



Hibiscus

Botanical Name: *Hibiscus sabdariffa*
Family Malvaceae
Commercial name: Roselle, L'oiselle, Jamaican sorrel, and Karkade, Bissap

Background and Uses

More than 300 species of hibiscus can be found around the world, but only *Hibiscus sabdariffa* provides the swollen red calyces known as roselle and is of interest in herbal teas and other food products. The calyces are dried and brewed into teas, and used in the processing of juices, jellies, jams, ice cream and flavors. In Africa, the calyces are frequently cooked as a side-dish eaten with pulverized peanuts. For stewing as sauce or pies, they can be left intact, making them almost indistinguishable from cranberry sauce. The calyces possess over 3% pectin and have been recommended as a source of pectin for the fruit-preserving industry. In the West Indies and tropical America, roselle is prized primarily for the cooling, lemonade-like beverage made from the calyces. In Egypt, roselle "ade" is consumed cold in the summer, hot in winter. In Africa, dried roselle is pressed into solid cakes or balls. In Senegal, the dried calyces are squeezed into great balls weighing 175 lbs (80 kg) for shipment to Europe, where they are utilized to make extracts for flavoring liqueurs (McCaleb, 1996). The young leaves and tender stems of roselle are also eaten raw in salads, cooked as greens, or added to curries as seasoning. The leaves of green roselle are marketed in large quantities in West Africa. The seeds are somewhat bitter but have been ground to a meal and also roasted as a substitute for coffee. Nutritionists have found roselle calyces as sold in Central American markets to be high in calcium, niacin, riboflavin and iron.

Traditional and Modern Medicinal Uses

In India, Africa and Mexico, all above-ground parts of the roselle plant are valued in native medicine. Infusions of the leaves or calyces are regarded as diuretic, cholerectic, febrifugal and hypotensive, decreasing the viscosity of the blood and stimulating intestinal peristalsis. Pharmacognosists in Senegal recommend roselle extract for lowering blood pressure. The calyces exhibit hypotensive activity and are reported as antispasmodic, anthelmintic and antibacterial. In East Africa, the calyx infusion, called "Sudan tea", is taken to relieve coughs. A lotion made from leaves is used on sores and wounds. The seeds are said to be diuretic and tonic in action and the brownish-yellow seed oil is claimed to heal sores on animals. Brazilians attribute stomachic, emollient and resolute properties to the bitter roots. (Morton, 1987).

The dried calyces contain the flavonoids gossypetine, hibiscetine and sabdaretine. The major pigment, formerly reported as hibiscin, has been identified as daphniphylline. Small amounts of delphinidin 3-monoglucoside, cyanidin 3-monoglucoside (chrysanthenin), and delphinidin are also present. Toxicity is slight.

The Plant. *Hibiscus sabdariffa* is an annual herb native to tropical Africa reaching up to 2 meters (Fig. 1). Stems glabrous; leaves ovate, with upper leaves 3 to 5 palmately lobed.



Figure 1. The mature plant growing in KwaZulu-Natal, South Africa (left), with the harvested red calyces sun-drying (right).

Cultivation and Processing

Hibiscus is relatively hardy and grows well in most well-drained soils. Plants require 4 to 8 months with a night-time temperature higher than 21°C. Hibiscus requires a monthly rainfall ranging from 130 to 260 mm in the first 3 to 4 months of growth. Dry periods can be withstood in the last months of growth, and may be desirable toward the end of the cropping system to enhance proper dry down. Rain and high humidity during harvest and drying can downgrade the quality of the calyces and reduce the yield (McCaleb, R. 1996). In South Africa, hibiscus starts flowering in March and the first fruit are harvested manually in May (fall). The harvest is timed according to the ripeness of the seeds. Hibiscus can be harvested as a single destructive harvest or on a continuous basis where only ripe calyces are harvested. Care is taken during the harvesting operation to avoid contamination by extraneous material and for the calyx not to touch the soil. Calyces are sun-dried. About 11 lbs (5 kg) of fresh calyces dehydrate to 1 lb (0.45 kg) of dried Roselle. All extraneous and diseased materials are removed. After drying, the hibiscus is stored and shipped in breathable woven or paper netted bags.

References

- (1) McCaleb, R., 1996. Roselle production manual (*Hibiscus sabdariffa*). Herb Research Foundation, USA (www.herbs.org/africa/hibiscus_production_manual.html)
- (2) Morton, J.F., 1987. Roselle, p. 281-286. In: C.F. Dowling (ed). Fruits of warm climates. Media, Inc., Greensboro, NC.
- (3) <http://www.hort.purdue.edu/newcrop/Crops/>; (4) www.vietfarm.com/roselle.htm;
- (5) http://edis.ifas.ufl.edu/scripts/htmlgen.exe?body&DOCUMENT_MV126 ;
- (6) <http://agrolink.moa.my/da/english/croptech/rsletek.html>

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