

# New Species of *Peperomia* (Piperaceae) of Central America

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Mario Esteban Véliz Pérez (Guatemala)

**Abstract.** *Peperomia cuchumatana* and *Peperomia moralesii*, from the high plateau of the Sierra de los Cuchumatanes, Huehuetenango, Guatemala and *Peperomia linaresii* from Ahuachapán, El Salvador, three new species are described.

Key Words: Piperaceae. *Peperomia*, *geophila*, Central America

## • Introduction

*Peperomia* Ruiz & Pavón (Piperaceae) comprises a genus of perennial herbs, rarely annuals, there are more than 1000 wild species mostly from Tropical America and often cultivated as ornamentals for indoor environments. Within this genus, there is an interesting group which is not much known or collected. This group is characterized by hypogeous stems like corms and rhizomes, peltate leaves, and peltate floral bracts (Rauh 1997, Rowley, 2002); A. Hill in 1906 and 1907 made a detailed study for this group, which included morphology, reproductive structures and new species description; he placed this group in *Geophila* subsection, *Eutildenia* Section and *Tildenia* subgenus; also he pointed out new divisions as, *Parvifoliae* series (Corms with basal roots) and *Umbilicatae* (corms with whole body plant roots), distributed in South America; *Campylotropae* (Corms with apical roots) and *Rhizomatosae* (rhizomatic plants), distributed in Central and North America, the taxonomy mostly based in characters like underground stems and roots and their positions (Calderon, 1969).

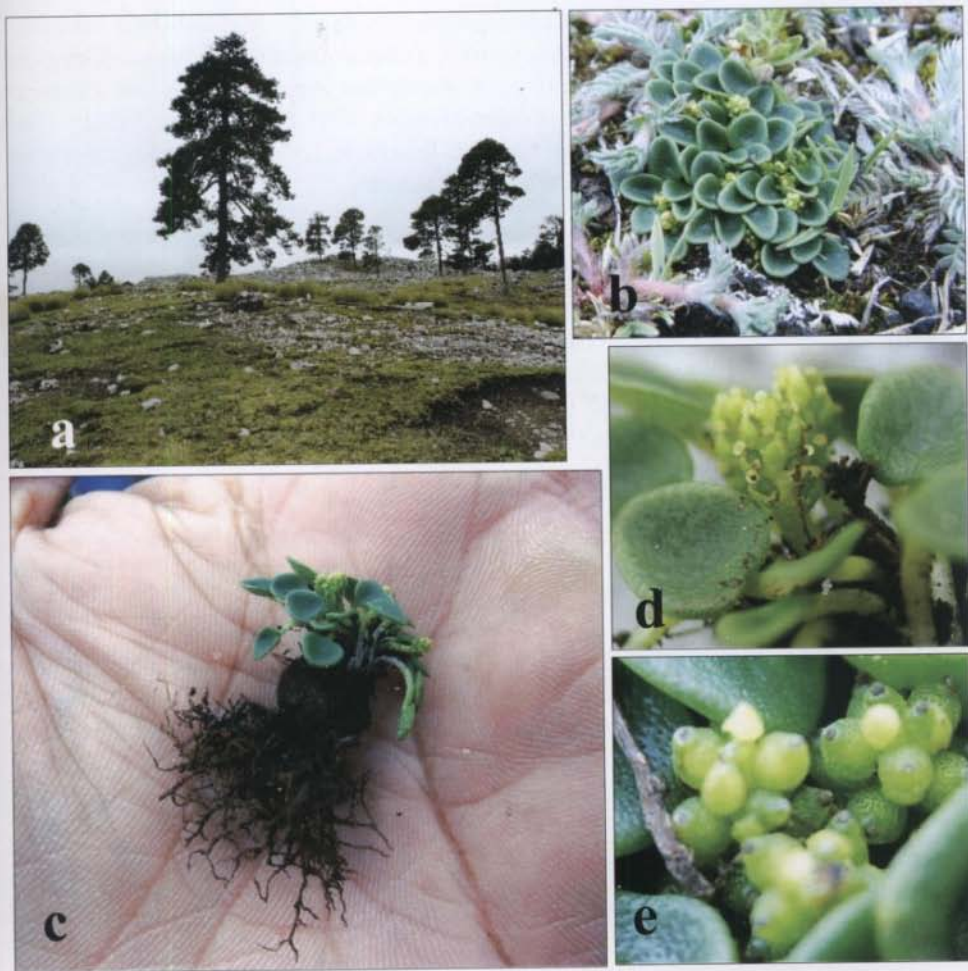
Trelease (1922), used the *Campylotropae* "group" and removed sub-rhizome species to *Mexicanae* (glabrous with small sub-rhizomes) and *Macrandrae* (glabrous with large sub-rhizome). Recent expeditions to the upper plateau of the Sierra de los Cuchumatanes (1995-2006) by BIGU Herbarium research team (San Carlos de Guatemala University), where some specimens of two new geophilous species for the genera *Peperomia* were collected, these species are different from what has been described for Mexico and Central America; together with EAP Herbarium from Honduras, which were made as a result of expeditions to the north side of El Imposible mountains, Ahuachapán, El Salvador, where some specimens and a third one new species were collected. All these species are described as follows:

