



*Eugenia uniflora*

Courtesy Chicago Natural History Museum

Nearly everyone is familiar with the Rose Apple (*Eugenia jambos*), a native of Malaya which has become so extensively naturalized in parts of Central America as to have the appearance of being indigenous. It is a handsome tree, often grown in dooryards for its decorative value as well as for its perfumed yellow fruits. These are eaten in the fresh state but do not lend themselves to many uses.

Numerous Myrtaceous fruits of relatively little economic importance grow wild throughout Central America. A goodly number of these are guavas (species of *Psidium*), one of which, known as cas in Costa Rica (*P. Friedrichsthalianum*, a nice name to pronounce), is perhaps entitled to rank among horticultural species.

## FAMILY SAPOTACEAE

The family Sapotaceae includes many shrubs and trees of tropical origin characterized by latex or milky sap in their vegetative parts and immature fruits. There are some 35 to 40 genera with 500 or more species, several of which are of value for their fruits.

### THE CHICOZAPOTE

CHICO, NÍSPERO OR SAPODILLA

(*Achras Zapota*)

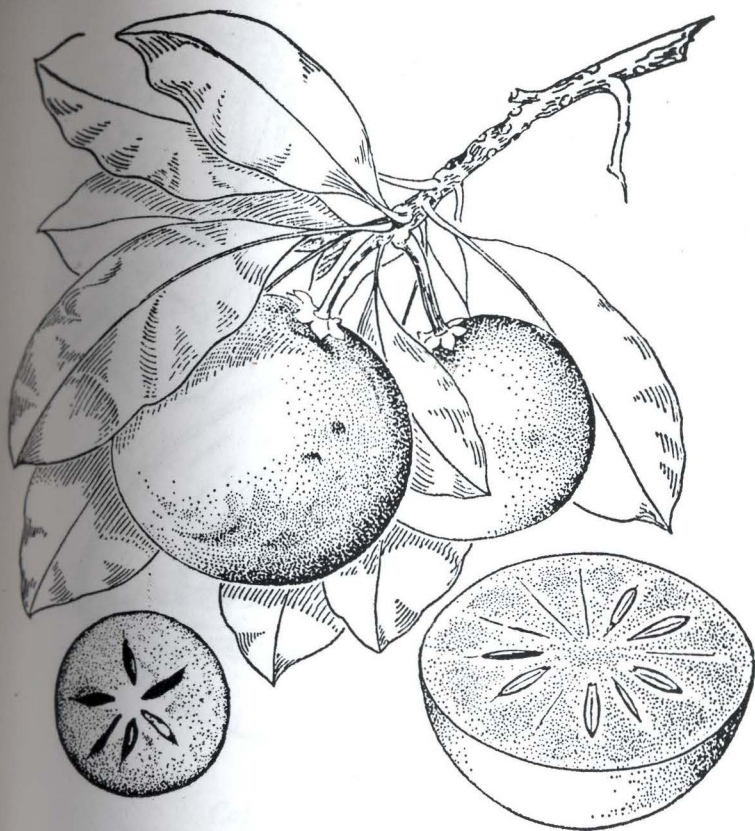
This handsome and well known tree, wild and cultivated in Mexico and Central America, is principally known for two of its products: an excellent fruit, and the gum *chicle* which is the coagulated latex obtained by tapping the trunk. Its remarkably hard wood, so durable that elaborately carved beams still in good condition are to be seen in the Maya ruins of Yucatan, is also worthy of note.

To most Central Americans this species is best known as a fruit tree. Unfortunately, it has received little horticultural attention. Trees exist which produce fruits fully 10 cm. in diameter, with very few seeds. These merit propagation by vegetative means, and it has been found that shield budding is successful.

While essentially a tree of tierra caliente, the chicozapote can be successfully cultivated slightly above the limits of this zone. It is more common in semi-arid regions than in wet ones. While the best soil is probably sandy loam, it grows well on several others. Propagation by seed presents no difficulties.

