

*Jatropha* notulæ  
(*Euphorbiaceæ*), 5

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&  
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FONTQUERIA 55(62): 471-480 [seorsim 1-12]  
MADRID, 20-X-2008

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Accredited with the *International Association for Plant Taxonomy* for the purpose of registration of new non-fungal plant names.

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Typesetting: Ambrosio VALTAJEROS POBAR, Ulpiano SOUTO MANDELOS  
Screen operators: Samuel FARENA SUBENULLS, Emilio NESTARES SANTAINÉS  
Preprinting: Sonja MALDÍ RESTREPO, Demetrio ONCALA VILLARRASO

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Mail for electronic distribution: [Fontqueria@yahoo.com](mailto:Fontqueria@yahoo.com)

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ISSN: 0212-0623

Depósito legal: M-29282-1982

## *Jatropha* notulæ (*Euphorbiaceæ*), 5

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The first author has mainly developed his work at the Botany Department, School of Life Sciences, Arizona State University (Tempe, AZ, USA); supported by a grant of the Spanish Ministerio de Educación y Ciencia, PR2007-0505.

FERNÁNDEZ CASAS, F. J. & E. M. MARTÍNEZ SALAS (20-x-2008). *Jatropha* notulæ (*Euphorbiaceæ*), 5. *Fontqueria* **55**(62): 471-480 [seorsim 1-10].

**Keywords.** Systematics, New species; *Jatropha* Linnaeus, sect. *Loureira* (Cavanilles) Mueller argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*). North America: México (Tamaulipas, Veracruz-Llave).

**Abstract.** One new species is described in this paper: *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas, sect. *Loureira* (Cavanilles) Mueller argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*), from México (Tamaulipas, Veracruz-Llave).

**Zusammenfassung.** Es wird hier eine neue Art aus Mexico (Tamaulipas, Veracruz-Llave) beschrieben: *Jatropha Sotoi-Nunyezii* Fernández-Casas & Martínez Salas, sect. *Loureira* (Cavanilles) Muell. argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*).

**Resumé.** Une nouvelle espèce est proposée: *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas, sect. *Loureira* (Cavanilles) Mueller argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*), provenant de Mexique (Tamaulipas, Veracruz-Llave).

**Resumo.** Descrebe-se uma espécie nova: *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas, sect. *Loureira* (Cavanilles) Mueller argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*), procedente do México (Tamaulipas, Veracruz-Llave).

**Resumen.** Se describe una especie nueva: *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas, sect. *Loureira* (Cavanilles) Mueller argov. ex Pax, subsect. *Loureira* (*Euphorbiaceæ*), procedente de México (Tamaulipas, Veracruz-Llave).

It continues our series of publications dealing with the genus *Jatropha* Linnaeus (*Euphorbiaceæ*), published previously in this magazine; see the preceding paper, F. J. FERNÁNDEZ CASAS (2008).

We described here a new species that we consider a Mexican endemism, known only in the states of Tamaulipas and Veracruz-Llave. It belongs to the subgenus *Curcas* Adanson ex Pax in H. G. A. Engler & K. A. E. Prantl, section *Loureira* (Cavanilles) Mueller argov. ex Pax, Pflanzenreich IV, 147: 74 (1910), subsection *Loureira*.

The new species is related to *Jatropha ciliata*, but it is closer to *J. Gaumeri*. It differs by its hairy inflorescences which are not glabrous; by its weaker fruit, with weaker internal pericarp.

5 ***Jatropha Sotoi-Nunyezii*** Fernández Casas & Martínez Salas, *Fontqueria* **55**(62): 471-480, n° 5 (20-x-2008), **spec. nov.**

TYPUS: *E. M. Martínez Salas* 40162 (MEXU s/n, holo-)

– Subgen. *Curcas* AdansonPax in H. G. A. Engler & K. A. E. Prantl, sect. *Loureira* (Cavanilles) Mueller argov. Pax, Pflanzenreich IV, 147: 74 (1910), subsect. *Loureira*

NOMINA VERNACULA. Tamaulipas: "Pipián", *L. Hernández Sandoval* 1090 (MO); *L. Hernández*

*Sandoval 1091* (MEXU).

DISTR. GEOGR.: **America borealis**: México (Tamaulipas, Veracruz-Llave); cf. tabula 1 (pag. 480).

ILLUSTR.: laminae nostræ i (pag. 473), ii (pag. 474), iii (pag. 477), iv (pag. 478).

**LATINA DESCRIPTIO** ex holotypo *E. M. Martínez Salas 40162* (MEXU s/n). Mensis Iulio lecta, hæc collectio uterque sexus flores atque regmata plane matura simul ostendit

*Brachyblasti* fere cylindrici, ad  $1 \times 0,5$  cm; interdum inferioribus internodiis parum elongatis ramulos aliquo modo aspectu brachyblastorum prodeunt.

