

## Aguacate de Mico

**G. A. Zentmyer**

*Professor Emeritus, University of California, Riverside, California 92521-0122, USA*

**E. Schieber**

*Plant Pathologist, Antigua, Guatemala*

A true wild avocado that I (GAZ) first collected in El Salvador in 1954 in one of my early collecting trips in the search for resistance to Phytophthora root rot has been known to the natives of Central America for many years as "Aguacate de Mico", or "Aguacamico". This article provides additional information on this interesting and significant tree.

The 1954 collection was made from a single tree of moderate height (20-25 feet), growing near the rim of El Boquerón, a crater of the volcano San Salvador. Since that time we have observed Aguacate de Mico in several other countries in Central America; and especially since the second author joined our program in 1971, we have had many more observations on this unique wild avocado.

For some unknown reason, this tree has been ignored by botanists collecting in Latin America. We regard Aguacate de Mico as one of the ancestors of the typical Guatemalan avocado, the Guatemalan "criollos", usually classified botanically as *Persea americana* var. *guatemalensis*, following the nomenclature of Bergh (1).

Since the early collection in El Salvador, we have observed this interesting tree and collected seed or budwood on a number of occasions and in several countries. We have found this tree from the Guatemala-Mexico border south to the slopes of the volcano of Turrialba in Costa Rica (5,6). This species prefers moderately warm areas, at lower elevations (2,700 to 4,500 ft) than two closely related native species, *Persea nubigena* and *P. Steyermarkli*.

Because of the differences in botanical characters from other described species of *Persea*, we are proposing that this be named as a new species of the genus *Persea*: *P. tolimanensis*. The reason for this name is that concentrations of Aguacate de Mico occur on the slopes of the volcano Toliman in west-central Guatemala. Toliman was one of the Mayan chiefs in the early history of that area.

### Distribution

The principal areas where we have found and collected this unusual tree are as follows:

Guatemala: Finca el Rosario, San Marcos Department; Colombia, Quetzaltenango (south of San Martin Chile Verde); slopes of Volcano

Tolimán at about 1,500 m; cloud forest of Paluctin, Pochutla region, Chimaltenango; Ponoucha, Baja Verapaz.

El Salvador: El Boquerón, volcano San Salvador; Finca Los Andes, volcano Santa Ana; slopes of volcano San Salvador towards Quetzaltepeque.

Nicaragua: cloud forest of Santa María de Ostuma in Matagalpa.

Costa Rica: slopes of volcano Turrialba.

This tree is found in moderate elevations, as noted above, and does not occur at high elevations or in the low tropics. Aguacate de Mico thrives in the well-drained volcanic soils in several Central American countries, and generally grows in regions of six months rain (from early May to late October) and six months dry weather, with average rainfall about 65 to 70 inches.

### **Botanical Characteristics**

*Persea tolimanensis* has thick-skinned fruit similar to the Guatemalan criollos; the fruit remain hard even when ripe. The fruit are from two to three inches in diameter, and usually hang on the tree long after maturity. Contrary to the Guatemalan criollos, the fruit of Aguacate de Mico are not edible, but have a bitter taste. The fruit are eaten by monkeys in the jungles and rain forests, hence the name Aguacate de Mico (monkey). The fruit are round to oblate, with a slightly roughened skin and are usually dark green in color. The fruit have very large oblate seeds.

The leaves of *P. tolimanensis* are quite similar in size, texture, and number of primary veins to leaves of the Guatemalan criollos, but have a rather dull green color.

In appearance, this new species of *Persea* is quite different from a typical avocado tree. Aguacate de Mico usually branches very high in the canopy, so it is more of an erect rather than a spreading tree. The trees also are often very vigorous, and reach a height of 60 to 70 feet (20 meters or more). This unique tree stands out in the typical rain forest habitat because of the whitish gray trunk.