If planted in orchard form the trees can be set 10 or 12 meters apart. Their growth is slow and compact. For this latter reason they require practically no pruning. They do not come into bearing until six or eight years of age, but after that produce good crops.

Scale insects are sometimes troublesome and the ripe fruits may be infested by the larvae of the *Anastrepha* fruit flies.

*Achras Zapota*

Courtesy Chicago Natural History Museum

## THE ZAPOTE OR MAMEY COLORADO

*(Calocarpum mammosum or Lucuma mammosa)*

This is another native Central American fruit. It is quite distinct from the chicozapote in spite of the similarity of the two names. Chicozapote, incidentally, does not mean small zapote, but is a Spanish adaptation of the Aztec name *tzicotzapotl*, which rather unpronounceable word means "zapote which yields chicle or gum." The Aztecs, who were and still are great plant lovers, developed a highly interesting system of classification; for example, the term zapote with a qualifying word was applied to many soft sweet fruits.

While there is much variation in size and quality of zapotes produced by seedlings, nothing seems to have been done to propagate the best ones by grafting. Selection and propagation by seed seems, however, to have brought about a considerable amount of improvement. Cuban zapotes as a rule are superior to those produced by wild and semi-wild trees in Guatemala.

When Hernán Cortés made his famous march from Mexico to the Gulf of Honduras, his men are said to have been saved from starvation by eating wild zapotes gathered from trees which grew in the forests of Petén.

In its best forms the zapote is richly flavored and liked by almost everyone. Many seedlings, however, produce fruits of such poor quality that their flavor has been compared to that of a pumpkin or a squash.

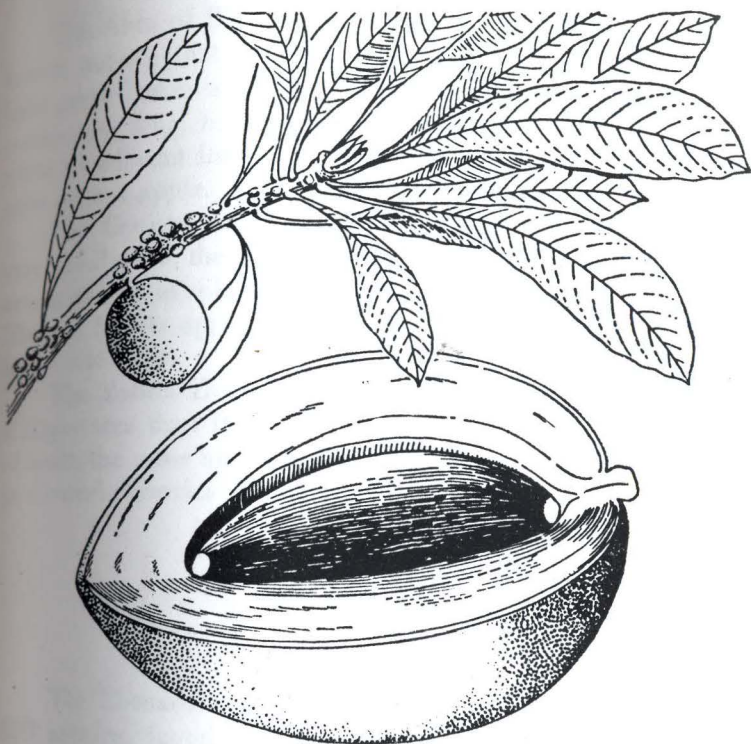
This tree, like the chicozapote, thrives only in tierra caliente. It is successfully cultivated in both semi-arid and rather wet climates. It is not exacting as regards soil, but like most fruit trees, probably does best on deep rich sandy loams.

At present its propagation is by seeds, but the day may soon come when superior varieties will be propagated by grafting. Being a large tree it needs plenty of space, 12 or 14 meters is not too much. No special pruning is required. It is a slow grower, rarely coming into production before the sixth to eighth year.