FOLIA secus ramos hornotinos atque brachyblastos disposita; *juvenilia* bene cordiformia, adaxialiter viridia atque pilosa, abaxialiter albo villosa teselata; *teselæ* propter nervulos glabros pictæ sunt, contra illud quod in foliis adultis observatur. *Petiolus* usque 6 cm, cylindricus, hirtus villosus. *Limbus* usque  $13 \times 10,5$  cm, triangular cordiformis vel subtrilobus, ad basim truncatus vel cordatus. *Nervi principali (radiali)* tres vel quinque (rare septem), duo extimi infirmi marginem non attingetes. *Nervi secundarii*  $40-60^\circ$ , pauci, proni, recti vel arcuati, marginem non attingetes, brochidodromi, alterni, distantes, ca. 1-2(-3) in unoquoque latere. *Nervi terciarii* reticulati.

INFLORESCENTIÆ apicales axillaresque, breves, paucifloræ, dichasialis, pauciramificatæ; florendi tempore 1-2,5 cm longæ; *pedunculus partialis* florendi tempore 0,5 cm, albo hirtus, longitudinaliter striatus; *pedunculi partiales* patentes; quæque inflorescentia sæpe fœmineus flos unicus habet, aliquando aliquot gerens sed tantum unicus fructiferus assecutus est. *Bracteæ* oblongo lanceolatæ, utrimque albo villosæ, ad sepalos similimæ ser parum majores, usque  $6 \times 2$  mm, modice canaliculatæ. *Bracteolæ* ad bracteas similimæ sed parum minores; hæc illæque sursum inflorescentia gradatim minorantes.

FLORES MASCULI subsesiles, caduci; *pedunculus* iuxta basim facile abscissus. *Alabastra* fere sphærica, glabra, petalis imbricatis, inaperta 3-4 mm diametentia. *Sepala* libera, imbricata, oblonga, laxè ciliata, viridia; exteriora ad basim et secus dorso parum villosa, interiora dorso glabra, omnia intus glabra. *Corolla* tubulosa dolioliformis, usque  $6,0-6,5 \times 2,5-3,0$  mm, flavo virescens, extus glabra, intus pilis longis instructa; *petala* (pars libera) laxè ciliata, utrimque glabra, reflexa. *Discus* glandulis quinque ovoideis compositus, ca. 0,5 mm; glandulis supedunculatis, plane disjunctis, flavescens. *Columna staminalis* ca. 4 mm, glabra, longitudinaliter striata. *Stamina* decem, biverticillata; verticillum inferum 3 mm supra basem situm, verticillum supremum 4 mm. *Antheræ* oblongæ,  $1,1-1,5 \times 0,5$  mm, flavæ, vix sagittatæ, dorsifixæ, introrsæ, vix exclusæ, petalas liberas paulo superantes; *connectivum* parum evolutum, aliquando excurrens apiculo efficiente.

FLORES FEMINEI. *Sepala* libera, imbricata, inæqualia,  $3-5 \times 1,5-2$  mm, oblongo triangularia, obtusa, extus intusque villis albis applicatis æque vestita. *Corolla* viride flavescens,  $4-6 \times 2-2,5$  mm, utricularis, extus glabra, intus ad medium laxè albo villosa, ad  $0,5-0,66$  sua longitudine connata (difficile in sicco observanda, usque ad basim in sicco fissa, fissuræ labia erosa); *tubus* plus minusve ventricosus, decemnervatus, quinque nervis alternis centralis, quinque commissuralis; *petala* (pars libera) ultra  $180^\circ$  recurvata, ciliata, intus extusque glabra. *Discus* glandulis quinque squamiformis liberis compositus; *glandulæ* oblongo rectangulares, apice emarginatæ. *Ovarium* fere sphæricum, glaberrimum, longitudinaliter sex costatum. *Styli* tres, 2,5 mm, glabri, in columna trisulcata ad 2 mm connati; *stigmata* bilobata, ca. 0,5 mm.

REGMA. *Pedunculus* valde elongatus, in fructo usque ad 6 cm. *Calyx* sub regma usque maturitate persistens, patens, sub regmate parum acrescens vel æquans. *Discus* squamis quinque glandulosis compositus, subtus regmata persistens, patens. *Pericarpium externum* coriaceum, extus parum undulatum figuræ pellis aureum mali, penitus glabrum, extus atratum, intus albidiusculum. *Pericarpium internum* atro coffeatum, magis carthilagineus quam osseus. *Columella* 11-12 mm, triptera; sæpe fissa, ad basem et apicem