*Peperomia cuchumatana* Véliz Sp. Nov. **TYPE:** Guatemala, Huehuetenango, Mpio. Todos Santos Cuchumatán, road to the tower, 4 Km to Northwest of Todos Santos

Cuchumatán, growing in a subalpine meadow. 15° 30'24" Lat. N y 91° 31'01" Long. O. 3600 msnm. August 27, 1997 (fl, fr) Véliz 6071 with N. Hernandez (**Holotype**: BIGU; **Isotype**, BIGU, AGUAT, F, EAP, K, MEXU, NY, MO, US). See figure 1 and picture 1

*Peperomia parviflorae* C. DC similis, a qua different cormo castaneo, foliis ad quartam partem e base peltatis, punctibus translucidis inconspicuis, inflorescentiis 5-9 floribus, bracteis froralibus ovatis, prope basem peltatis, 0.4-5 mm longis, fructibus globoso-ovoideis, nigris

Small herb acaulescent, up to 3 cm tall; growing from a globous corm of 0.5-2.5 cm diameter, light purple, many fibrous roots that surface from corm underneath side; leaves



Picture 1 *Peperomia cuchumatana* Véliz a. Habitat (3,500 msnm); b. Habit of species; c. size and details of the plant; d. leaves and inflorescence; e. immature fruits



merge from corm apex; petioles thin, 1mm diameter, hypogeous, 0.5-2.6 cm length, glabrous; sheets orbiculate or ovulate-orbiculated, acetabulated, 2-8 mm length and 2-6 mm width, apex obtuse, rounded at base, fleshy, glabrous, peltate to ¼ base, translucent dots these inconspicuous, veinless, dark green at above and green yellowish below; inflorescences in simple spikes, pauciflorous, from 11 to 29 mm length, 5-9 flowers, usually excising the leaves; flower bracts, ovalated, glabrous, peltate near base, 0.4-0.5 mm of length; filaments of stamens up to 0.3 mm of length, anthers up to 0.2 mm length, more width than length; pistils sessile, softly exerted, burned on rachis depressions, narrowly ovoid, glabrous, sessile stigma; fruits globous-ovoid, black, up to 1 mm length, verruculated.

• **Habitat.**

Subalpine Meadows, growing with *Calamagrostis junceiformis*, *Muhlenbergia calcicola*, *Gentiana pumilio*, *Cuchumatanea steyermarkii*, *Lobelia stolonifera*; *Montia calcicola* *Alchemilla procumbens*, *Werneria nubigena*, *Euphorbia macropodoides* and *Plantago linearis*. (Cumez-Rodríguez 1995, Roldán-Morales 1991, Véliz-Pérez 1998). The geological material is considered as Cretacic limestone rocks, Quaternary limestone material (IGN 1970). The soil is clay with many mosses.

• **Distribution.**

From this species are known four areas; type locality (road to Tawers), is a subalpine meadow aside of a *Pinus* forest; Los llanos del Diablo 1 km to South-West, inside of *Garrya*, *Juniperus*, *Ribes*, *Berberis* and *Pinus* forest. The third species is 6 km from this, North-West direction (Aldea Chichim); and four in adjacent areas from Yac Town to Todos Santos Cuchumatán. It's possible that other populations may exist in adjacent hills. Blooming from July to September. (See figure 2).

• **Paratypes.**

GUATEMALA, Huehuetenango, Todos Santos Cuchumatán, road to La Torre, november 25, 1998 (sterile) M. Véliz **6854, 6855**; July 3, 2001 (fr) M. Véliz **11410** with J. Véliz; June 14 2006 (fl) M. Véliz **16884** with C. Méndez;

**Llanos del diablo.** July 3, 2001 (fr) M. Véliz **11413** with J. Véliz; September 26, 2001 (fr) M. Véliz **12129** with J. Véliz and G. Pérez; August 31, 2002 (fr.) M. Véliz **12578** with J. Gálvez, C. Carrasco and M. Quezada; August 6, 2003 (fr.) M. Véliz **14051**, con J. Véliz y R. Morales; idem, August 6, 2003 (fr) M. Véliz **14058** with J. Véliz and R Morales; July 20, 2004. (fr.) M. Véliz **15318**; September 25, 2001 (fr) M Véliz **12189** with J. Véliz and R. Morales; (fr) M. Véliz **12542** with J. Gálvez; October 11, 2003 (vegetative) M. Véliz **14519**; April 27, 2004 (rhizocarpic). M. Véliz **15152, 15153**, July 20, 2004, (fr.) M. Véliz **15323, 15329**; June 14, 2006 (fl) M. Véliz **16885** with C. Mendez; Town **Chichim**, August 31, 2002 (fr.) M. Véliz **12578** with J. Gálvez, C. Carrasco and M. Quezada; August 6, 2003 (fr.) M. Véliz **14051**, with J. Véliz and R. Morales; August 6, 2003 (fr) M. Véliz **14058** with J. Véliz and R Morales; July 20, 2004. (fr.) M. Véliz **15318**; **From town Yac**

