

Biological Characteristics, Nutritional and Medicinal Value of Roselle, *Hibiscus Sabdariffa*

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Fig. 1: Roselle, *Hibiscus sabdariffa*

Scientists at Southern University Ag Center are conducting a research project on *Hibiscus sabdariffa*, investigating its nutritional value under various growing conditions. The project plans to introduce its products to food markets and to reach out small farmers to increase its marketability and profitability. This bulletin presents the basic information regarding the biological characteristics, food use, and medicinal values of Roselle, *Hibiscus sabdariffa*.

Hibiscus has more than 300 species which are distributed in tropical and subtropical regions around the world. Most hibiscus species are used as ornamental plants, but many are believed to have certain medicinal properties; among them is *Hibiscus sabdariffa* (Fig. 1), commonly named as “red sorrel” and “roselle”. In this paper, we will call the species by its common name “roselle”.

Botanic description

Roselle belongs to Malvaceae family. It is an erect, mostly branched, annual shrub. Stems are reddish in color and up to 3.5 m tall. Leaves are dark green to red, alternate, glabrous, long-petiolate, palmately divided into 3–7 lobes, with serrate margins. Flowers (Fig. 2) are red to yellow with a dark center containing short-peduncles.



Fig. 2: Roselle flower

The flowers have both male and female organs. Seedpods, as shown in Fig. 1, are enclosed in their red, fleshy calyxes which are commonly used for making food and tea.

Ecology

Roselle tolerates a warm and humid tropical and subtropical climate, and is susceptible to damage from frost. Its hardiness zone ranges from 9 to 10. Roselle can tolerate little shade and can be grown in greenhouse (Fig. 3), but it normally grows best in field conditions under the full sunlight (Fig. 4).



Fig. 3: Roselle, grown in a greenhouse condition at Southern University Agricultural Research and Extension Center, Baton Rouge, LA.



Fig. 4: Roselle, grown under field conditions in Louisiana

Food Uses and Value

Many parts of roselle including seeds, leaves, fruits and roots are used in various foods. Among them, the fleshy red calyces are the most popular. They are used fresh for making wine, juice, jam, jelly, syrup, gelatin, pudding, cakes, ice cream and flavors and also dried and brewed into tea, spice, and used for butter, pies, sauces, tarts, and other desserts. The calyces possess pectin that makes a firm jelly. The young leaves and tender stems of roselle are eaten raw in salads or cooked as greens alone or in combination with other vegetables and/or with meat. They are also added to curries as seasoning. They have an acid, rhubarb-like flavor. The red calyces contain antioxidants including flavonoids, gossypetine, hibiscetine and sabdaretine. The fresh calyces are also rich in riboflavin, ascorbic acid, niacin, carotene, calcium, and iron that are nutritionally important. The seeds, are high in protein, can be roasted and ground into a powder then used in soups and sauces. The roasted seeds can be used as a coffee substitute. The young root is edible, but very fibrous.



Fig. 5: "Red Zinger" jelly made from Roselle calyces, sold in the Red Stick Farmer's Market, in downtown Baton Rouge, LA.

Medicinal Uses

Roselle is used in many folk medicines. It is valued for its mild laxative effect and for its ability to increase urination, attributed to two diuretic ingredients, ascorbic acid and glycolic acid. Because it contains citric acid, it is used as a cooling herb, providing relief during hot weather by increasing the flow of blood to the skin's surface and dilating the pores to cool the skin. The leaves and flowers are used as a tonic tea for digestive and kidney functions. The heated leaves are applied to cracks in the feet and on boils and ulcers to speed maturation. The calyces and seeds are diuretic, laxative and tonic. The ripe calyces, boiled in water, can be used as a drink to treat bilious attacks. A lotion made from roselle leaves is used on sores and wounds.

References

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Fig. 6: Roselle growers in Louisiana



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