

The Luffa - for food, sponges & more!

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The Angled Luffa

The luffa that most Singaporeans are familiar with is the angled luffa. The young fruits, which are a common sight at local markets, are shaped like a long baseball club measuring up to 60 cm in length. They have a dark green rind that is papery in texture and the most prominent feature of the fruit is the 10 ribs that encircle the exterior. Botanically known as *Luffa acutangula*, the young fruits of the angled luffa are mainly grown for food.



Right: The familiar angled luffa.

The angled luffa has several names. Due to the ribs, which are also referred to as ridges, the angled luffa is sometimes called the “ridged gourd”. People from the West gave the angled luffa the name “Chinese okra” due to its close resemblance to the okra. Okra is another name for the lady’s finger, which has similar-looking ribs on its fruit. Even the local Hokkien names for the angled luffa and lady’s finger are very similar, which arise from the ribs that these two fruits possess. “Kak kuay” refers to the angled luffa, which literally translates to “angled melon”. The lady’s finger is known as “Kak tau” and has the meaning of “angled bean”. The Chinese name of the angled luffa (ling jiao si kua, 棱角丝瓜) is also a reflection of its external appearance.

The Smooth Luffa

Another related species, *Luffa aegyptiaca*, produces fruits that are devoid of the prominent ribs seen in the angled luffa. Instead, there are 10 shallow furrows on the fruit. Its fruits are also edible when young but they have an additional use - the mature fruits can be made into kitchen sponges and back scrubbers. After the hard but brittle outer rind and seeds are removed from the mature fruit, a large entwined mass of fibers is obtained. This mass of fibers is made up of mainly the dried up xylem network of the fruit, which formerly served as the fruit's water transportation pipeline. In contrast, the fruits of the angled luffa are seldom used to make sponges as they more difficult to strip of skin and flesh, in spite of a very similar internal structure.



Above: Cross-section of the vegetable sponge. (Source – Wikimedia Commons)

Left: The young fruit of the smooth luffa.

Due to the lack of prominent ribs on its fruits, *Luffa aegyptiaca* is called the smooth luffa. It is also known as the sponge or dishcloth gourd as its fruits can be made into vegetable sponges. The smooth luffa may sometimes be referred to with another synonymous botanical name, *Luffa cylindrica*. Its species name is indicative of the cylindrical appearance of the fruits. The smooth luffa's Chinese name (yuan tong si gua, 圆筒丝瓜) also points in the same direction too. There is some variation in the appearance of the smooth luffa – fruits can be either short and fat or long and skinny. Cultivars with fruits of the former characteristic are usually harvested for food when they are about 20 to 30 cm long. For the latter, they are harvested when they are about 60 to 80 cm in length. For usage as a sponge, fruits can be allowed to mature on the vine until the rind turns brown and brittle and this usually takes up to 3 months. Another method, which is recommended, is to harvest the mature fruits while they are still green and then immersing them in water to until the rind comes off. The resulting sponge obtained is then bleached and dried in the sun.

These two Luffa species are members of the melon family, Cucurbitaceae. The cultivars of these two species have been bred and selected to produce only non-bitter fruits and their ancestors are from the Old World. Both species share many similarities and it is quite difficult for the layman to tell plants of the two species apart in the absence of fruits. But there is this slight difference in terms of the shape of the leaves between the two species – the smooth luffa has deeply lobed leaves and there will be silverish mottlings on the younger leaves. On the other hand, the angled luffa has leaves that are shallowly lobed and the young leaves are a plain green in colour. The vines of both species are vigorous, rampant and large, often reaching lengths of 10 m. Their stems are not round, but are roughly pentagonal in cross-section. The tendrils that the plants possess for climbing and support are branched, unlike those seen in cucumbers.



Left: Another variety of the smooth luffa which is long and slender. Fruits must be allowed to hang freely. Otherwise, the shape of the fruit will become distorted.

