

The Cocoyam - More than just an Edible Corm...

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The cocoyam is a well known food plant, which has a long history of cultivation. Its corms are an important source of starch. They may also be cut up and boiled in curries or fried to make crispy chips. The leaf stalks can also be eaten. The leaves, on the other hand, are seldom used for food although it has been reported that they can be cooked and eaten like spinach. All parts of the raw cocoyam plant contain a toxic compound, calcium oxalate, which must be destroyed by thorough cooking before consumption.



Left: The Dasheen cocoyam has a larger corm while the Eddoe cocoyams (in the foreground) are usually smaller.

Right: Cocoyam leaf stalks sold as a vegetable at Tekka Market in Little India, Singapore.



Left: Habit of the cocoyam plant. This plant is the common edible variety.

Right: The peltate leaf of the cocoyam. Note that the leaf stalk joins the leaf blade near the center.

Cocoyams are members of the aroid family, *Araceae*. Their exact origin is not clear but they may have come from India or Southeast Asia. The plant is a herbaceous in nature and is capable of growing to a height of of 2 meters. They seldom flower and fruit in cultivation and the flowers expectedly possess the usual aroid flower structure. The spathe, which refers the boat-shaped bract is yellow in colour for the cocoyam. The spathe can grow up to a length of 20 cm. The spadix, which contains the male and female flowers can be up to 9 cm long. The leaves of the cocoyam are shaped like a shield and can reach up to a meter in length. They are attached to the long, fleshy leaf stalks that are either green, red or purple, slightly off the center of each leaf blade and such a characteristic is described as peltate. The upperside of each leaf is covered with a waterproof layer. Try this – transfer a small amount of water onto a cocoyam leaf, then agitate it a bit to see water droplets roll and dance on the leaf surface without wetting the leaf at all!

Edible Cocoyams

Edible cocoyams are known by several common names which include the “Taro” or “Elephant’s Ear” by the Westeners, “Keladi” in Malay or simply “Yam” by Singaporeans. There are two types of edible cocoyams, namely the Dasheen and Eddoe that differ in terms of size and shape of the corms. The Dasheen produces a large, barrel-shaped mother corm surrounded by several smaller cormels. The Eddoe, on the other hand, produces comparatively smaller mother corms than the Dasheen and has numerous cormels around the mother corm. Botanically, the Dasheen is given the scientific name *Colocasia esculenta* var. *esculenta* while the Eddoe’s is *Colocasia esculenta* var. *antiquorum*. The species name “*esculenta*” is derived from the English word, esculent, which has the meaning of “edible”.

Ornamental Cocoyams

Cocoyam plants can grow into large, handsome specimens with a symmetrical spread that are worthy of a place in a tropical ornamental garden. They are highly versatile plants that can be grown either under upland conditions (must be well watered in this case) or near water bodies, such as a pond. Because of the latter habit, cocoyams are often considered as marginal plants. Besides the almost all green edible cocoyam plants, there are ornamental cocoyams that have highly decorative leaves, which should change one’s perspective about this aroid.



Above: *Colocasia* ‘Black Magic’ is a showy ornamental cocoyam that has deep purple leaves.

Currently, there are three varieties that can be purchased from local nurseries. The most prominent of these is *Colocasia* 'Black Magic' which has leaves that are dark purple in colour, which will contrast starkly against any green background of foliage. The young leaves that appear will look green, which then change to deep dark purple as they unfurl and get exposed to more light. 'Black Magic' needs full sun to stay retain the dark colouration, otherwise, the leaves will stay light green in colour with dark purple veins and leafstalks. The leaf margin of 'Black Magic' is relatively even. There is a similar-looking cultivar named 'Black Ruffles', as the name suggests, the leaf of this plant has a much undulated leaf margin compared to 'Black Magic'. This latter cultivar can be bought from overseas mail-order nurseries.



Left: *Colocasia* 'Coffee Cups'. Note the cup-shaped leaves!
Right: An example of a cocoyam with violet coloured stems.

Another interesting ornamental cocoyam cultivar that can be seen locally is 'Coffee Cups'. Stated on Plant Delights Nursery's website, this cultivar was discovered by Indonesian botanist Gregory Hambali and brought to the United States by aroid expert Alan Galloway. This cultivar is unique among other cocoyams as it has leaves that are shaped like a cup. The leaves can actually hold water and one can actually watch them tipping over to empty themselves during rainy weather. After relieving themselves of the weight of water, the leaves will spring back to a vertical position to start the cycle of water collection again. The veins and leafstalks of this cultivar are purple in colour. The leaves are dark green tinged with a touch of purple.