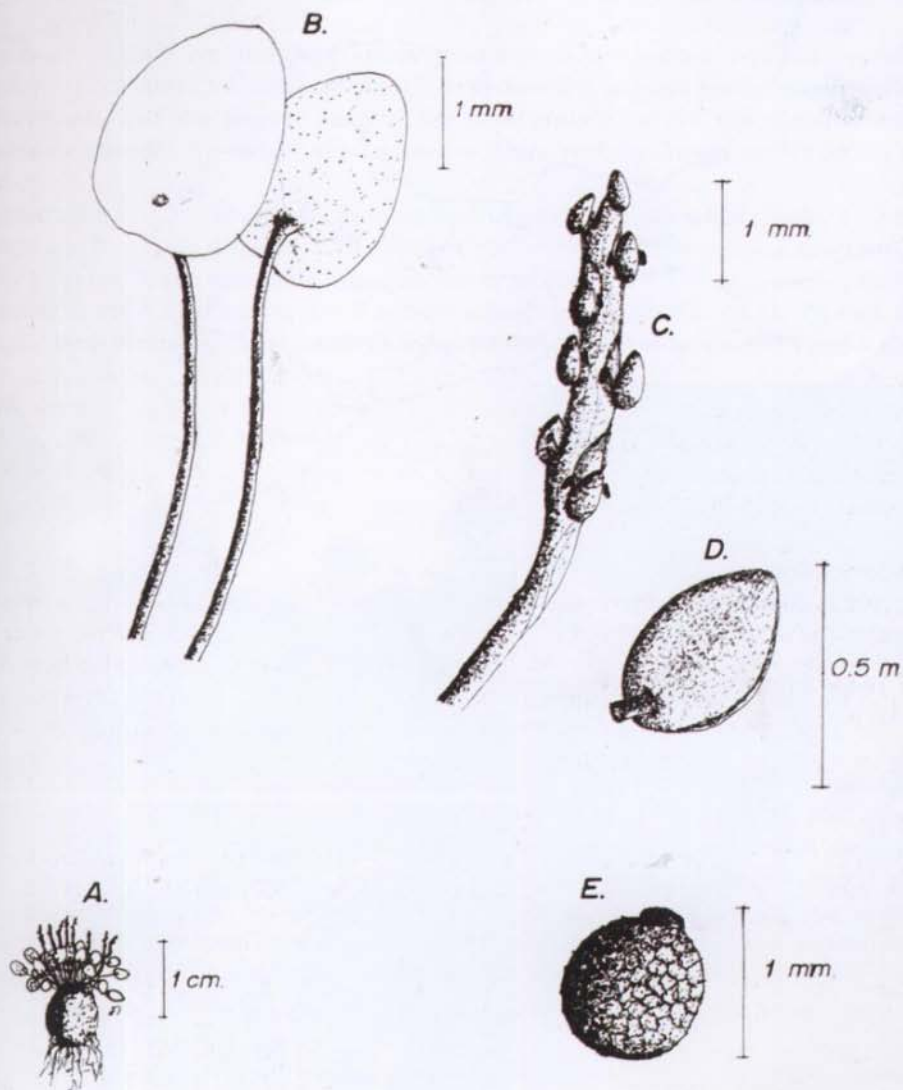
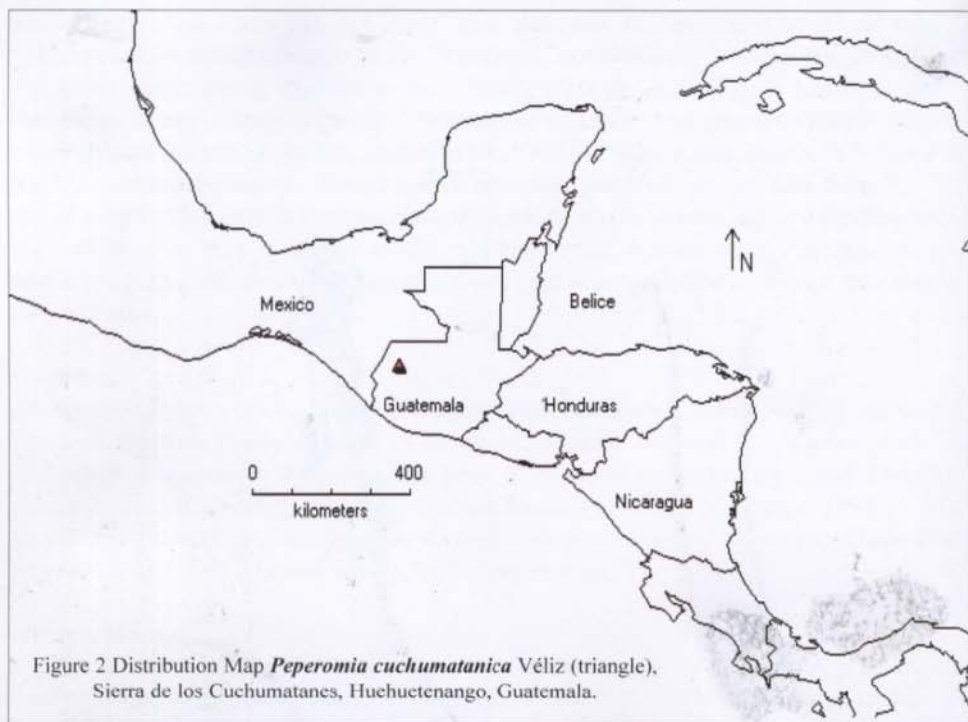