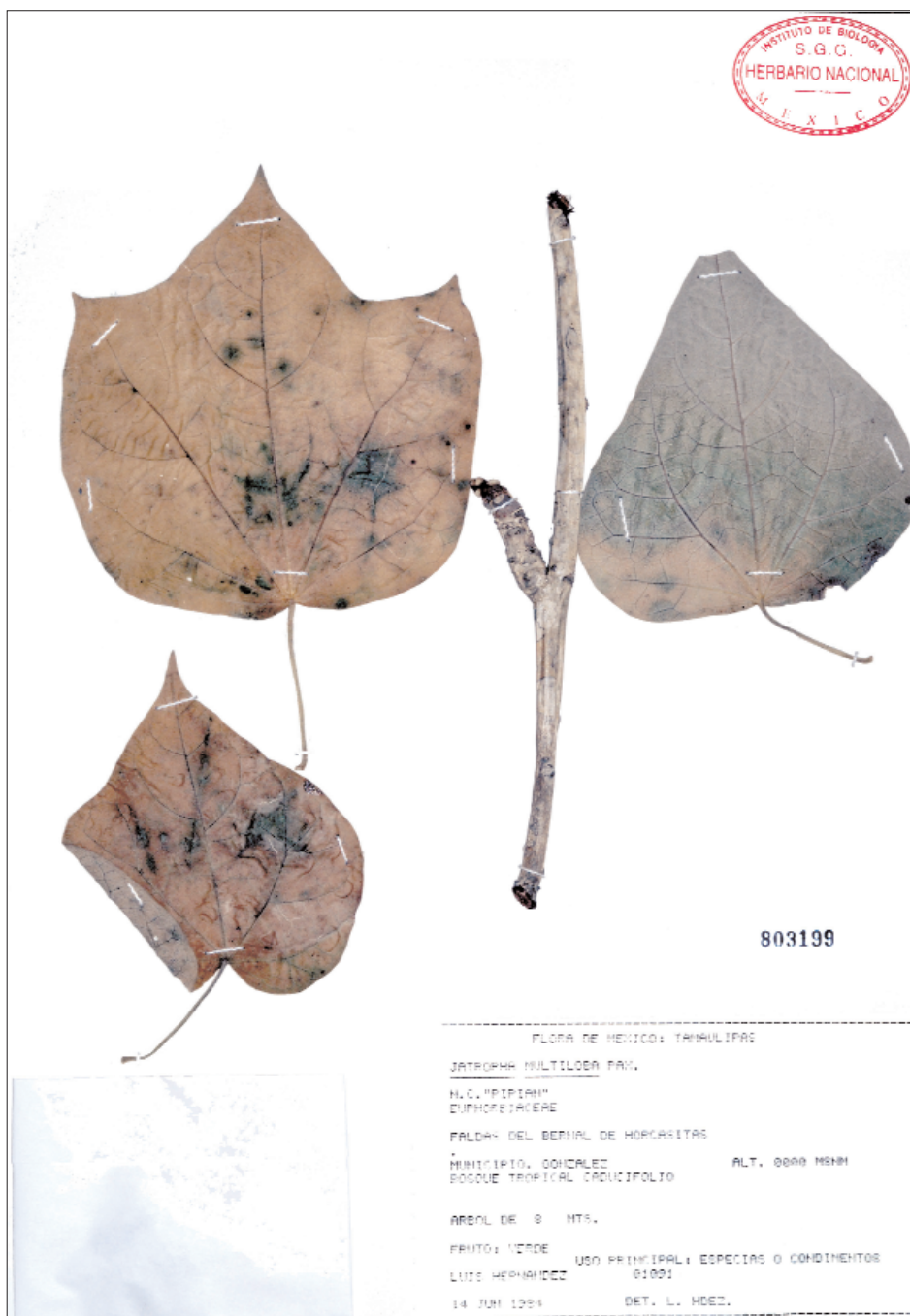


PLATE I. *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas. Isotype: L. Hernández Sandoval 1091, 14-VI-1984 (MEXU 803199).



PLATE II. *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas. Isotype: F. González Medrano 17725, 23-VII-1991 (MEXU 1045247).

fasciculis vascularibus tantum gerens; *apice* abrupte dilatato.

SEMINA illa subgenus *Adenoropii* similima. *Testa* castannea parum maculata vel fere immaculata, secus dorsum lætiore. *Demensa semina* 11, mm,  $\pm 0,1$ ; L:  $12,3 \pm 0,5$ ; l:  $7,7 \pm 0,25$ ; p:  $6,1 \pm 0,18$  [ $11,2 \times 7,5 \times 5,8$ ;  $11,9 \times 7,6 \times 6,1$ ;  $12,1 \times 7,2 \times 5,8$ ;  $12,1 \times 7,8 \times 6,2$ ;  $12,4 \times 7,9 \times 6,2$ ;  $12,5 \times 7,6 \times 6,1$ ;  $12,5 \times 7,8 \times 6,4$ ;  $12,6 \times 7,8 \times 6,1$ ;  $12,7 \times 8,0 \times 6,2$ ;  $12,8 \times 7,9 \times 6,1$ ;  $13,0 \times 8,1 \times 6,3$ ].