### **Botanical Relationships**

The only monograph of the genus *Persea* in the western hemisphere is that by Dr. Lucille Kopp, of the New York Botanical Garden published in 1966 (2). Kopp divided the genus into two subgenera: *Persea* and *Eriodaphne*. All of the species with edible fruit (the edible *Perseas*, or "wild avocados") are classified in the subgenus *Persea*. These trees have fruit of substantial size, ranging from 1 1/2 to 6 or 8 inches in length or diameter.

Kopp includes the following species in the subgenus *Persea*: *P. americana* var. *americana*, *P. americana* var. *drymifolia* (the Mexican avocado), *P. americana* var. *nubigena*, *P. floccosa*, *P. schiedeana*, and *P. steyermarkii*.



Fig. 1 *Fruit of Aguacate de Mico, with Daniel Lopez, Mayan assistant, Guatemala.*

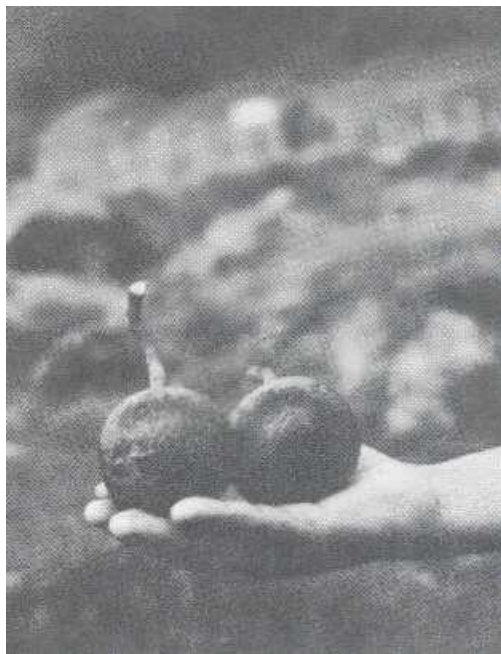
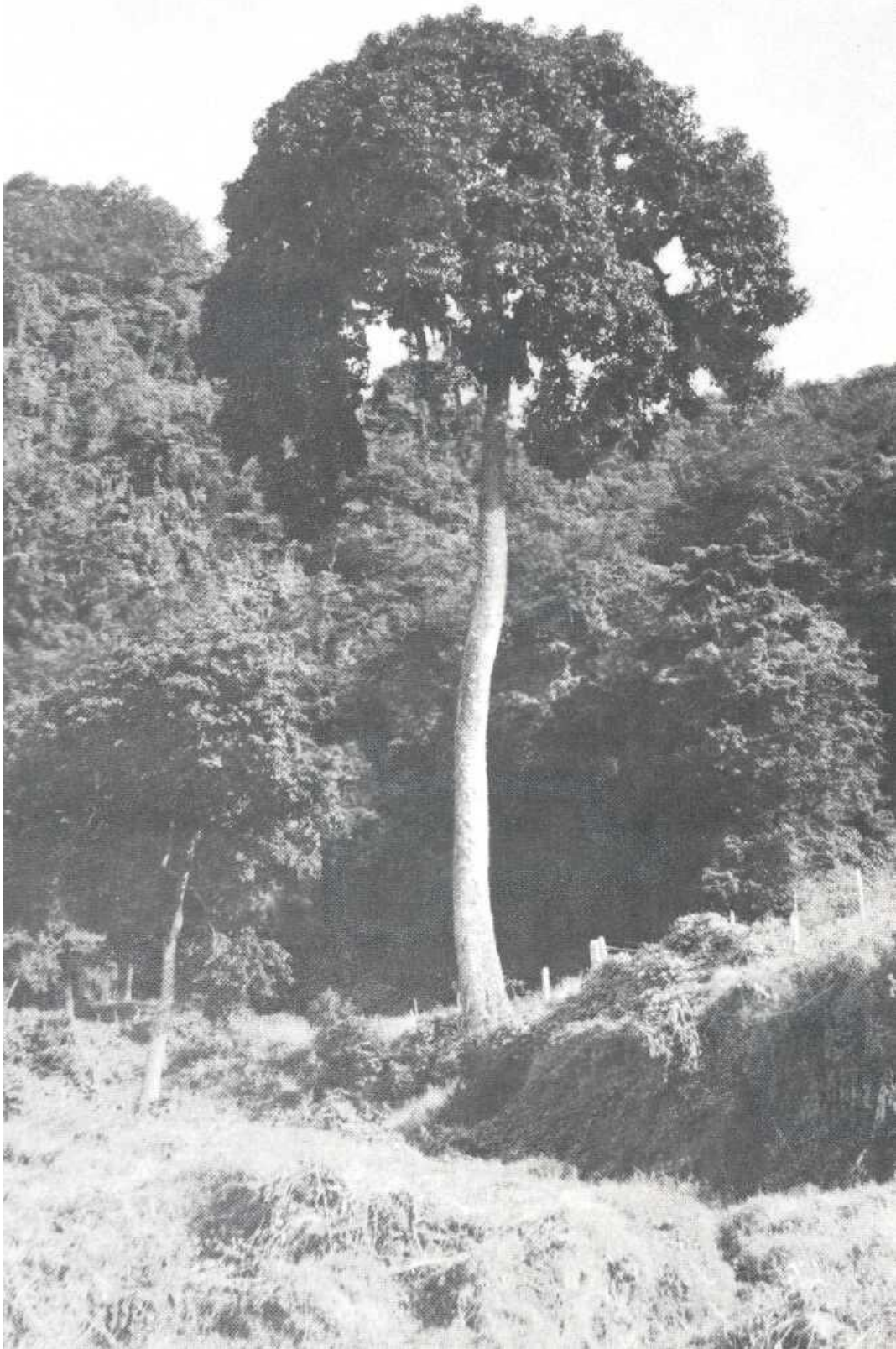