FIGURE 1 *Peperomia cuchumatana* Véliz a. habit; b. leaves;  
c. inflorescence; d. floral bract; e. fruit.



to **Todos Santos Cuchumatán**, August 6, 1977, (fr) D. N. Smith **621** (AGUAT, BIGU, EAP, MEXU, MB, MO, NY, K, US).

*Peperomia cuchumatana* Véliz, is a *Parviflorae* species because of its roots that born at corm base, is very similar to *Peperomia parviflorae* C. DC., from Los Andes, (Perú-Bolivia), is different from this species because its purple corm (black in *P. parviflora*), its leaves are peltate up to ¼ of leaves, translucent dots are present (in *P. parviflora* leaves are petated from 1/3 to ½ and without translucent dots); inflorescence are pauciflorate with 6-9 flowers (inflorescence densiflorate with more than 20 flowers in *P. parviflora*); floral bracts ovalate, 0.4-0.5 mm length, fruits black when ripe (floral bracts elliptical, acute, and 1 mm length and colour fruit olivaceus-fulvate in *P. pauciflora*).

Specific epithet recalls Sierra de los Cuchumatanes, place where this species is borne.

Mam's name is *Tist mesat* which means "potato with deer horns" (according to Victor Carrillo, Chemal II town, Todos Santos Cuchumatán, Huehuetenango).

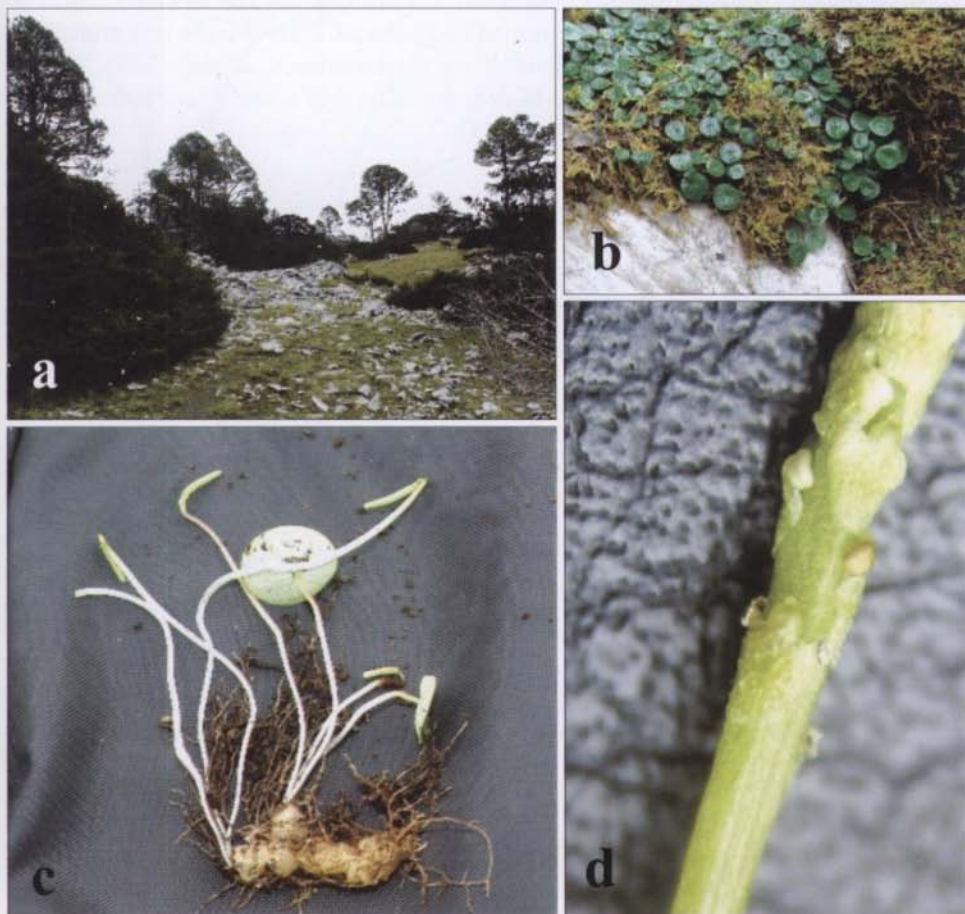
***Peperomia moralesii* Véliz Sp. Nov. TYPE:** Guatemala, Huehuetenango, Mpio. Todos Santos Cuchumatán, La Torre road, in Llanos del Diablo, 3.5 Km. to Northwest of Todos Santos Cuchumatán. Growing inside of *Juniperus standleyi* forest. 15° 30'05" Lat N y 91°