Right: The fruit of same variety of luffa ready to be picked for cooking.

More about the Luffa Plant and other uses

Plants are monoecious, that is, they produce both female and male flowers on a single vine. Like other cucurbit flowers, the female flowers of the luffa can be distinguished from the male via the presence of a small little fruit located just behind the petals. The male flowers are produced in clusters whereas the females are borne singly. Interestingly, it has been reported that the flowers of the angled luffa open in the early morning whereas those of the smooth luffa open later in the afternoon. Luffa flowers are highly decorative. They are large (about 5 cm in diameter), round and bright yellow in colour, often attracting varied pollinators like bees to them.



Above left: The bright yellow flowers of the luffa plant are highly conspicuous and decorative.

Above right: Buds of both male and female flowers occur at the same leaf axil. The more prominent bud is that of the female flower.

Below Left: Female flowers are characterised by the “fruit” located just behind the petals. This picture shows a recently pollinated female flower, which will develop into a fruit.

Young fruits of both luffas are harvested for food about after 2 to 3 weeks after fruit set. This is the stage where the fruits are still tender and not bitter. They are often sliced and then fried or used in soups. The flowers can also be eaten. The male flowers are ones that are usually picked and prepared just like any other leafy vegetable. Rather than allowing them to wither and fall off, one should harvest them! What's more - they are produced in large numbers! Even the young shoots and leaves can be used for food. Seeds are flat and black in colour when mature and these can be roasted and eaten! An edible oil is also extracted from the seeds. The sap from the smooth luffa (si gua lu, 丝瓜露) collected from a cut vine is used to moisturise the skin.



Left: The flat, black seeds of the luffa.

Right: A tray of luffa seedlings. They can be transplanted into the final growing location when there are 4 true leaves.

Growing the Luffa

The luffa plant is not a difficult plant to grow because it is well adapted to the tropical climate of Singapore. However, try to avoid the rainy season when you are intending to grow a crop of luffas. Like many other vegetable crops, luffa plants like to be grown in fertile soil that is well drained. The soil should also be enriched with organic matter, which would also provide slightly acidic conditions that luffa plants also prefer. Before planting, a strong and sturdy trellis should be erected to support the vines. In some areas, vines are grown on the ground but this method is not recommended as fruits will be in contact with the ground and become susceptible to rots due to damp ground or attack by ants and other crawling insects.

Luffas can be daylength-sensitive and choose one that is daylength neutral so that flower and fruit production would not be affected. Viable seeds usually germinate within a week. Seeds can first be raised in small pots and then transplanted into the final growing location when seedlings have about four true leaves. Plants should preferably be spaced about 60 cm apart in a row and the distance between two rows should be about 1 m apart.

Plants will start to flower and fruit after 6 to 10 weeks after sowing. Male flowers are produced first, followed by the females. If the plant is well looked after, it can continue to produce fruits for as long as 5 months! To aid flower production, the side shoots can be pruned away. Leaves can also be removed partially to stimulate female flower production.

Water should be given during the active growing stage and plants must not be allowed to dry out completely. A balanced fertiliser can be incorporated into the growing bed as a base fertiliser source before transplanting the seedlings. During the period of active vegetative growth, a fertiliser rich in nitrogen should be applied. Once flowers appear, the fertiliser with a higher phosphate ratio is then fed to the plants to support flower and fruit production.



Left: A leaf of a virus-infected luffa plant.

Luffa plants are usually not really susceptible to pests and diseases. Like other cucurbits, luffas are chiefly affected only by downy and powdery mildews but these two diseases are seldom serious and affected leaves can be cut away. They usually appear at the older leaves of the plants. Viral diseases sometimes do strike and diseased plants are best removed thoroughly. Do not compost virus infected plant materials. Viral diseases are mostly transmitted by sucking insects and prevention is better than cure – spray regularly with a suitable insecticide to deter, reduce or eradicate pest populations.

References

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