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CASSAVA: Its classification and description

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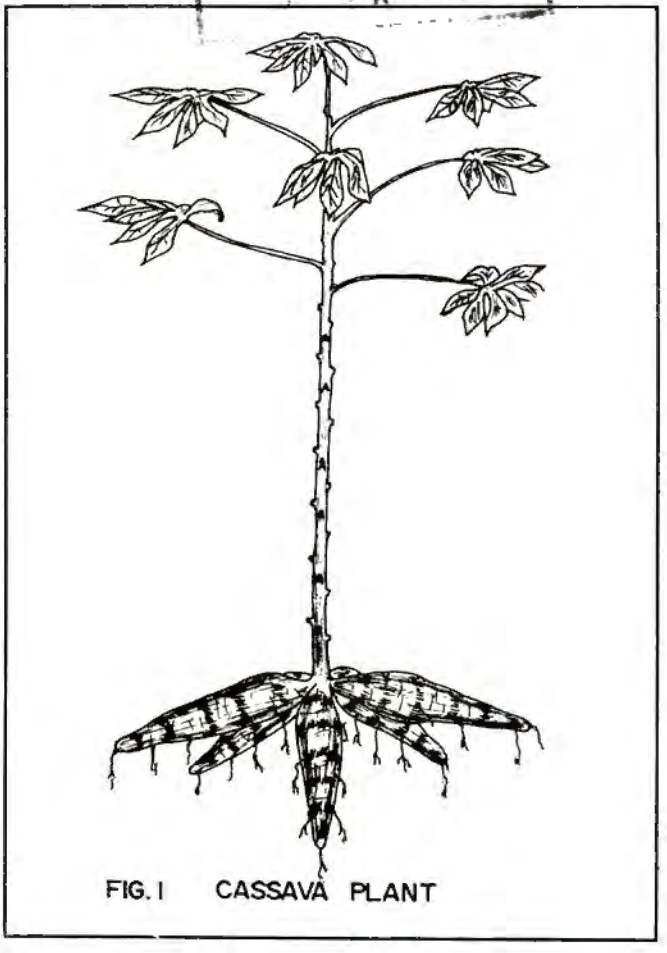

FIG. 1 CASSAVA PLANT

Keywords: Cassava, **Manihot esculenta**, classification, description

CLASSIFICATION

Family	: Euphorbiaceae
Genus	: Manihot
Species	: esculenta
Scientific name	: **Manihot esculenta** (L.) (Crantz)
LOCAL NAMES	: Kamoteng kahoy, (Bicol, Bisaya, Tagalog, Sambali) Balanghoy, Balinghoy Kalibre, (Bisaya, Tagalog) Kamote ti moro, (Iloko, Ibanag) Panggi-Kahui (Sulu), Padpedi (Bontoc)

DESCRIPTION

ROOTS

Roots usually arise at the periphery of the cut stem and at the nodes which are in contact with the soil. These develop into a fibrous root system for absorbing water and soil nutrients for the plant. However, a few of these fibrous roots become storage roots.

The storage root which is connected to the stem by a short wooden neck, is circular in cross section, generally biggest at the proximal part (near the base) and tapering gently towards the distal end. A mature cassava storage root may range in length from 15 to 100 cm and in weight from 0.25 kg to 5.0 kg. Mature roots are predominantly brown in color and may possess a rough or a smooth surface.

Internally, the storage root can be divided into the phelloderm or peel, the starchy flesh and the central vascular core. The phelloderm is about 1 to 4 mm thick and is composed of an outer epidermis, a sub-epidermis and an inner layer readily separable from the flesh. The sub-epidermis is usually white, pink or light brown.

