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Variability in Mexican Avocados (Matuloj) in Guatemala

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This brief report concerns *a* very interesting small area in western Guatemala where remarkable variability has been found in the Mexican race avocado trees *(Persea drymifolia),* known locally by the Mayan name "Matuloj". This is in the vicinity of the small town of Malacatancito, in the state of Huehuetenango.

We have visited this area several times and have made collections of fruit and budwood of several trees hi our search for rootstocks resistant to avocado root rot caused by *Phytophthora cinnamomi.* A recent trip on which this article is based was made by the senior author (E.S.) in August 1983, a time when mature fruit were available on most of the population of Matuloj trees.

Seven different trees of Matuloj were found in the August 1983 trip, all located in a relatively small area of Malacatancito, on the property of Doña Francisca Argueta. There is a striking variability between these trees, some with a strong anise odor in the leaves and fruit, others with no anise scent at all even though all other characters are those of trees of the Mexican race.

Following is a brief description of each tree, with the collection number assigned to the trees, and with photographs or sketches of the fruit as available on this trip:

G-165 — Tree with strong anise scent in leaves, fruit with smooth skin, small, ovoid, and purple in color; fruit peduncle or stalk green. This tree was recently damaged by frost but new shoots are now coming out (a tree grown from seed that we collected from this tree in 1976 is growing in the senior author's garden on the shore of Lake Atitlan, and is now bearing fruit).

G-166 — This similar-appearing tree has no anise odor in the leaves; fruit has rough and irregular skin and is nearly black when ripe; fruit peduncle is green.

G-335—Tree with strong anise scent in leaves and with a striking red peduncle; fruit has smooth skin, is ovoid to elongate, and purplish-black when ripe. This is the tallest avocado tree in the area and is quite cold tolerant; it is the only tree in the area not damaged by a recent frost.

G-335B — This is a tall seedling of G-335 with primarily the same characteristics.

G-335C — This is a smaller seedling of G-335 and is moderately similar, with some minor variability.

G-516 — This tree has no anise odor in the leaves, fruit is small, round, and almost black.

G-1102 — This is a new tree detected on the trip in August 1983, growing between pine trees in the area; the leaves do not have anise scent. Fruit were not available at the time of the visit to the area. It is a large, very old tree. Fruit will be collected on the next visit to the area in the fall.

These collections at Malacatancito would appear to have significance in relation to the origin and distribution of *Persea drymifolia* in the Americas. The great variability in these trees of the Mexican race in this very small and restricted area is of considerable interest. What is the origin of the different types, in relation to presence or absence of anise, size, shape, and skin texture of the fruit? It is interesting to speculate on this.

Also in recent years, the senior author found some unique trees of *P. drymifolia* growing in the native vegetation between forest trees. One such tree is in Cunen, in a very remote region in north-western Guatemala. Another tree of this type is in the Cuchumatanes range, in the far northern part of Guatemala, in the village of San Juan Ixcoy. Both of these trees have strong anise odor hi their leaves. The question arises as to whether the Matuloj trees with anise scent in the vegetative parts are more primitive than the trees that we have detected without anise odor. There are a number of unanswered questions in regard to the evolution and development of this interesting species.

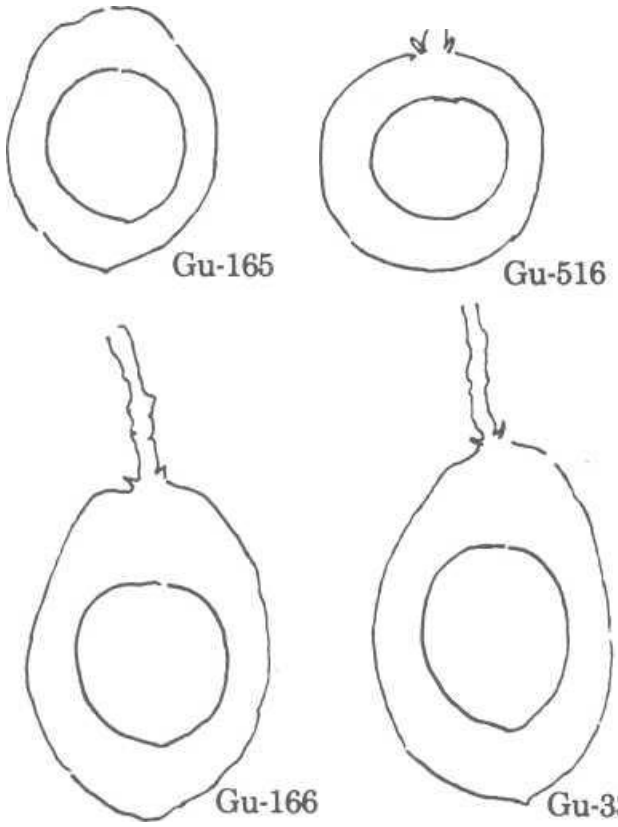

Fig. *1. Different types of fruit from four trees of Persea drymifolia (Mexican race; Matuloj) growing in small area in village of Malacatancito.*

Fig. 2. Fruit of collection G-335 from Malacatancito; leaves have strong anise odor.