ENGLISH DESCRIPTION from holotype *E. M. Martínez Salas 40162* (MEXU s/n). This sample, collected in July, shows simultaneously flowers of both sexes and quite ripe fruits

*Short-shoots* almost cylindrical, ca.  $1 \times 0,5$  cm; sometimes there are stretching of lower internodes and the twigs are intermediate with the short-shoots.

LEAVES disposed throughout the present year twigs, or on short-shoots; *young leaf*s perfectly cordiform, hairy green above, villose whitish tessellate on the back; the *areoles* are defined upon lacking hair the nerves, contrarily what is observed in the adult leaves. *Petioles* until 6 cm, cylindrical, hirtous villous. *Lamina* until  $13 \times 10,5$  cm, triangular cordate or subtrilobed, base truncate or cordate. *Radial (main) nerves* 3-5(-7), the two weak outermost do not reach the margin. *Secondary nerves* 40-60° forward, straight or curved, brochidodrome, very scarce in number, alternate and distant, hardly 1-2(-3) by each side. *Tertiary nerves* reticulate.

INFLORESCENCES apical and axillary, short, few flowered, composed dichasium few branching, pedunculate; at flowering hardly 1-2.5 cm long; *peduncle* at flowering 0.5 cm, white hirtous, lengthwise striate; *partial peduncles* outspread; it is frequent that only one feminine flower of each inflorescence reach to fructify, or that there is only alone. *Bracts* oblong lanceolate, white villous on both sides, very like the sepals of pistillate flowers, but too little bigger, until  $6 \times 2$  mm, lightly canaliculate. *Bracteoles* like bracts but barely smaller; both gradually smaller along the inflorescence.

STAMINATE FLOWERS almost sessile, dropping off early; *peduncle* with an abscission line exactly on its base. *Flower buds* approximately spherical, glabrous, with imbricate petals, ca. 3-4 mm in diameter before opening. *Sepals* free, imbricate, oblong, loosely ciliate, greenish; the outermost with some hair in the base and in the back, the innermost with glabrous back, the all ones glabrous inside. *Corolla* tubular barrel-shaped, until  $6,0-6,5 \times 2,5-3,0$  mm, yellowish green, outside glabrous, with long flexuose hairs inside; *petals* (free part) loosely ciliate, on both sides glabrous, reflexed. *Disc* made up of five ovoid glands, ca. 0.5 mm each, subpedunculate, well separate to each other, yellowish. *Staminal column* ca. 4 mm, glabrous, lengthwise striate. *Stamens* ten, bivericillate, the first verticille 3 mm over the base, the second one 4 mm. *Anthers* oblong,  $1,1-1,5 \times 0,5$  mm, yellow, too little sagittate, dorsifixe, introrse, moderately excluded of corolla tube, hardly longer than the free petals; *connective* little developed, sometimes running out beyond anther making a not well defined short point (apiculum).

PISTILLATE FLOWERS. *Sepals* free imbricate, unequal in size,  $3-5 \times 1,5-2$  mm, oblong triangular, blunt, inside and outside dressed with homogeneous and applicate white down. *Corolla* yellowish green,  $4-6 \times 2-2,5$  mm, outside glabrous, inside, bladder-like, fused until 0.5-0.66 of its length (difficult to specifying, in dry is split almost until its base, but the lips are erose, not clean); *tube* too little swollen, inside at the middle loosely villous, with ten nerves, five in the centre of each petal, another five commissural; the free part of the petals curved backwards more than 180°, ciliate, glabrous on both sides. *Disc* compound by five separated glands; *glandules* shaped like a scale, between oblong squared or rectangular, emarginate in the apex. *Ovary* approximately spherical, quite glabrous, lengthwise sex costate. *Styles* three 2.5 mm, glabrous, connate ca. 2 mm in column with three furrows; *stigma* bilobate, c. 0.5 mm.

REGMA. *Peduncle* notably lengthened at fruit time, reaching 6 cm. *Calyx* persists under fruit until its complete maturity, it is had patent; below the regma it hardly acrescent or unacrescent. *Disc* with patent scale-like glands remaining under of the regma. *External pericarp* leathery, with undulations like the skin of an orange, quite glabrous, dark outside and whitish inside. *Internal pericarp* dark coffee coloured, more cartilaginous than bony. *Columella* 11-12 mm, with three wings, frequently splited in two parts only, vascular bundles only at apex and apex; apex jerkily broadened.