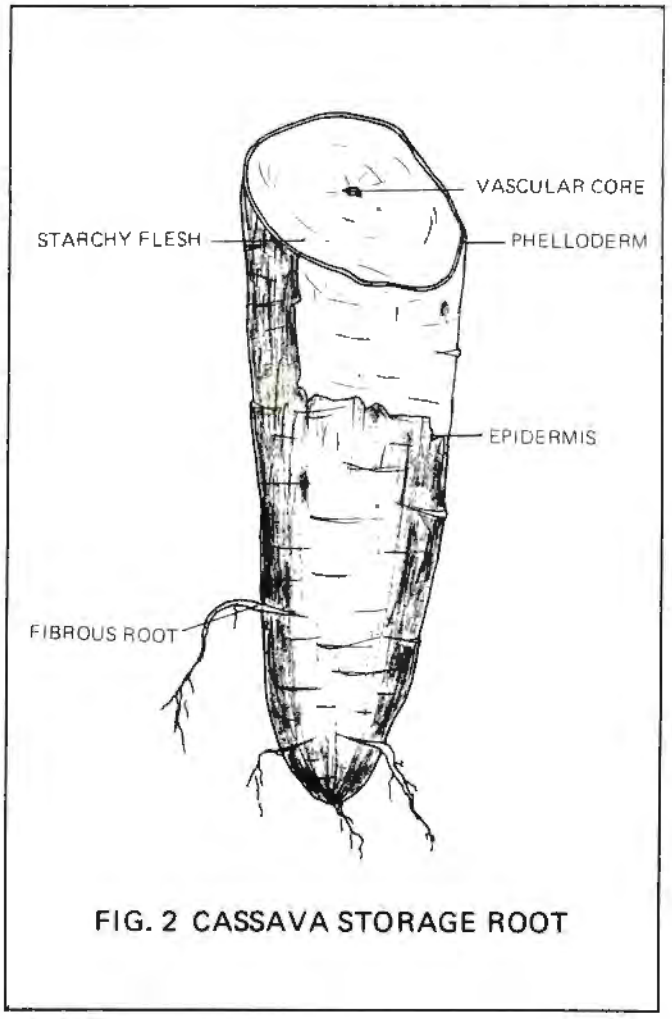

FIG. 2 CASSAVA STORAGE ROOT

STEMS AMD LEAVES

Cassava grows as a shrub with the stem reaching as high as four meters in some cultivars. The color of the stem varies with cultivars and with age but is usually greyish or brownish at maturity and greenish when young. In older or lower parts of the stem, prominent knob-like leaf scars are present marking the nodes where leaves were originally attached. The manner of branching varies with cultivars. In some, the main stem grows for a while and then branches trichotomously which in turn grows and later branches again at three points and so on. In other cultivars, the branching pattern is irregular.

The leaves are spirally arranged on raised nodal portions on the stem with 2/5 phyllotaxy (5 leaves in two revolutions). Each leaf is subtended by 3 to 5 stipules which are about one to two cm long. The petiole varies in length from 5 to 40 cm but generally it is longer than the lamina. The lamina is simple but deeply palmate. The number of lobes is usually 5 to 7, although any number from 3 to 11 may occur depending on the region of attachment. Leaves near the region of the inflorescence are generally reduced in size and lobe number but those closest to the base of the inflorescence are often simple and unlobed. The lobes which may be linear or oblanceolate measure from 4 to 25 cm long and 1 to 8 cm wide. A midrib runs through the center of each lamina lobe to its tip but venation within each lobe is reticulate. The edges of the lamina are usually entire and hairs may be present on the surface.