31°42' Long. W. Altitude 3700 m June 8th, 1995 (fl.) M. Véliz 4935 with J. Véliz  
(Holotype: BIGU; Isotype: BIGU, AGUAT, MEXU). (Figure 3. and Picture 2)

*Herba acaulescens; rizoma tuberosum, in vivo album, 2-7 cm longum, 8-12 mm crassum; petioli 5-30 cm longi, folia orbicularia 1.5- 4 cm diametro, in parte media peltata; spicae pauciflora, 12-25 cm longae, bracteis floralibus glabris, ca 1.4 mm longis, oivatis; ovarium subsessile, stigmatate conico; fructus ovoideus, ca 1 mm longus, atrovirens.*

Acaulescent, 8 – 20 (-30) cm. tall; growing from tuberous rhizome, white (fresh), 2 – 7 cm length and 8 – 12 mm diameter, with abundant fibrous roots; fragile petioles, few (2-6), 5 – 20 (-30) cm. length and 1 mm diameter; leaves orbiculated, 1.5-4 cm diameter, fleshy, peltated in the medial region, 7 – 9 nerves; inflorescent in simple spikes, 12 – 25 cm length, laxly blooming; floral bracts glabrous, punctate, 1.4 mm length and 1 mm width,



Picture 2 *Peperomia moralesii* Véliz a. Habitat (alt. 3,700 m); b. Habit of the species  
c. rhizome tuberous, leafs and inflorescence; d. detail of the inflorescence

oval-lobulated, apiculated at apex; filament stamens 3 mm length, anthers 0.3 mm length and 0.27 mm width; pistils born at rachis depressions, subsesil ovarium, softly verruculate, conic stigma; fruit 1 mm length, ovoid, dark green, persistent stigma, conical.

• **Habitat:**

Growing on rocks, in *Juniperus standleyi* y *Abies guatemalensis* forest, with *Arctotaphylos cratericola*, *Penstemon gentianoides*, *Werneria nubigena*, *Oreomyrrhis daucifolia*, *Viola nannei*, *Alchemilla* spp. and *Berberis vulcania* (Véliz 1998). Few deep soils, black and covered by many mushrooms; bloom in June to September.

• **Distribution:**

Are known 2 type localities. The first one (Llaños del Diablo) tower road 4 km to the North on the way to Todos Santos Cuchumatán, Huehuetenango. The second one is in an *Abies guatemalensis* forest, in the area named La Puerta del Cielo. Maybe is distributed in *Juniperus* and *Abies* forests in the Sierra de los Cuchumatanes. Altitude 3500-3800 m. This species grows in the shadow and lives in the same area where *P. cuchumatana* is distributed and grows in sunlight (see figure 4).