SEEDS very similar to those of subgenus *Adenoropium*. *Outer coat* enough uniform chestnut-coloured, almost unspotted, more lightly on the back. *Measured seeds* 11, mm  $\pm 0,1$ ; L:  $12,3 \pm 0,5$ ; l:  $7,7 \pm 0,25$ ; p:  $6,1 \pm 0,18$  [ $11,2 \times 7,5 \times 5,8$ ;  $11,9 \times 7,6 \times 6,1$ ;  $12,1 \times 7,2 \times 5,8$ ;  $12,1 \times 7,8 \times 6,2$ ;  $12,4 \times 7,9 \times 6,2$ ;  $12,5 \times 7,6 \times 6,1$ ;  $12,5 \times 7,8 \times 6,4$ ;  $12,6 \times 7,8 \times 6,1$ ;  $12,7 \times 8,0 \times 6,2$ ;  $12,8 \times 7,9$

× 6.1; 13.0 × 8.1 × 6.3].

**LATINA DESCRIPTIO** ex isotypo *J. González G. 22* (MEXU 144073)

**FOLIA.** *Stipulae* non vidimus, deficientes?; nisi ut pili axillares rubescentes stipulae essent; pili similes breviores atque pauciores inventi sunt adaxialiter in foliarum base, iuxta petioli insertionem. *Petiolus* usque 17 mm, cylindricus, acutus, cordatus, hirtus villosus, ad basim parum dilatatus. *Limbus* cordiformis, supra hirtus, subtus villosus, usque 60 × 54 mm. *Nervi radiales (principales)* quinque vel septem, tres vel quinque centrales fortiores, duo extimi debiliores; *nervus medius* margines attingens, reliqui non attingentes sed ante marginem nervis secundariis oriuntur; adaxialiter æquantur, abaxialiter prominentes; in foliis veteris, utraque pagina quam reliqua lamina villosiores. *Margo* absque quæpiam specialis proprietatis, villosus utraque pagina pectinatim disposito, albidiusculo, satis denso.

**REGMA.** *Pericarpium externum* coriaceum, vix rugosum, a pericarpio interno facile delapsum. *Pericarpium internum* cartilagineum, satis validum sed non ligneum, atro coffeatum vel nigricans; *rostrum (obturator)* firmius regmatis pars est, 2,7 mm. *Hemifolliculi* post aperturam atque semen destituti valde tortis; *callus* fere inconspicuus, ad basim parietum radialium dispositus.

**SEMINA** illis subgeneris *Adenoropii* similima. *Testa* variegata, coffeata vel castanea, atro maculata; *dorsum* modice convexum, tota longitudine vix carinatum; *apex* obtusus, subtus carunculæ laciniis celatus; *carina ventralis* plana, e hilo usque ad umbonem sedis læte picta, vix ectypa; *pleuræ* amplæ, planæ; *linea perimetralis maxima* diffusa, vix convexa; *sedes* convexa, umbonata. *Caruncula* ante hilum orta, supra apicem reflexa, laciniata, castanea; *apicibus* laciniarum albis. *Hilum* transverse obtriangulare, inter carinam ventralem et carunculam situm, modice magnum, ad 2 × 2,5 mm; *cicatrix vascularis centralis* ferruginosa pulverulenta area circumcincta recutita, testa destituta. *Demensa semina* tria, mm ± 0,1; L: 12,1 ± 0,32; l: 7,3 ± 0,29; p: 5,4 ± 0,40 [12,0 × 7,4 × 5,4; 12,1 × 7,5 × 5,4; 12,2 × 7,1 × 5,3].

**ENGLISH DESCRIPTION** fom isotype *J. González G. 22* (MEXU 144073)

**LEAVES.** *Stipules* non-existent or at least not found, unless they will be such some locks of present reddish hair in the leaf axils; the same locks with hair less nourished and somewhat shorter return to appear on the adaxial lamina center, near the petiole insertion. *Petiole* until 17 mm, cylindric, hirtus villosus, with the mildly enlarged base. *Lamina* cordate, hirtous on the upper side, villosus by the back, acute, cordate, until 60 × 54 mm. *Radial (main) nerves* five or seven, the central three or five more stout, two more external less strong; the central reaches the lamina apex, the other are solved in secondary nerves before arriving to the margin; not prominent on the upper side, prominent on the back; in adult leaves, on both pages more densely hairy than the rest of the lamina. *Margin* without any special feature, the same hirtous down of both pages is had radiant forming a pectinate whitish series, quite dense.

**REGMA.** *External pericarp* leathery, moderately rugged, easily detachable of the inner pericarp. *Internal pericarp* cartilaginous, enough strong, but not so much that could be considered woody, obscure coffee color or almost dusky; the peak (plugging) is the only part that it can be considered stout, 2.7 mm. *Hemifollicles* very twisted after the seed expulsion, it develops a small *callus* on the radial wall, near the base, almost inconspicuous.

