures of the plant that are sweet or sour and edible in the raw state such as apples, oranges, grapes, strawberries, bananas and lemons. On the other hand the botanical sense of fruit includes many structures that are not commonly called fruits such as bean pods, corn kernels, wheat grains and tomatoes [3]. Fruits form an important part of our daily life. In this review article, information has been gathered regarding some uncommon fruits of the world. These include:-

Mespilus germanica

known as the medlar or common medlar (Family Rosaceae) is a large shrub or small tree. The fruit has been cultivated since Roman times and is unusual in being available in winter and in being eaten when "bletted" (browned by rot) [4]. It is eaten raw and in a range of dishes. It may have been cultivated for as long as 3000 years. Until recently, *Mespilus germanica* was the only known species of medlar [5]. However in 1990, a new species was discovered in North America, now named *Mespilus canescens*. *M. germanica* pomes are one of the few fruits that become edible in winter, making it an important tree for gardeners who wish to have fruit available all year round. Its fruits are hard, acidic and high in bitter tannins [6].

They become edible after being softened, "bletted" by frost or naturally in storage when given sufficient time. Once bletted, the fruit can be eaten raw and are often eaten as a dessert, for example with cheese or tarts or used to make medlar jelly and wine. Another dish is medlar cheese which is similar to lemon curd being made with the fruit pulp, eggs and butter [7]. In the fruits, leaves, bark and wood of the tree have been used medicines for ailments including diarrhea, bloating of the stomach, throat abscesses and fever [Fig:1]

Cornus mas

known as Cornelian cherry, European cornel or dogwood (Family Cornaceae) is a species of flowering plant native to southern Europe,

Armenia, Azerbaijan, Georgia, Iran, Turkey, Lebanon and Syria. It is a medium to large deciduous shrub or small tree. The berries when ripe on the plant bear a resemblance to coffee berries and ripen in mid-to late summer. The fruit is edible but the unripe fruit is astringent. The fruit only fully ripens after it falls from the tree. When ripe the fruit is dark ruby red or a bright yellow. It has an acidic flavor which is best described as a mixture of cranberry and sour cherry, it is mainly used for making jam, makes an excellent sauce similar to cranberry sauce and then boiled with sugar and orange but also can be eaten dried. In Eastern Europe it is used as a medicine. It is very high in vitamin C and is used to fight colds. *Cornus* fruit has a long history of use in traditional Chinese medicine where it is used to tonify the kidneys and in cases of spermatorrhea [8]. The flowers are grown as an ornamental plant for its late winter flowers [Fig:2]

Fragaria vesca

Commonly called as wild strawberry, woodland strawberry, alpine strawberry, European strawberry (family Rosaceae) is a perennial herbaceous plant that grows naturally throughout in Northern Hemisphere and that produces edible fruits [9] [10] [11]. It is sometimes used as an herbal medicine, an herbal tea made from the leaves, stems and flowers is believed to aid in the treatment of diarrhea [Fig:3]

Ribes

Is a genus of 150 species of flowering plants native throughout the temperate regions of the Northern Hemisphere. It is usually treated as the only genus in the Family Grossulariaceae. The genus *Ribes* includes the edible currants (blackcurrant, redcurrant, whitecurrant), gooseberry and several hybrid varieties. The genus also includes the group of ornamental plants collectively known as the flowering currants, for instance *R. sanguineum*. Currant root and seeds are high in gamma linolenic acid. Blackcurrant root (*Ribes hudsonianum*) is used for the treatment of kidney diseases, menstrual and menopausal problems [12]. *Ribes glandulosum* is used as a fertility enhancer to assist women in becoming pregnant [Fig: 4]

Amelanchier

Commonly called as shadbush, shadwood or shadblow, serviceberry, sarvisberry, wild pear, juneberry, Saskatoon, sugarplum, wild-plum and chuckley pear is a genus of about 20 species of deciduous-leaved shrubs and small trees in the Family Rosaceae. *Amelanchier* plants

are valued horticulturally and their fruits are important to wildlife [13] [14] [15]. Fruit is harvested locally for pies and jams [Fig: 5]