The third cultivar of ornamental cocoyam either has prominent red or purple leafstalks. The veins on the leaves are also coloured. The catalogues of overseas mail order nurseries regard plants with these characteristics as separate cultivars. They do not have formal cultivar names and are referred to as 'Red Stem' or 'Violet Stem'. The leafstalks of these cultivars are light green in colour when they first emerge and gradually darken with age.

Getting Started

Edible cocoyams, both the Dasheen and Eddoe, can be grown from the corms bought from the market. This first method involves planting the top portion of a corm, which consists of the remains of cut leaf stalks and a portion of the cocoyam corm. This is usually the part that is cut and discarded when the cocoyam is being prepared for food use. A mature and bigger top is preferred over smaller ones for faster establishment and shorter duration to harvest from the time of planting. A cocoyam corm grown from this method will have a flat base.



Above: Buy Eddoes with buds that are sprouting at top for a faster start.

Corms of the smaller Eddoe cocoyam sold at the local wet market can also be bought and used as a propagation material. They can be given to young children to learn more about the basics of plant propagation where the corms are planted directly into a large pot of well draining soil. Keep the soil mixture moist and in a location with semishade. Once the plant has rooted, it can be given more light and with regular feeding, the young cocoyam plant will sequentially send up larger and larger leaves, which will definitely wow the kids.

A last method is via division of an existing clump of plants. Suckers will usually appear around an established cocoyam plant. These can be separated from the clump and planted separately. Via this propagation method, edible cocoyam corms grown this way will have a pointed base. The leaves of each sucker are usually cut away before planting to reduce excessive transpiration. This is also the most common method to propagate ornamental cocoyams.

Growing Cocoyams

The cocoyam is a tropical plant that is well suited for growing under Singapore's climate. They can grow in locations with full sun to partial shade. For ornamental cocoyams with highly coloured foliage, full sun is required to bring out the colours. Plants should be shielded from excessive wind which will cause damage to the leaves.

Cocoyams should be grown in soil that is fertile and a reservoir of fertiliser should be added prior to planting. Locations with clayey soil that is heavily compacted should be loosened and then enriched with organic material to keep the soil structure open and to aid moisture retention.

Plants grown for food benefit from a generous supply of potassium, which is essential for proper corm formation. Supply of nitrogen should be controlled to prevent the formation of excessive foliage, which will also affect the eating quality of the corm. Plants grown for ornamental purposes may, on the other hand, benefit from nitrogen fertilisation to encourage the formation of leaves that are large and showy. In general, cocoyams also have a high demand for calcium.

With a perennial thirst, cocoyams should never be allowed to dry out during growth. Plants grown on upland conditions need to be watered regularly to maintain a constantly moist root zone. Relative to the Dasheen, Eddoes are generally more drought tolerant. Although cocoyams are often seen growing permanently flooded ground, rotting of the corms may sometimes occur. In such cases, plants can be grown in a mound of soil that is raised above the water table.

The area where cocoyam is planted should be kept free from weeds. This is to ensure that there is no competition for nutrients as well as light, which will affect corm formation and growth. The ground can be mulched to suppress weed growth. Upon breaking down, the mulch can also help to retain moisture, provide nutrients, and improve soil structure.

The suckers of ornamental cocoyam varieties that grow around a main plant should be removed periodically so that the plant can grow large and attain a symmetrical shape. The suckers can be removed carefully and used for propagation. Cocoyam plants should be spaced at least 1 m apart for the leaves to spread out.

Harvesting Edible Cocoyams

Cocoyams grown for food can be harvested by hand when the corm reaches the desired size, which usually takes at least 8 months to a year. Approaching maturity, the leaves of the cocoyam will gradually become smaller and the leaf stalks become shorter. Leaf number also decreases. Another indication that the cocoyam is ready for harvesting is when the main corms begin to push above of the soil surface.

Pests & Diseases

Cocoyams are relatively maintenance-free plants but they may occasionally be bothered by pests and diseases described as follows.

Caterpillars are perhaps the most common pests that may attack the leaves of the cocoyam. Another leaf chewing insect that one may encounter is the leafhopper. The damage by these pests is usually not serious and a conventional insecticide purchased from nurseries is adequate to control them. Sucking insects such as aphids may affect young, emerging leaves. Beware of sucking insects as they may transmit viral diseases.

Diseases that bother the cocoyam would include corm rot that will occur in waterlogged areas. Diseased corms will become mushy and smelly. Roots of these plants will also rot and plants will wilt as a result of lack of water being channelled upwards to the aerial parts of the plant. As mentioned earlier, this problem can be prevented by planting cocoyams in well-draining soil or by hilling up the plants to raise them above the water table.

Cocoyams may also be infected by leaf blight where water-soaked necrotic spots appear on the leaves. Affected leaves should be removed and plants should be sprayed with fungicide. Plants should be spaced apart to improve air circulation to reduce the chance of plants getting infected by leaf blight.

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