**SEEDS** very similar to those of subgenus *Adenoropium*. *Outer coat* variegated in brown tones and coffee, with a graininess somewhat more obscure. *Back* moderately convex, very gently carinate in all its length; *apex* obtuse, justly the extreme is hidden under the fringes of the caruncle. *Ventral keel* flat, hardly with projections but painted brightly coloured, it is extended from the hilum until the nipple of the seat. *Pleuræ* large, flat. *Maximum perimetral line* diffuse, gently convex. *Seat* convex, with a nipple. *Caruncle* born above of the hilum and is extended back covering the apex; fringed, chestnut-colored and with white extremes of the the fringes. *Hilum* between the ventral keel and the caruncle, relatively large, c. 2 × 2.5 mm; the central spot with veins are surrounded by a powdery ferruginous bare area, skinned, devoid of the outer seed coat. *Measured seeds* 3, mm ± 0.1; L: 12.1 ± 0.32; l: 7.3 ± 0.29; p: 5.4 ± 0.40 [12.0 × 7.4 × 5.4; 12.1 × 7.5 × 5.4; 12.2 × 7.1 × 5.3].

**LATINA DESCRIPTIO** ex isotypo *G. Castillo Campos 2598* (XAL 57265)

**REGMA.** *Pericarpium externum* coriaceum, laxè venosum.

**SEMINA** illis subgeneris *Adenoropii* aliquo modo simillima. *Testa* homochroa, coffeata; *dorso* lætiore. *Demensum semen* unum, mm ± 0,1; L: 11,7; l: 6,8; p: 5,5.