Vaccinium vitis-idaea

Commonly called as lingonberry or cowberry (Family Ericaceae) is a short evergreen shrub that bears edible fruit. The fruit is a red berry with an acidic taste, ripening in late summer to autumn. The raw fruits are also frequently simply mashed with sugar, which preserves most of the nutrients and taste. Preserved fruit is commonly eaten with meatballs and potato pancakes. The berries are an important food for bears and foxes and many fruit eating birds. The berries contain plentiful organic acids, vitamin C, vitamin A (as beta carotene), B. vitamin B₁, B₂, B₃ and the elements potassium, calcium, magnesium and phosphorus. In addition to these nutrients, they also contain phytochemicals that are thought to counteract urinary tract infections, and the seeds are rich in omega 3 fatty acids [16] [17]. In folk medicine, it has been used as an astringent, antihemorrhagic, antiseptic, diuretic, a tonic for the nervous system and in various ways to treat breast cancer, diabetes mellitus, rheumatism and various urogenital conditions [Fig 6]

Diospyros virginiana

Commonly called as American Persimmon, common Persimmon, Eastern Persimmon or sugar plum (Family Ebenaceae) grows wild but has been cultivated for its fruit and wood since prehistoric times by Native Americans. The fruit is round or oval and usually orange yellow and sometimes bluish and are popularly used in desserts and cuisine. The astringency renders the fruit somewhat unpalatable. The fruit is a juicy berry containing one to eight seeds, flesh astringent while green sweet and luscious when ripe. It ripens in late autumn. The peculiar astringency of the fruit is due to the presence of a tannin similar to that of cinchona. The fruit is also high in vitamin C. The ripe fruit may be eaten raw, cooked or dried. Molasses can be made from the fruit pulp. A tea can be made from the leaves and the roasted seed is used as a coffee substitute. Other popular uses include desserts such as persimmon pie, persimmon pudding or persimmon candy [18] [19]. The fruit is also fermented with hops, cornmeal or wheat bran into a sort of beer or made into brandy [Fig 7]

Elaeagnus multiflora

Commonly called as Goumi, Natsugumi or cherry silverberry (Family Elaeagnaceae) is a deciduous or semi-evergreen shrub or a small tree. The fruit is round to oval drupe, juicy, edible with a sweet having astringent taste similar to that of rhubarb. The skin of the fruit is thin and fragile [20][21]. It is extremely rich in lycopenes [Fig 8]

Prunus tomentosa

Commonly called as Nanking cherry, Korean cherry, Manchu cherry, downy cherry, shanghai cherry, Ando cherry, mountain cherry, Chinese bush cherry, Chinese dwarf cherry or Hansens bush cherry (Family Rosaceae) is a deciduous shrub [22]. The fruit is a sweet but slightly tart cherry, scarlet ripening in early summer [23]. This has been widely cultivated throughout eastern Asia for its flowers and fruit. It is cultivated for a number of purposes [24]. The fruit is edible, being an ingredient of juice, jam and wine and in pickled vegetables and mushrooms [25]. It is also grown as an ornamental plant prized for its flowers and fruit [26] [Fig 9]

Asimia triloba

Commonly called as paw-paw (Family Annonaceae) is a species of Asimia in the same plant family as the custard apple. It is the largest edible fruit indigenous to the United States. It is a large shrub or small tree [27]. The fruit of the pawpaw is a large yellowish green to brown berry weighing from 0.7-18 oz (20-500 g) containing several brown seeds embedded in the soft edible fruit pulp. The fruits of the pawpaw are eaten by a variety of mammals, including raccoons, gray foxes, opossums, squirrels and black bears [28]. Pawpaw fruits are rich in fatty acids, the major one being octanoate. They also contain cis delta 9 and cis delta 11 and cis delta 13 octadecenoate. The fruit with its creamy white pulp has been likened to banana with hints of pineapple, mango and avocado as well as vanilla custard [29]. The

seeds have been shown to contain the chemicals asimitrin and 4 hydroxy trilobin. These chemicals seem to have selective cytotoxicity against prostate adenocarcinoma (PC-3) and colon adenocarcinoma (HT-29) cell lines, thus may become a useful chemotherapeutic chemical for these types of cancer. The leaves also contain toxic annonaceous acetogenins, making them impalatable to most insects [30]. The one notable exception is the zebra swallowtail butterfly (Eurytides Marcellus) whose larvae feed on the leaves of various species of Asimina, conferring protection from predation throughout the butterfly's life, as trace amounts of acetogenins remain present, making them unpalatable to birds and other predators.