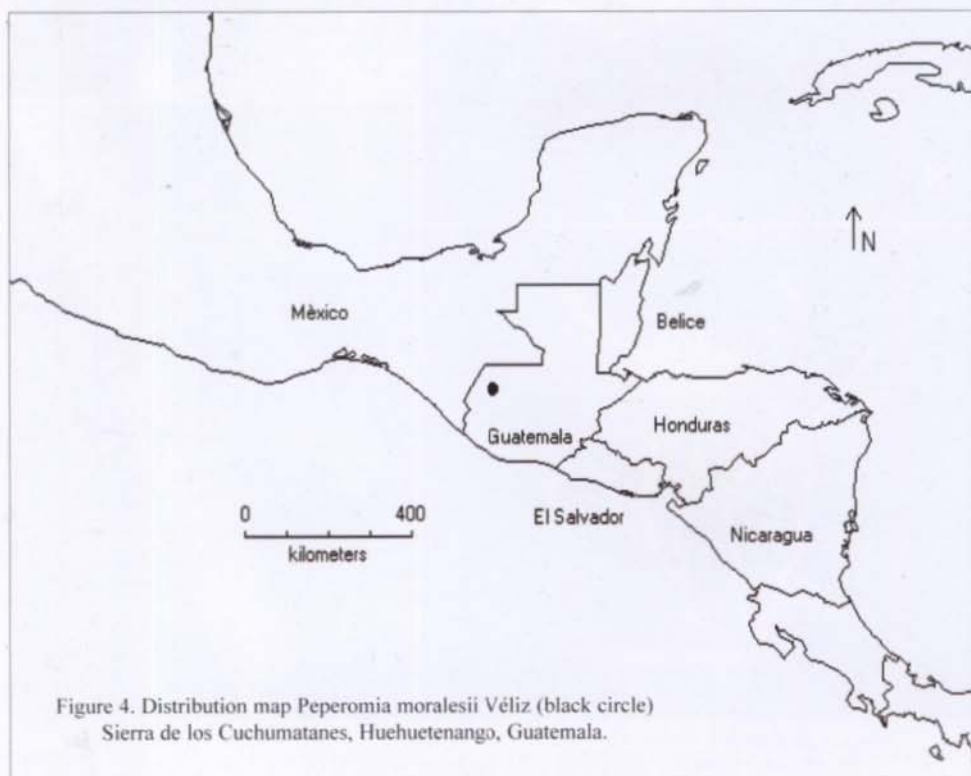


Figure 4. Distribution map *Peperomia moralesii* Véliz (black circle)  
Sierra de los Cuchumatanes, Huehuetenango, Guatemala.

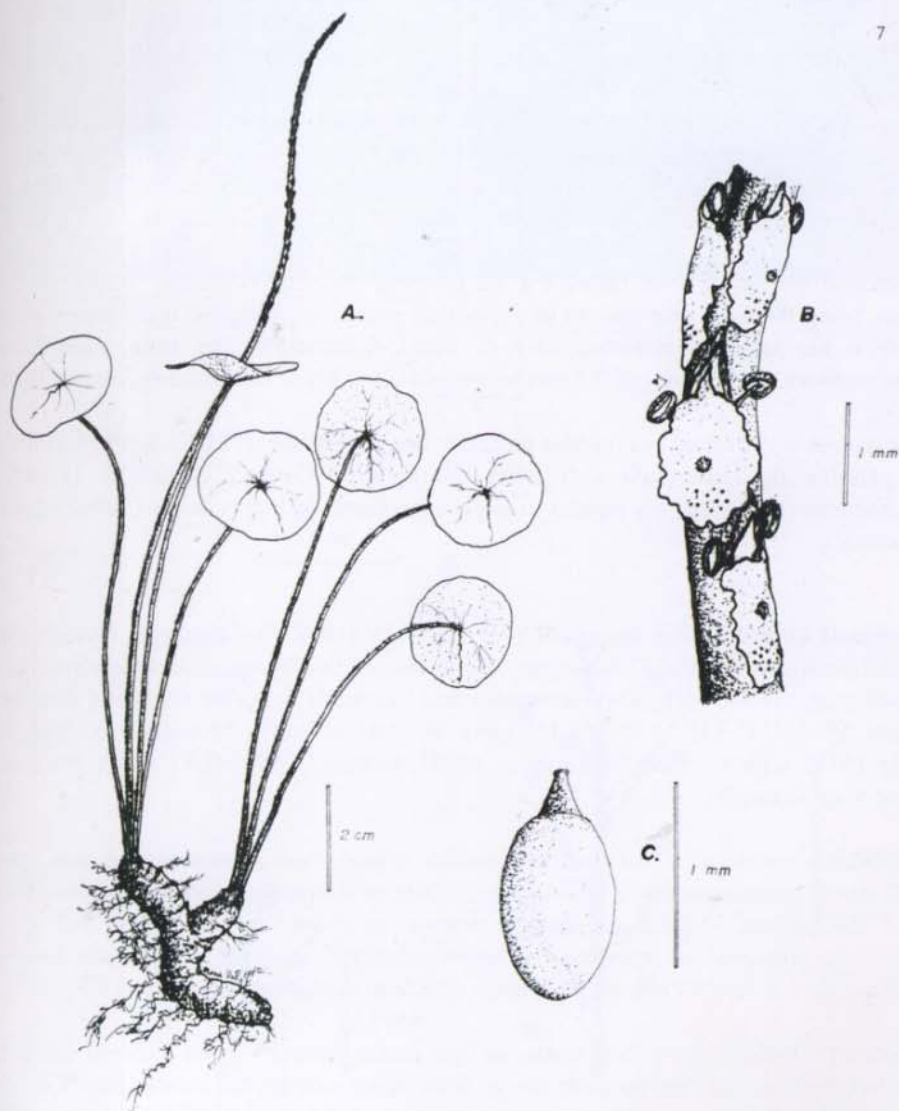


FIGURE 3 *Peperomia moralesii* Véliz a. Habit; b. Floral bract on inflorescence section; c. fruit (a-b Véliz 4935 with J. Véliz; c Véliz 7209 with R. Morales. Illustration M. Véliz).