**ENGLISH DESCRIPTION** from isotype *G. Castillo Campos 2598* (XAL 57265)

**REGMA.** *Internal pericarp* cartilaginous, loosely veined.



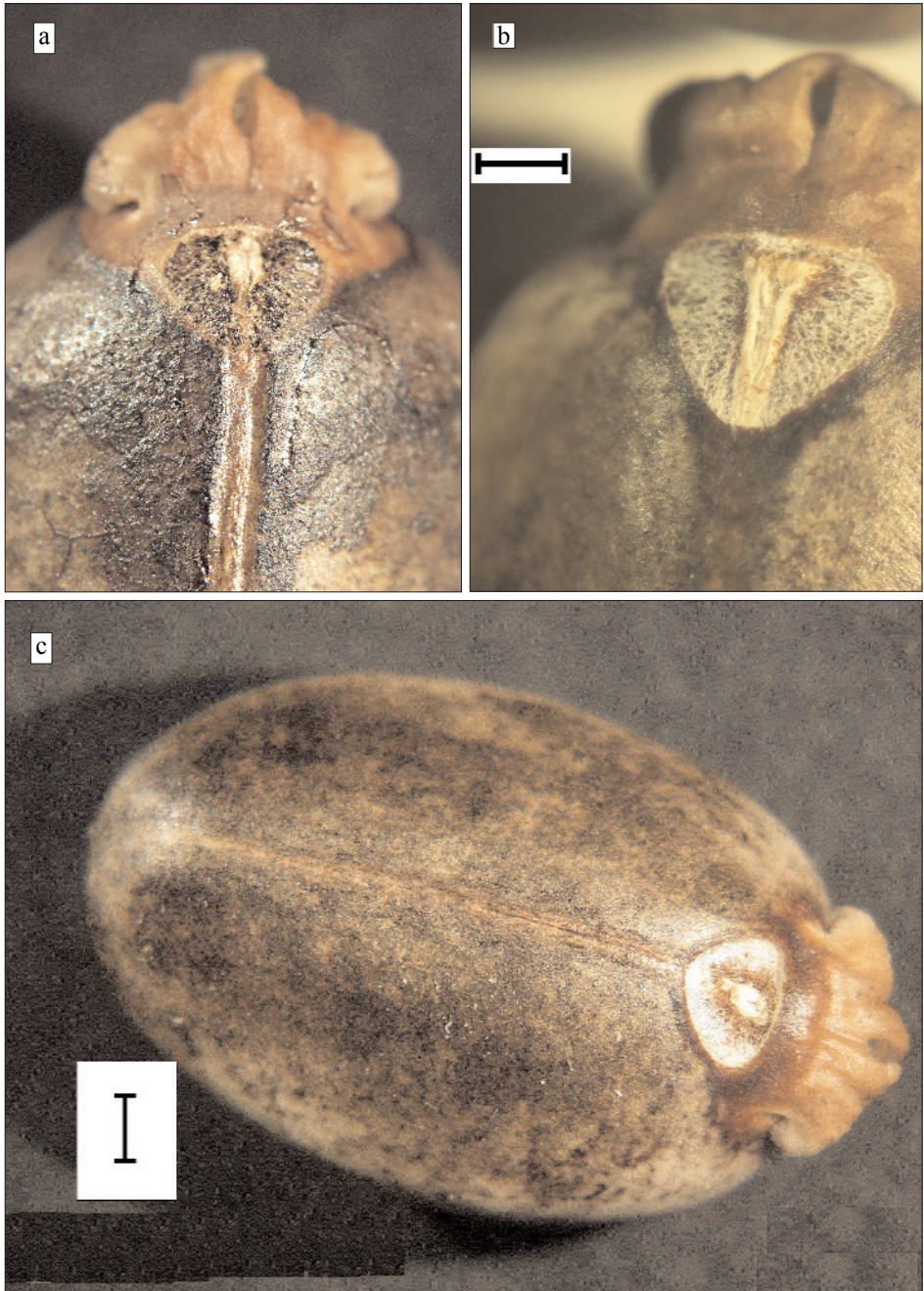


PLATE III. *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas. Holotype: E. M. Martínez Salas 40162 (MEXU s/n). a, b) Hilum, skinned areole, caruncle and upper ventral keel. c) Seed, ventral view. Black stroke= 1 mm.

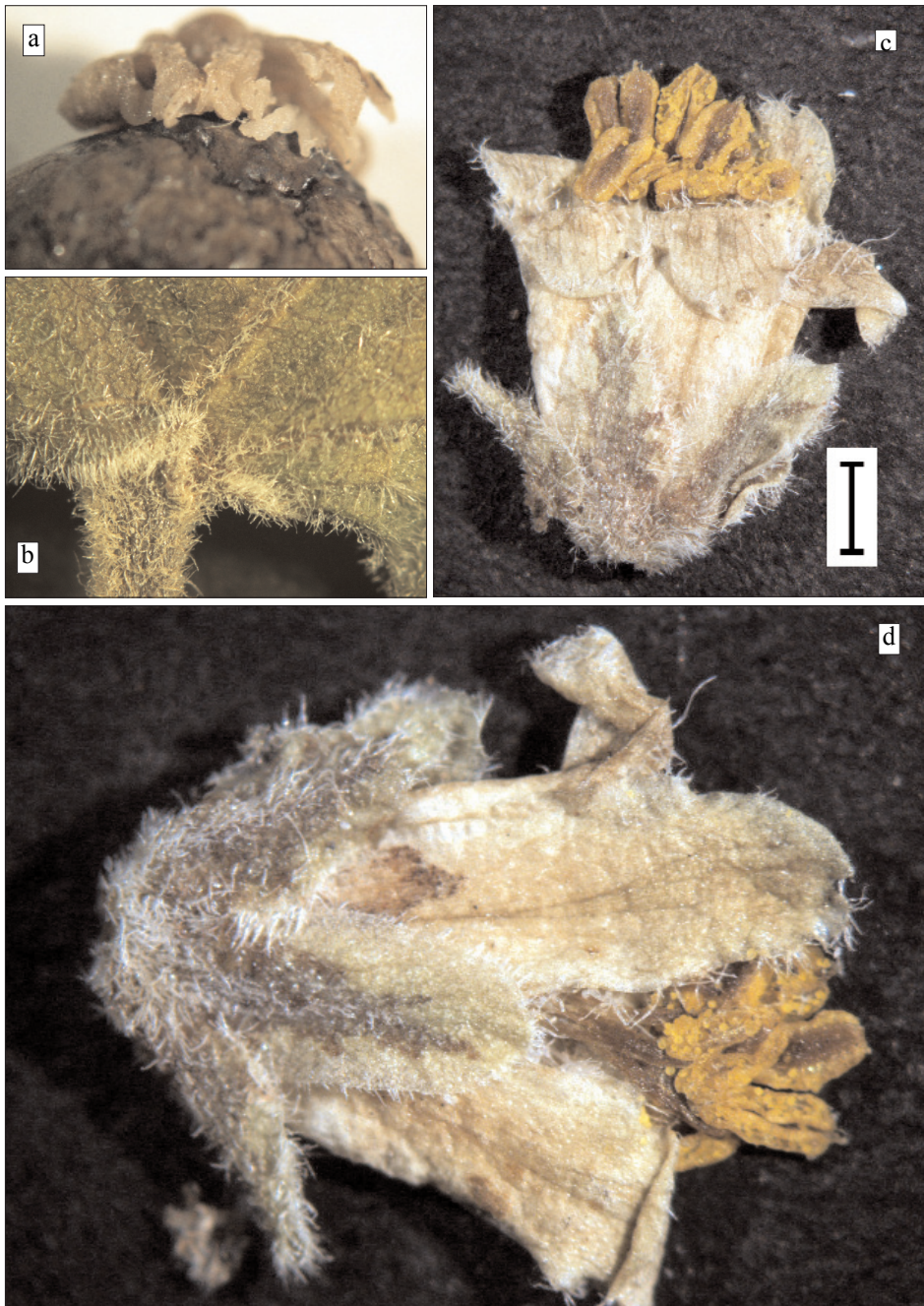


PLATE IV. *Jatropha Sotoi-Nunyezii* Fernández Casas & Martínez Salas. Holotype: *E. M. Martínez Salas* 40162 (MEXU s/n). a) Caruncle and apex, dorsal view. b) Lamina base of young leaf. c, d) Male ripe flower. Black stroke= 1 mm.

