

## ECHO Asia Seed Fact Sheet

Scientific name – *Hibiscus sabdariffa*

English common name – Roselle, Jamaican sorrel, Indian sorrel, Red sorrel, Guinea sorrel

Regional common names – (from Multilingual Multiscript Plant Name Database <http://www.plantnames.unimelb.edu.au/Sorting/Hibiscus.html>)

- Chinese: 玫瑰茄 mei gui qie, 山茄子 shan qie zi
- Japanese: ローゼラ roozera, ローゼル roozeru, ロゼルスウ rozerusou
- Thai: กระเจี๊ยบ krachiap (kra chiap), กระเจี๊ยบแดง kra chiap daeng



Varieties –

- **Burmese:** A hardy, red-stemmed roselle that produces many calyces. Edible leaf shoots make it an excellent vegetable variety. 90 days from seed to flower.
- **Bhutanese:** Has larger fruits, thicker calyces, and darker leaves than the “Burmese” variety. Good for calyx production.

General description and special characteristics – A tall, slightly bushy perennial plant with red stems, leaves and succulent calyces.

Crop uses (culinary) – The red acidic calyces of roselle can be dried and boiled with sugar to make teas, jellies, sauces, chutneys and preserves. Tender leaves and stalks are eaten in salads and are also used in Myanmar to create a chilli paste. The seeds are edible and contain oil that can be extracted and used for culinary purposes.

Crop uses (medicinal) – Roselle has a number of reported medicinal uses, including its use as an antimicrobial, diuretic, antihypertensive, antioxidant and cancer preventative. Studies suggest that both the seed oil and leaf extracts are effective as an antimicrobial agent (Marjorie et al, 2011; Zoue et al, 2012). Its diuretic effects are also substantiated by trials (Ehemiere et al, 2011; Jimenez et al 2012), meaning it may be an effective treatment or preventative for some kinds of liver and kidney disease. Ehemiere et al. note that large amounts of roselle extracts (i.e. tea) should not be consumed while taking certain hypertension drugs that also act as diuretics (2011). Some studies have found roselle to be effective in reducing hypertension, but results remain mixed so its effectiveness should be considered unconfirmed (Al-Sabban et al. 2010). Roselle contains the antioxidant anthocyanin (Ajiboye et al. 2011), and roselle extracts have been demonstrated to cause cell death in some, though by no means all, cancer cells (e.g. Khaghani et al., demonstrate anti-carcinogenic effects on some types of breast cancer cells). It should be cautioned that the trials of roselle's medicinal properties were typically not done with traditionally prepared beverages, so the efficacy of traditional roselle tea or juice as a medicine is not fully documented.

Seasons of production – Roselle is a short-day plant, meaning that it will not flower when days are over 13 hours. When grown for calyces, it is planted late in the rainy season since the days are shortening, then harvested in the cool season. When grown for fiber, it must be planted at least 3-4 months before short days induce flowering, with earlier planting providing higher yields.

Length of production and harvest period – Fruits are picked while tender, plump and fleshy, approximately 15-20 days after flowering.

Pollination – Roselle is self-pollinated.

Plant spacing – If grown for calyx production, seeds can be sown directly in the soil, then thinned to 1 m. For larger plantings, seedlings can be transplanted 1–2.5 m apart in rows 2–3.5 m apart, with wider spacing generally providing

higher calyx yield (Babatunde et al. 2002). For higher yields of fiber and leaf matter, denser planting with 15-30 cm spacing is recommended (Ramos et al. 2011).

Production methods – Roselle can be propagated by cuttings or grown from seed. Rotations are sometimes used to prevent losses from nematodes. A sequence of a legume green-manure crop, then roselle, and then corn is suggested. Roselle responds favorably to applications of nitrogen: 45 kg/ha is considered a safe level in India, applied in the form of compost or mineral fertilizer in conjunction with a small quantity of phosphate.

Known environmental conditions for production – Roselle is suitable for tropical climates with well-distributed rainfall of 1500–2000 mm yearly, from sea-level to about 600 m altitude. It tolerates a warmer and more humid climate than kenaf, but is also more susceptible to damage from frost and fog. It is not shade tolerant and must be kept weed-free, but will tolerate floods, heavy winds or stagnant water.

Known soil requirements – Roselle grows best in permeable soil, a friable sandy loam with humus being ideal. However, it will adapt to a variety of soils.

Known pests – The hibiscus mealybug, *Maconellicoccus hirsutus*, is a serious pest in India. Roselle is also susceptible to damage from the root-knot nematode, *Heterodera radiculicola*. Scale insects may attack stems and branches, while aphids attack leaves and flower buds. A mildew fungus (*Oidium* sp.) which causes leaf damage may require control.

Seed saving – To save seed, allow fruit to dry until brown and crisp. Extract seeds and store in a cool, dry place.

#### References –

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