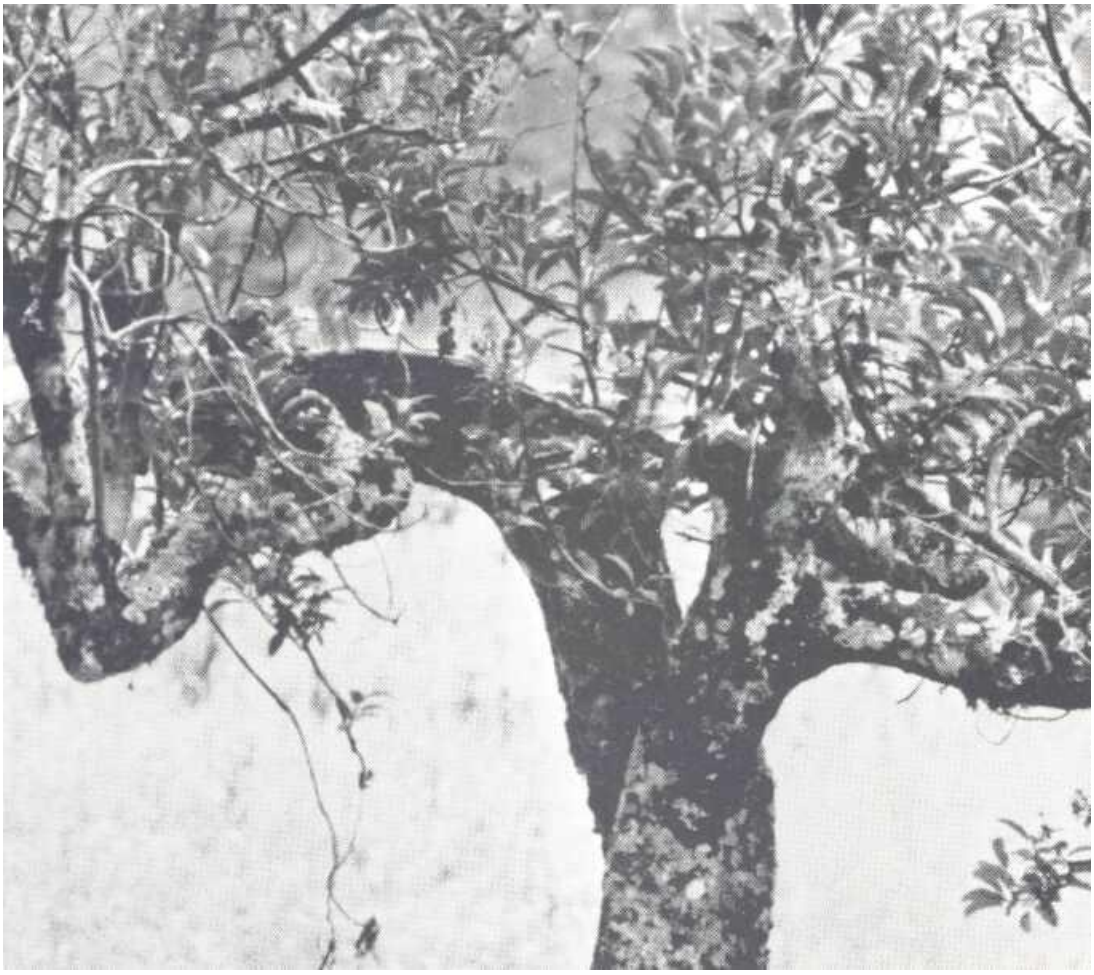

Fig. 3. Matuloj tree (G-516) without anise odor in vegetative parts, growing in Malacatancito.

Fig. 4. Fruit of Matuloj tree G-166, without anise odor; tree from Malacatancito.

Fig. 5. Fruit of typical Matuloj tree G-165, with strong anise scent.