## THE INJERTO OR GREEN ZAPOTE

*(Calocarpum viride)*

Quite possibly this fruit received its common name, injerto or "graft", because the fruit seems somewhat intermediate in character between the chicozapote and the zapote. The tree definitely resembles the latter but the fruit is smaller in size. It has a smooth skin, flesh of orange brown color, and one or two rather large seeds. While there is much variation among the fruits produced by different seedling trees, nothing has been done to select the best ones and propagate them vegetatively.

*Calocarpum mammosum*

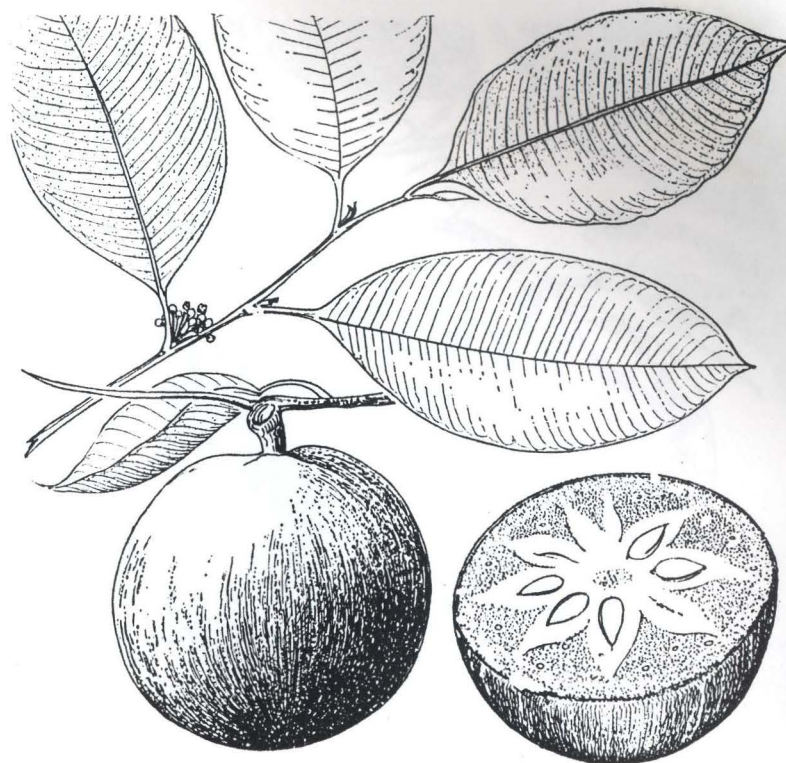
Courtesy Chicago Natural History Museum

The green zapote is abundant in central and northern Guatemala where it grows usually at elevations between 1200 and 2000 meters. It seems to do well in semi-arid as well as rather humid climates and thrives on various kinds of soil. It is easily propagated by seed, but, as with the other members of this family, it is slow to come into bearing.

### THE STAR APPLE

(*Chrysophyllum Cainito*)

This unusually handsome tree is considered indigenous in the West Indies, and possibly in Central America. It is perhaps more highly esteemed in the former region than in the

*Chrysophyllum Cainito*

Courtesy Chicago Natural History Museum

latter. There are two kinds of caitimos or star apples, so far as color is concerned: some are light green, others bright purple in color. Some trees produce much larger fruits than others.

This is a tree of tierra caliente, both of the semi-arid regions and the more humid ones. It grows well on any reasonably good soil. Though propagation by seed is the method now employed, shield budding will doubtless prove successful.

### OTHER SAPOTACEOUS FRUITS

While not so well known in Central America as the species described above, there are several other Sapotaceous fruits which may in time attain importance.

The Abiu of Brazil (*Pouteria Caimito*) seems to be little known outside that country. It is a small tree with slender light green leaves and egg-shaped to round fruits five to eight centimeters long, bright yellow in color, with thick skins and white translucent flesh. In flavor the abiu is similar to the caimito or star apple.

The Canistel or Egg Fruit (*Pouteria nervosa*) is a tree very similar to the Abiu in appearance. The fruit is oval, orange-yellow in color, and has dry mealy flesh, sweet and often likened, for its appearance and consistency, to the yolk of a hard-boiled egg.