• **Paratype:**

**GUATEMALA, Huehuetenango, Todos Santos Cuchumatán**, August 11, 2001 (vegetative) M. Véliz **7209** with R. Morales; Tower road, november 25, 1998 M. Véliz **6896** with D. Sánchez, J. Morales and N. Ordóñez; August 28, 2000 (fl) M. Véliz 9884 with N. Gallardo and M. Vásquez; July 2, 2001 M. Véliz **11,415** with J. Véliz; September 22, 2001 M. Véliz **11877** with J. Véliz; september 26, 2001, (fl) M. Véliz **12190** with J. Véliz and G. Pérez; August 6, 2002, (fl) M. Véliz 12541 with J. Gálvez; June 14, 2006 (fl) M. Véliz 16886 with C. Mendez; **La Puerta del Cielo**, August 31, 2002 (fl.) M. Véliz **12582**, with H. Garcia and M. Quezada; June 8, 1995 (fl.) M. Véliz 4935 and J. Véliz (AGUAT, BIGU, EAP, MEXU, MO, MB, NY, K)

*Peperomia moralesii* Véliz, because it has tuberous rhizomes is located in *Macrandrae* series, being the most near species of *Peperomia monticola* Miq., but is distinguished of it for it has tuberous rhizomes of 8-12 mm 2-6 leaves on the stem, pauciflorate inflorescences, floral bracts of 0.7 mm length and 0.4-0.5 mm width and dark green fruits.

This species is dedicated to Emeritus professor Renato Morales (1930-), Senior forester at San Carlos de Guatemala University, North-West Center-CUNOROC (USAC), Huehuetenango. He was my partner in many expeditions to Sierra de los Cuchumatanes, Guatemala.

*Peperomia linaresii* Véliz. Sp. nov. TYPE: EL SALVADOR, Departamento Ahuachapán, Municipio Ataco, Cantón El Naranjito, 300 m toward South-west of del Cantón school. Growing on basaltic rocks aside of mosses and liverworts in coffee crops and disturbed forests. 13° 50'21" Lat. N; 89° 52'14" Long. W. 800 msnm (fl, fr) August 15, 2004. M. Véliz 15357 with J. Linares (Holotype: BIGU, Isotype: EAP, MEXU, MO, NY) (see figure 5 an picture 3)

*Herba acaulescens ex cormo oriens; cormus lenticulares, castaneus, 3-6 mm latus, radicibus in parte superiore, 1 (-2)-foliatus; folium membranousum, pendens, lanceolatum, 1.2-5 cm longum, 1.2-1.5 cm latum, trinerve, glabrum; inflorescentiae 1-2 spicis paucifloris, filiformibus, repentibus; ovarium sessile, glabrum, 0.5-0.6 mm longum, stylo tubulari, 0.35-0.40 mm longo; fructus ovoideus, castaneus, 0.5-0.6 mm longus.*

Acaulescent herb, browning from lenticular ligh purple corne, 4-6 mm diameter and 2-2.5 mm tall, ligh purple fibrous roots merge from upper side of the corne; leaves 1 (-2), membranous, delicate, pendulated, lanceolate-ovate, 1-2.5 cm length, 1.2-1.5 cm width, obtuse to redondate at apex, base rounded to truncated, edge side whole, trinervate, glabrous above and below, leaves petiolate at base or subpeltate, terete petioles 2-4 cm length, 0.5-0.8 mm diameter, glabrous; inflorescences 1-2 in pauciflorate spikes, filiform, repents 3-8 cm length, with 6-15 (-20) flowers, peduncle 0.3-0.37 mm length; floral bract lanceolate-ovate, 0.25-0.30 mm, 0.7-0.9 mm length, anthers 0.1-0.15 mm length, 0.15-0.2



3 *Peperomia linaresii* Véliz a. a Habitat, b. Detail of plant.

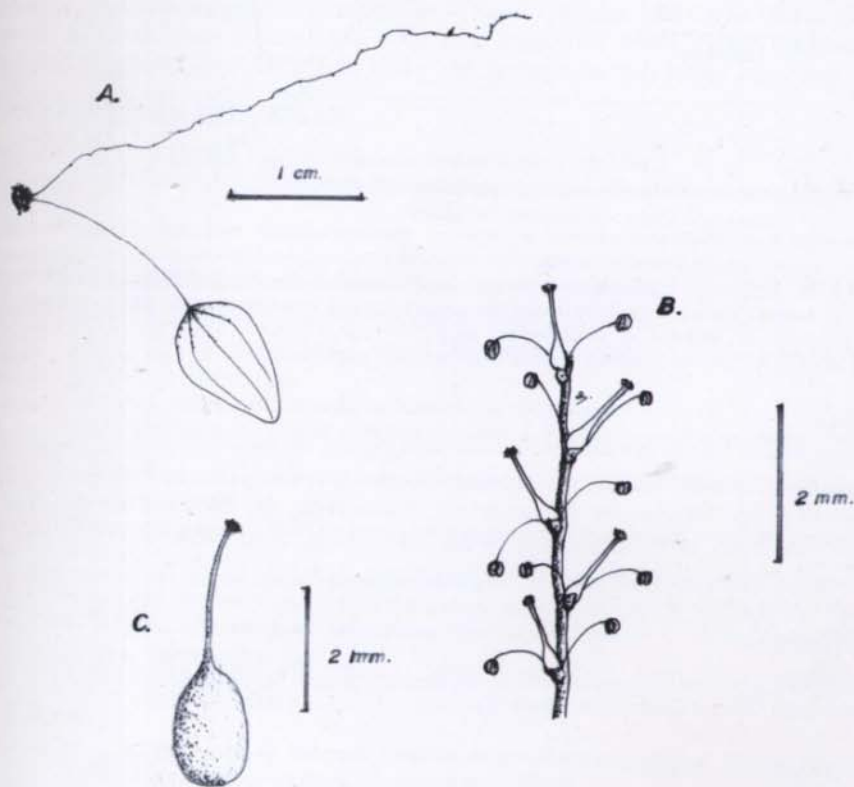


Figure 5 *Peperomia linaresii* Véliz  
a. habit; b. Section of repent inflorescence ; c. fruit (Illustrated by M. Véliz)

