THE BARBADOS OR WEST INDIAN CHERRY

By
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The Barbados or West Indian cherry, also known as Acerola in Puerto Rico and Cereza in Cuba and other Latin American countries, is a shrub or small tree that has been grown in South and Central Florida for many years, mainly as a backyard fruit plant. It is valued for its fruits which have a characteristic flavor and which are usually eaten out-of-hand. It is native to the West Indies, Central America and northern South America. It was first brought into Florida by Pliny Reasoner in the 1880's and was listed in the first catalog of the Royal Palm Nursery, but it was not recognized as an edible fruit plant until 1903.

The Barbados cherry *(Malpighia glabra)* is in no way related to the true cherry, which is a member of the rose family, nor is it related to the Surinam cherry, a popular Florida shrub of the Myrtle family, but belongs to the Malpighiaceae and is thus closely allied to such ornamentals as *Thryallis* (Galphemia) *glauca* and the Holly Malpighia.

This plant has received considerable attention in recent years due to the discovery of the extremely high vitamin C content of the fruit. In 1946 Asenjo and Guzman in Puerto Rico reported findings of remarkable concentrations of ascorbic acid in Barbados cherries, with the actual totals varying from 1,030 to 3,309 milligrams for each 100 grams of edible material, or from 1 to 3 grams of the vitamin per 100 grams, (approximately 3 1/2 ounces) of juice, the green fruits being the highest, and fully ripe fruits the lowest in acid content. Mustard, in Florida also reported on the high ascorbic acid content of Barbados cherries, finding 1,028 to 4,675 milligrams per 100 grams of edible material. Here again, the green fruits were the highest. She also found 509 to 673 milligrams per 100 grams of ascorbic acid in jellies, a surprising amount, since cooking tends to destroy the vitamin C.

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The daily requirement for an average adult under normal conditions is 75 mg. of ascorbic acid. Minimum requirements are from 20 to 25 mg., adequate requirements 40 to 45 mg. and the optimum 75 to 80. Any fruit with more than 60 mg. of ascorbic acid per 100 grams is considered an excellent source of vitamin C. Most fruits provide fair sources of this vitamin, but the Barbados cherry is superior to all with the exception of rose hips. The following table lists 26 fruits that are considered to have high values in vitamin C. This information has been compiled from varied sources in the United States and Latin America. The ascorbic acid content is given in milligrams per 100 grams of juice or edible material.

COMPARATIVE ASCORBIC ACID CONTENT OF 25 COMMON FRUITS

Rosa rugosa, rose hips	1,700 to 6,977
Barbados cherry	1,000 to 4,676
Myrciaria glomerata	706 to 2,417
Phyllanthus emblica	625 to 1,814
Guava	23 to 486
Cashew apple	147 to 348
Green pepper	86 to 275
Adansonia digitata	300
Ceylon gooseberry	66 to 245
Byrsonima crassifolia	90 to 192
Mango	7 to 147
Crataegus pubescens	90 to 119
Papaya	36 to 109
Lychee	42 to 84
Naranjilla	31 to 84
Jujube	56 to 82
Strawberry	41 to 81
Muntingia	81
Spondias purpurea	26 to 73
Citrus fruits:	
Sour orange	43 to 103
Lemon	50 (23 to 60)
Orange	49 (37 to 80)
Grapefruit	40 (23 to 50)

Tangerine	31	(15 to 57)
Lime	30	(25 to 49)

It will be seen that 100 grams of Barbados cherry contains more ascorbic acid than 8 average size guavas or 30 fresh oranges, and that one six ounce glass of Barbados cherry juice has more ascorbic acid than 15 quarts of orange juice. Eating just one Barbados cherry will fulfill the individuals daily vitamin C requirement.

The vitamin C content of the fruit has been found to vary with the clone so that some seedlings produce fruit with more ascorbic acid than others, but it is of interest to note that all of the selections tested to date that are definitely known to have been from the true Barbados cherry have shown relatively high amounts, varying from 1,000 to over 4,000 mg. per 100 g. of juice. The vitamin C content also varies with the ripeness of the fruit; the green fruit has more ascorbic acid, the pink-green or half-ripe fruit and the red-ripe fruit are mostly the same. The time of the year also seems to affect the concentration of the vitamin since more ascorbic acid is present in the fruit in July than in May.

The Barbados cherry is also considered a fair source of vitamin A, containing 1,010 I. U. per 100 grams of edible fruit (the daily requirement is 5,000 I. U.) The fruit in addition contains thiamine, riboflavin, and niacin but these vitamins are present in low amounts and do not differ appreciably from most other fruits. The fruit is a good source of calcium and iron, but contains only small amounts of phosphorus.

The skin of the fruit is very tender and easily bruised when handled. It will not hold up well after harvest and, therefore, should be utilized as soon as possible. The fruit should be put into shallow containers and if desired, it can be put into cold storage at 45 degrees F., overnight.

Its main use is as a dooryard fruit to be eaten out-of-hand. It also makes a delicious fresh juice and ice and can be used to make a sherbert, syrup, ice cream, jelly, preserve or punch. It can also be made into a fresh fruit concentrate but this commercial possibility has not been fully explored. At the present time, its only commercial use is

as an additive to baby food juices, particularly apple juice, to fortify their vitamin content.

The Barbados cherry is a shrub or small tree, becoming about 15 feet high when 10 to 12 years old. Flowering begins in April or May and fruit is ripe three weeks later. Some seedlings flower and fruit from April to November almost continuously, producing one crop of fruit after another. But there are usually peaks of heavy fruiting, as many as 3 or 4 in some seedlings, in others 8 to 10 or more.

The fruit is berry-like, globlular, shallowly 3-lobed, usually a bright red in color and superficially resembling a true cherry. Inside there are 3 winged and pitted stones, each of which contains a seed. The fruit of improved clones averages about one inch across, weighs about 1/3 ounce, and contains about 60 to 70 percent juice. The flavor resembles a northern crab apple, because of the presence of malic acid, but it has a flavor all its own. Some seedlings produce fruit that is quite tart or acid, others sub-acid, and some semi-sweet.

When grown from seed, the Barbados cherry shows considerable variation in growth habit, flowering and fruiting, quality and flavor, vitamin C content, and yield. In order to establish desirable clones, it is necessary to select from among the seedlings those which possess superior characters.

The Sub-Tropical Experiment Station has been interested for many years in the Barbados cherry as a fruit plant for Florida. During the 1930's a number of plants were grown in the tropical fruit collection and many seedlings were distributed for trial. In view of the commercial interest in this fruit in recent years emphasis has been placed on selection of clones which show superior characters and three clones were selected as being desirable for testing in the field. One produced a fruit that is semi-sweet and the other two have tart or acid fruits. Ten plants of each of these selections were planted in the field in 1949 with records on growth and yields being kept since 1952. The semi-sweet clone proved to be superior to the other two in several respects.

The sweet variety is more vigorous in growth and has a more desirable upright habit. Is has also proven to be more