

## Roselle

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### SUMMARY

According to the global demand for food is expected to increase by 60% in the year 2050 because of increase in the population. Edible wild plants are important sources of dietary nutrients, which contribute to the proper growth, and functioning of the body. One such plant which is having multiple advantages in industrial application is roselle.

### INTRODUCTION

The Roselle is Scientifically named as *Hibiscus sabdariffa* belongs to the Family Malvaceae. It has many uses in different industrial application and consumed as leafy vegetable in most parts of the world.

1. It is used in confectionery, drugs, colouring of foods and Wines.
2. It is becoming increasingly important because of the growth in the export as a source of natural dye and preparation of a popular soft drink from the dried calyces.
3. The fresh calyces are used in culinary, confectionary and herbal drink.
4. Medicinally it possesses diuretic, demulcent, emollient, laxative, antiseptic, antiscorbutic, antispasmodic and choloretic properties.
5. The drug extract is also used to cure heart and nerve diseases, asthma, and skin diseases.
6. The seeds are reported to have demulcent, diuretic and tonic properties, and are recommended in cases of dyspepsia, strangury and debility.

### Cultivation Aspects:

The roselle crop is usually propagated by sowing the seeds directly into the field. As the seeds lose viability rapidly, seeds from the previous season's crop only should be used for sowing. Roselle is very sensitive to changes in the length of day. This photoperiodism requires the planting time to be set according to the length of the day rather than rainfall requirements. It prefers a warm humid or dry climate with even rainfall of 150 to 200 cm per year and about 25 cm per month during the growing period. It can grow as dry rain fed crop or also as an irrigated crop, but it does not stand heavy and continuous rains, water logging, winter cold and frost. It is known to do well from locations at sea level to an elevation of 600-780 m. The plant is found under cultivation on large types of soils ranging from sandy to heavy clays. However, a well-drained loamy soil with good quantity of organic matter is ideal for growing the crop. Before sowing, the land is thoroughly prepared and brought to a fine tilth. It is a deep-rooted crop, therefore deep plowing is recommended in preparing the seedbed. After the preparation of convenient sized plots (6 m x 4.5 m), soil is incorporated with recommended dose of manure and fertilizers. Ridges and furrows are opened at a spacing of 75 cm along the rows. The seeds are pre-soaked for 12 hours in water and treated with 0.2% captan or thiram for 30 minutes and then sown at the rate of 6–8 kg/ha, 3-4 seeds per hill and approximately 2.5-5 cm depth 60 cm – 1 m between rows and 45–60 cm apart. Seeds are usually planted at the beginning of the rainy season. The reduced planting rate produces a larger calyx. Sowing is done by hand or using a modern grain drill. A good alternative tool would be a corn planter small enough to accommodate the hibiscus seeds. Thinning is also done by hand.



Fresh Roselle Calyces



The field is irrigated immediately after the sowing if there are no rains. Later, the irrigation is given at a regular interval of 4 days till the seedlings emerge and are well established. Later, a weekly irrigation during the dry period is enough. The crop should be kept weed free hence two weedings during the early period of growth are enough to suppress the weeds.

### Harvesting and Storage:

*H. sabdariffa* is harvested from late November onwards. The harvest is timed according to the ripeness of the seed. The fleshy calyces are harvested after the flower has dropped but before the seed pod has dried and opened. The longer the capsule remains on the plant after the seeds begin to ripen, the more susceptible the calyx is to disease and sun cracking. The calyces ripen about three weeks after the start of flowering, which is 100–160 days after the plants are transplanted outdoors. The fruit ripens progressively from the bottom of the plant to the top. Harvesting is carried out by intensive hand labor, the calyces being picked singly at the appropriate stage. The fruit may be harvested when fully grown but still tender, when they can be easily snapped off by hand, later harvesting requires clippers. The fruit is easier to break off in the morning than at the end of the day. On average, each fruit yields about 7–10 g of sepals. Drying is the traditional method for preserving foods. Roselle drying is done in one of two ways: by harvesting the fresh fruit and then sun-drying the calyces, or by leaving the fruit to partially dry on the plants and harvesting the dried fruit, keeping the crop well protected during the process. Dehydration depends on the two fundamental processes of heat transfer (heat is transferred into the fruit) and mass transfer (subsequent removal of moisture from it). The yield of about 13000 to 14000 kg of fresh calyces which in turn yield 1800 to 2000 kg dried calyces in addition to a seed yield of 2500 to 3000 kg per hectare may be obtained. The recovery percentage of dye is 1.97 and fatty oil is 16.2 from calyces and seeds, respectively.

### CONCLUSION:

Roselle being a drought tolerance crop can be grown in many parts of the world. Due to many industrial, medicinal and domestic applications it has become an ideal crop for cultivating in many developing countries. It has huge market demand in export as a source of natural dye.

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