The Yellow Zapote of Mexico (*Pouteria campechiana*) is a larger tree than the last named, which yields a larger fruit of much the same appearance and flavor. It is occasionally seen in Central America but is not abundant here.

#### FAMILY EBENACEAE

The Ebenaceae, a family of five or six genera and some 300 species, found mainly in the tropics and subtropics, is known chiefly for the hard-wood ebony produced by trees which grow in tropical Asia, and the persimmons, of which there are two major species, one of them Asiatic and the other North American. A third member of the family, little known outside of Mexico, is the Black Zapote.

The Kaki or Japanese Persimmon may be compared to the lychee in this way: It is an excellent fruit, liked by almost everyone, which can be grown successfully in many parts of Central America, but is still almost unknown here.

#### THE KAKI OR JAPANESE PERSIMMON

(*Diospyros Kaki*)

The Japanese, who cultivate several hundred different varieties of Kakis, consider it one of their best fruits. The Chinese also esteem it highly. Strangely enough it did not reach



*Diospyros Kaki*

Courtesy Chicago Natural History Museum

the Western Hemisphere until relatively recent times. It is now cultivated commercially in California, Florida and the southern-most parts of the United States generally. Those occasional trees which have been planted in Central America have demonstrated that Kakis do well here under a rather wide range of climatic conditions.

Of the many varieties cultivated in the Far East only a few are known in the United States and offered by nurserymen. Among these are *Hachiya*, a conical, bright orange-red fruit six or seven centimeters long, mid-season to late in ripening. *Tane Nashi*, more nearly round in shape, is about the same size and color and practically seedless. It ripens somewhat earlier than *Hachiya*. *Fuyu* is oblate in form, darker in color and seedless. Most Kakis are astringent and cannot be eaten until

fully ripe, when the flesh becomes soft and jelly-like. This is not true, however, of *Fuyu*.

Kakis have done well in the relatively dry and warm climate of San Pedro Sula on the north coast of Honduras, and in the cool climate of Antigua, Guatemala. Since the tree is a subtropical species and resists hard frosts, its cultivation can probably extend from sea level up to altitudes of 2500 meters or higher. As far as can be judged from the scanty data available, it seems to prefer a semi-arid climate rather than one of heavy rainfall. As regards soil, it is not exacting. It does well in Florida on light sandy loams and in California on well drained clays.

Propagation should be by grafting. While in the southern United States the American persimmon *Diospyros virginiana* is used as a rootstock, trees grafted on this species did not thrive when planted at Lancetilla Experiment Station. Another species, *Diospyros Lotus*, is sometimes used in California but the Kaki itself is recommended in that state as preferable. Seeds can be planted in boxes or beds under partial shade. The young plants are moved to nursery rows when they are about 15 cms. high. When they have attained sufficient size they are whip grafted, then grown until large enough for transplanting to the orchard. They develop long tap roots which makes transplanting rather difficult.

Since the trees do not attain large size they can be spaced six or eight meters apart. They require practically no attention so far as pruning is concerned, except to keep them shapely and remove interfering branches. They should come into bearing by the fourth or fifth year after they are set in the orchard.

## THE BLACK ZAPOTE

(*Diospyros Ebenaster*)

This species of the genus *Diospyros* is scarcely known outside of Mexico, where it is called Zapote Negro. It thrives from sea level up to elevations of 1500 meters or more, forming an extremely handsome tree with an abundance of glossy dark green leaves. The fruit is oblate in form, often as large as a good-sized apple, blackish green on the surface, with soft sweet flesh dark chocolate brown in color, sometimes without

seeds, again with one to ten small oval flattened ones. Some people object to the unattractive color of the flesh, but it is delicious, especially when beaten up with orange juice.

Little can be said regarding the propagation and culture of this tree. In all probability it will lend itself to one of the standard methods of grafting; indeed, P. J. Wester reported years ago that he succeeded in propagating it in the Philippines by shield budding. Using this method it would be possible to perpetuate the occasional superior seedlings which are known to occur in Mexico. It comes into bearing at five or six years of age.