The bark of pawpaw trees contains other acetogenins, including asimin, asiminacin, and asiminesin which have been shown to be potent inhibitors of mitochondrial NADH: ubiquinone oxidoreductase making it a promising source of pesticide and anti-tumour compounds. Pawpaw fruits have a sweet, custardish flavor somewhat similar to banana, mango with more protein than most fruits. They may also be blended into ice cream or included in pancakes [31]. Pawpaws are also used for juice-making, as either a fresh pawpaw drink or in drink mixtures. The fruit pulp can also be made into a country wine [Fig: 10]

Sorbopyrus auricularis

Commonly called as Shipova (Family Rosaceae) is a hybrid between the European Pear (Pyrus communis) and the Common Whitebeam (Sorbus aria). It is a small to medium sized tree, the fruit is a pome, edible with a sweet yellowish flesh, which tastes similar to a Nashi pear [32]. The hybrid is called as the Bollwiller Pear [Fig 11]

Actinidia arguta

Commonly called as hardy kiwifruit (Family Actinidiaceae) is a perennial vine native to Japan, Korea, Northern China and Russian Siberia. It produces a small fruit resembling the kiwifruit. The fruit is referred to as kiwi berry, arctic kiwi, baby kiwi, dessert kiwi, grape kiwi, northern kiwi or cocktail kiwi and are edible berry or grape sized fruit similar to kiwifruit in taste and appearance but are green, brownish or purple with smooth skin sometimes with a red blush. It can be eaten whole and need not be peeled [33][34]. Thin walled, its exterior is smooth and leathery. They are very rich in vitamin C [Fig 12].

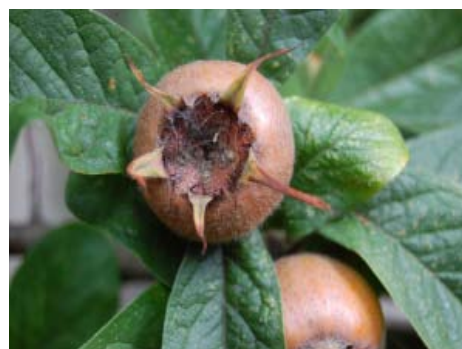


Fig. 1:



Fig. 2:



Fig. 3:



. Fig. 4:



Fig. 5:



Fig. 6:

DISCUSSION

Many hundreds of fruits including fleshy fruits like apple, peach, pear, kiwifruit, watermelon and mango are commercially valuable as human food, eaten both fresh and as jams, marmalades and other preserves. Fruits are also used in manufactured foods like cookies, muffins, yogurt, ice-creams, cakes and many more. Many fruits are used to make beverages, such as fruit juices (orange juice, apple juice, grape juice) or alcoholic beverages such as wine or brandy

[35]. Apples are often used to make vinegar. Fruits are also used for gift giving, Fruit Basket and Fruit Bouquet are some common forms of the fruit gifts. Fruits are generally high in fiber, water, vitamin C and sugars [36]. Regular consumption of fruits is associated with reduced risks of cancer, cardiovascular disease especially coronary heart disease, stroke, Alzheimer disease, cataracts and some of the functions decline with aging [37].



Fig. 7:



Fig. 8:



Fig. 9:



Fig. 10:



Fig. 11:



Fig. 12:

Diets that include a sufficient amount of potassium from fruits and vegetables also help reduce the chance of developing kidney stones and may help reduce the effects of bone-loss [38]. Nonfood uses of fruits include ornamental trees and shrubs which are often cultivated for their colorful fruits including Holly, Pyracantha, Viburnum, Skimmia, Beautyberry and Cotoneaster [39]. Fruits of opium poppy are the source of opium which contains the drugs morphine and codeine as well as the biologically inactive chemical thebaine from which the drug oxycodone is synthesized. Osage orange fruits are used to repel cockroaches [40].

Bayberry fruits provide a wax often used to make candles. Many fruits provide natural dyes e.g walnut, sumac, cherry and mulberry [41]. Dried gourds are used as decoctions, water jugs, bird houses, musical instruments, cups and dishes [42]. Coir is a fiber from the fruit of coconut that is used for doormats, brushes, mattresses, floortiles, sacking, insulation and as a growing medium for container plants [43]. The shell of the coconut fruit is used to make souvenir heads, cups, bowls, musical instruments and bird houses [44]. Fruit is often used as a subject of still life paintings [45].

CONCLUSION

In this review article, information regarding the uncommon fruits of the world has been gathered. This will help researchers all over the world to explore more beneficial medicinal properties of these fruits. However, extensive studies need to be carried out for this purpose.

CONFLICT OF INTERESTS

Declared None

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