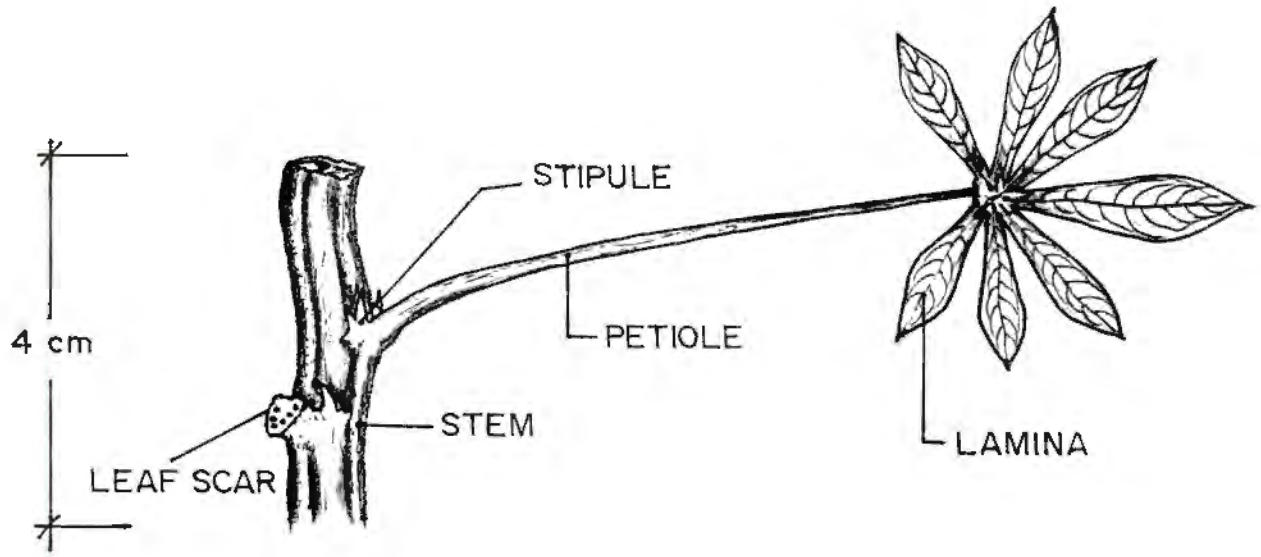

FIG. 3 CASSAVA STEM AND LEAF

FLOWERS

Cassava flowers are borne terminally on panicles with the axis of the branch continuous with that of the panicle inflorescence. Cassava is monoecious with the larger female flowers occuring near the base and the smaller male flowers near the tip of the panicle. Both flowers have five united tepals, a kind of floral part not differentiated into petals or sepals, which may be yellowish or reddish in color. The male flower has 10 stamens arranged in two circles of five stamens each. The filaments are free and anthers are small with 200 to 300 pollens per anther. The female flower has an ovary mounted on a ten-lobed glandular disc. The ovary has three locules and six ridges and is about 3 to 4 mm long. Each locule has a single ovule. The stigma has three lobes which unite to form the single style.

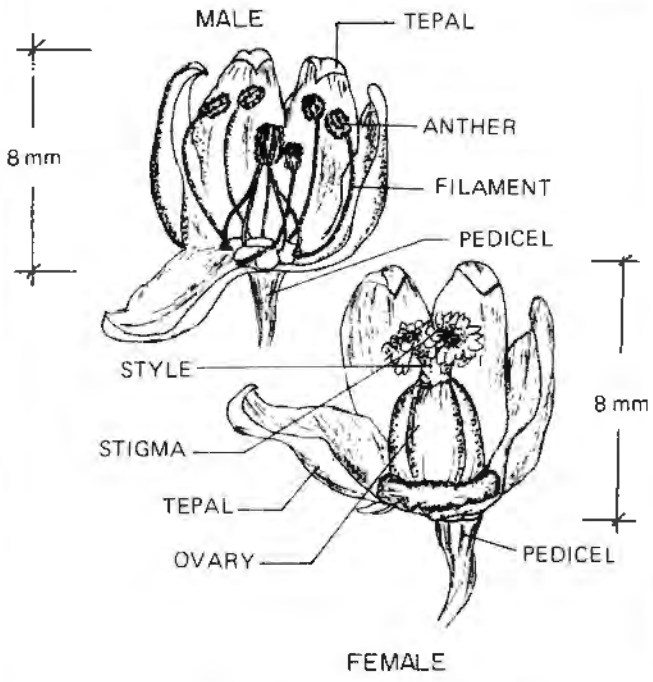

FIG. 4 CASSAVA FLOWERS

FRUITS AND SEEDS

The mature fruit which has a woody endocarp is a capsule, globular in shape, ranging from 1.0 to 1.5 cm in diameter. When the fruit is mature and dry, the woody endocarp splits explosively thus dispersing the seeds.

The seed which is ellipsoidal in shape is about 1 to 1.5 cm long. Each seed has a large caruncle at the micropylar end and weighs about 500 mg., about 43% of which consists of the hard testa. This testa is brittle, grey and mottled with dark blotches.

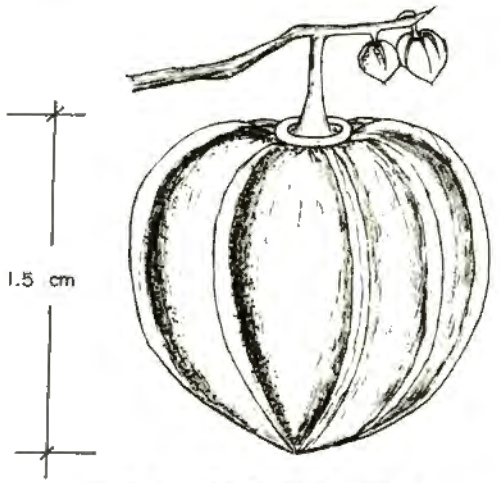

FIG.5 CASSAVA FRUIT

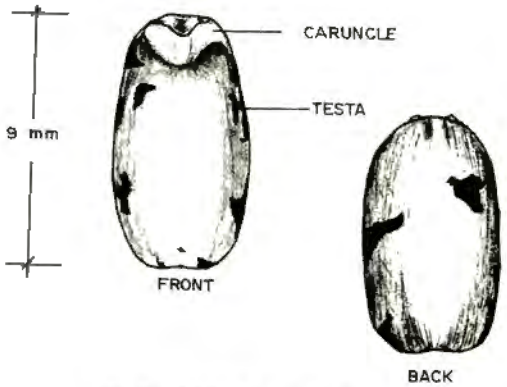

FIG.6 CASSAVA SEED

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