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Persea zentmyerii: A New Species from Guatemala

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Introduction

The senior author began official avocado *(Persea americana]* plant exploration in Central America in 1971 under the auspices of Professor George A. Zentmyer, who had begun a major search for resistance to *Phytophthora cinnamomi* root rot nearly two decades earlier (Zentmyer 1952). Since then, Zentmyer and Schieber have published numerous articles on their discoveries and impressions of various avocado taxa in the California Avocado Society Yearbooks (Literature Citations 3, 6, and many intervening publications). The California Avocado Society recognized the magnitude of Schieber's contribution to both the hunt for root rot resistance and a better taxonomic understanding of the avocado by making him its 1986 Award of Honor "man of the year." Zentmyer had received that signal honor back in 1954, and in 1981 he received the exceptional acclaim of a Special Award of Merit; thus, the authors of this paper are expressing our esteem for a distinguished scientist who has devoted a lifetime of research to advancing the avocado, by naming a new species after Professor Zentmyer.

The Discovery of *P. Zentmyerii*

In October, 1981, the senior author made a botanical exploration trip to northern Guatemala. He was accompanied by two guides, Martincito (Martin Cumes Morales), a Kakchiquel Mayan, and Mauricio Caal, a local Kekchi Mayan. The group investigated a typical Guatemalan cloud-forest at about 3,500 feet elevation. It is in Baja Verapaz province, Purulha Municipality (Fig. 1) on the "Belen" farm.

This Purulha region is the jungle home of the spectacular quetzal, which graces the Guatemalan flag and also provides the name for the Guatemalan basic unit of currency. Schieber and Zentmyer (1979) described this magnificent bird and its consumption of wild *Perseas.* The junior author has a life-size cloth model of the quetzal hanging in his den, for a fitting avocado symbol: as the green and scarlet quetzal is resplendent among birds, so is the green and gold avocado resplendent among fruits.

Fig. 1. Purulhá region of Guatemala, where P. zentmyerii *was collected. (All photos by E. Schieber.)*

Fig. 2. P. zentmyerii *foliage, showing the large size of older leaves, the reddish color of young leaves.*

Fig. 3. Foliage and fruit of P. zentmyerii. *Note the coarse leaf venation, and the corky fruit ridging.*

Fig. 4. Mature tree of P. zentmyerii, *with Mayan guide Martincito.*

Fig. 5. Young seedling of P. zentmyerii, *with Martincito's daughter Petroncita.*

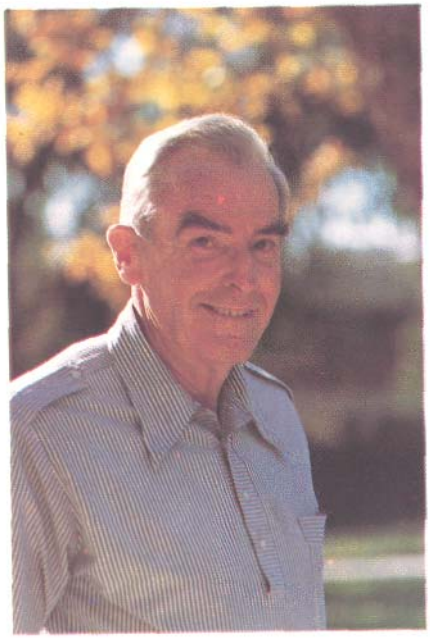

Fig. 6. Professor Emeritus George A. Zentmyer.

In a small Belen clearing, guide Mauricio Caal pointed out a wild avocado tree, perhaps 10 years old, which he knew by the native name Aguacate de Montana ("avocado of the mountain"). Schieber recorded the tree with the designation *Gu 1083*—Gu indicating Guatemala. It was distinctly different from any previously reported *Persea,* combining very large leaves and red, new growth (Fig. 2) with a small fruit (Fig. 3) rather like a miniature, rough-surfaced *P. steyermarkii.* Examination of additional trees and further

comparisons convinced us that this is a new and valid species. Moreover, the new species appears likely to be an important link in the evolutionary chain leading to modern commercial avocados.

Description of *P. Zentmyerii*

Type collection: Belen farm, Purulha, Baja Verapaz, Guatemala.

Vernacular name: Aguacate de Montana.

Trunk: Gray to dark brown, corky; stems approach this (Figs. 4, 5). Bark not odorous.

Leaves: Dark green (Fig. 3). New growth reddish (Figs. 2, 5). Very large compared with the species we consider most closely related: *P. nubigena* and *P. steyermarkii.* From afar, quite similar to the phylogenetically more distant *P. schiedeana,* which also grows in this region. Blade about 7 inches (15-22 cm) long by 4 inches (8-12 cm) wide. Tip acute. Older leaves rugose (Figs. 2, 3). Seven primary divergent veins. Leaf petioles are short and coarse compared with the two allied species.

Flower: Typical Persea—complete, regular, trimerous, pubescent, greenish-yellow. Grouped in sub-terminal panicles of cymes.

Fruit: Globose with slight neck or very broadly pyriform (Figs. 3, 7), about l ^{1}/2 inches (3.5-5 cm) in diameter. Yellowish light green turning dark brown as it matures, largely covered with corky ridges (Figs. 3, 7). Resembles a smaller, rougher *P. steyermarkii* fruit. Seed is round to slightly oblate, so large as to leave very little flesh (Fig. 7).

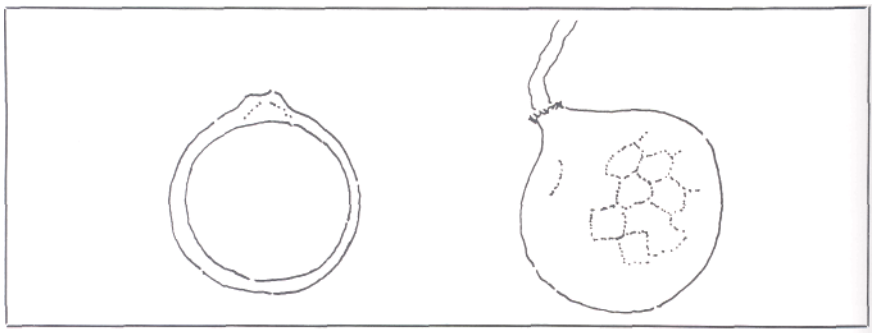

Fig. 7. Sectioned and exterior view of P. zentmyerii *fruit, showing the very large seed proportion and the surface corking pattern, respectively. (Drawing by E. Schieber.)*

Conclusion

This new *Persea* species has not previously been reported. Nor have we seen it elsewhere than at this one location, in spite of ecologically similar cloud-forest explorations from Chiapas (Mexico) to Costa Rica.

In accordance with Kopp's (1966) excellent descriptions and our field comparisons, we believe that its systematic affinities are with the primitive *P. americana* var. *guatemalensis* group (Bergh 1975). That is, we find *P. zentmyerii* of great interest to a study of the ancestry of the Guatemalan race of avocado, which predominates in sub-tropical avocado regions generally—such as in the 'Hass' cultivar. As Schieber and Zentmyer (1987) have recently noted, "During 16 years of explorations mainly in

Guatemala, we have encountered four *Perseas* that are linked in the ancestry of the Guatemalan criollos: ... *P. steyermarkii, P. nubigena,* a not yet classified group known by natives as Aguacate de mico ("monkey avocado"), and a recently discovered *Persea* that Schieber and Bergh have named *P. zentmyerii. ... "*

An official Latin description of this new species will be published elsewhere.

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