Fig. 2 *Fruit of Aguacate de Mico. Photograph made in 1972 at Los Andes, on the slopes of Volcano Santa Ana, in El Salvador.*



Fig. 3. *Eugenio Schieber at crater of one of the man\ va/canos in Central America. (Photo by Zentmyer.)*



*Persea tolimanensis* (Aguacate de Mico) tree on slopes of Volcano Santa Ana, El Salvador.

We believe that *P. nubigena* should be kept as a separate species, however; this is a tree that grows at moderately high elevations (up to 9,000 feet) in southern Mexico, Guatemala, and Honduras. We have made several collections of this species in the past 38 years, but have not tested many seedlings in our resistance program.

Bergh (1) has classified the typical Guatemalan avocados as *P. americana* var. *guatemalensis*, a classification with which we agree. We have tested the other species in the subgenus *Persea* for resistance: *P. schiedeana*, *P. steyermarkii*, and *P. floccosa*; some resistance is present in *P. schiedeana* (G755 or Martin Grande is an example here — this collection represents a hybrid between *P. schiedeana* and *P. americana* (7, 8, 9)). Also *P. steyermarkii* has shown some indications of resistance and should be collected and tested further.

We propose that *P. tolimanensis* also be included in the subgenus *Persea* with the other species noted above. It is certainly very distinct from the many species of the subspecies *Eriodaphne* that we have collected and tested for resistance to *Phytophthora cinnamomi*. The species in the subgroup *Eriodaphne* all have very small fruit — generally less than one-half inch (5-10 mm) in diameter. In that subgroup, there is very good resistance to *P. cinnamoni*, but the species are not graft compatible with *Persea americana* (9).

*Persea tolimanensis* is not as common a tree in Mexico and Central America as are the true edible avocados known as the Mexican, Guatemalan, and West Indian races (usually classified as botanical varieties of *Persea americana*). We regard *P. tolimanensis* as one of the ancestors of the Guatemalan criollos species. This species, in our opinion, has had an important role in the evolution of the Guatemalan criollos, possibly serving as a link between the more primitive avocado progenitors such as *P. nubigena* (3), *P. steyermarkii*, and *P. zentmyerii* (4) and the criollo types from the Guatemalan highlands and southern Mexico.

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## **Acknowledgement**

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