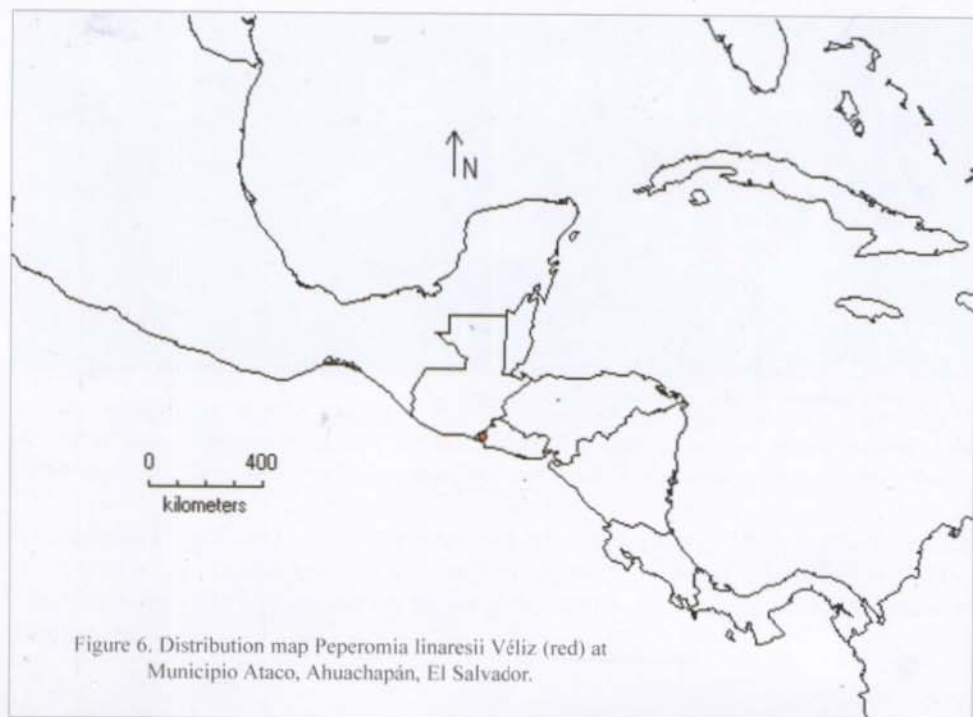


Figure 6. Distribution map *Peperomia linaresii* Véliz (red) at Municipio Ataco, Ahuachapán, El Salvador.

mm width, glabrous; subsessile ovary, glabrous; stigma capitate, 0.25 mm width to 0.24 mm tall, papilated; ovoid fruits, purple, finely reticulated, glabrous, 0.5-0.6 mm length, 0.35-0.40 mm width, persistent stigma. (see figure 3 and picture 3)

• **Habitat:**

Growing in wet forests growing with cultivated coffee, on the North side of El Imposible mountains, on basaltic rocks; grows aside of mosses and liverworts, as well as *Phinaea* sp, *Polypodium* sp, *Achimenes pedunculata*, *Coccoloba* sp, *Psychotria* sp, *Matayba glaberrima*, *Piper umbellatum*, *Euphorbia diversifolia*, *Inga calderonii*, *Calytranthes calderonii*, *Cojoba graciliflora* y *Cecropia peltata*.

• **Distribution:**

It is known only from the type locality (Cantón El Naranjito), departamento de Ahuachapán, El Salvador (see figure 6)

• **Paratypes:**

EL SALVADOR, Departamento de Ahuachapán, Municipio Ataco, Cantón El Naranjito, 300 m towards Southwest of the school. July 21, 1993 (fl, fr) J. Linares 520; August 15, 2004. (fl, fr) M. Véliz 15357 with J. Linares. (AGUAT, BIGU, EAP, K, MEXU, MO, NY).

*Peperomia linaresii* Véliz is located in the *Campylotropae* series because it has corms



where the roots grow at the superior part; there is no other species that has only one leaf and repent inflorescence, the reason why it's separated from the others.

This species is dedicated to Salvadorian botanist, Agr. Eng. José Ledis Linares (1966-) who with his collections and new species has made a big contribution to the knowledge of Flora of Mesoamerica.

Mario Esteban Véliz Pérez  
marioeveliz@yahoo.com

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