SEEDS very similar to those of subgenus *Adenoropium*. Outer coat coffee coloured. Measured seeds 1, mm  $\pm$  0.1; L: 11.7, l: 6.8, p: 5.5.

**REGARDING THE ETYMOLOGY and orthoepy of the specific name**

The specific name is devoted with admiration and respectfully to our distinguished colleague José Carmen SOTO NÚÑEZ, a relevant collector, studious and expert in the Mexican flora. The two words of the composed name are both paroxitone, the second and thirth vowels make diphthong: sótoj-nunyezii.

**OBSERVATIONS**

It resembles also *Jatropha Gaumeri* Greenman (1908). It difers because the inflorescences are hairy, and not quite glabrous; the fruits seem weaker, with the internal pericarp less consistent; the peculiar structure of the hilum is similar in both species.

It resembles to *Jatropha ciliata* Sessé in Cervantes (1805), specially by the form of some cordiform leaves, entire, not ciliate; but the inflorescence is shortly pedunculate and with fewer number of flowers.

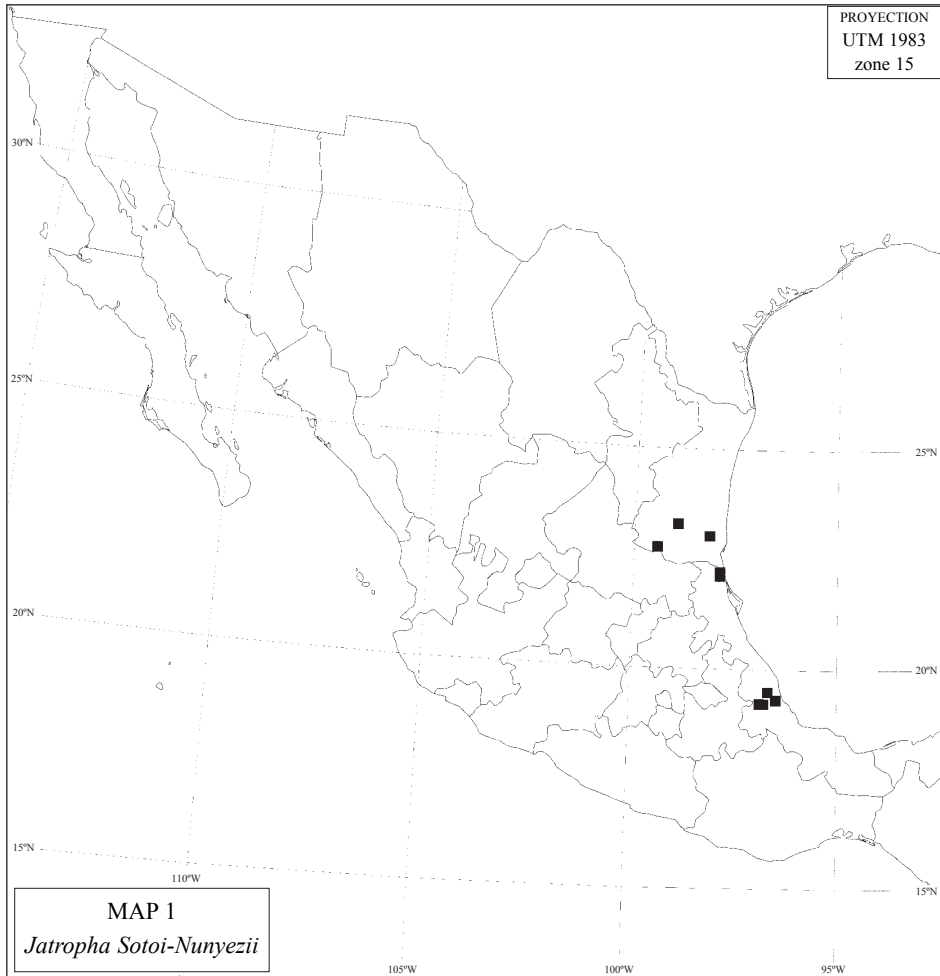
**EXAMINED SPECIMENS**

**MÉXICO, (28) TAMAULIPAS:**

- 14QNL07** 23.28°, -098.95°; Llera de Canales (atlas), 23°19'N, 099°00'W, «(munic. Llera de Canales) Calles: 21 km SW, Sierra de Tamaulipas, 400 m. Bosque espinoso. Hierba 1 m», *R. Jones 124*, 10-VI-1986 (ENCB s/n; MEXU 919712; MO 3649593).
- 14QPK14** 22.011°, -097.89°; Villa González, «(munic. Villa González) faldas del Bernal de Horcasitas. Bosque tropical caducifolio. Árbol 8 m; fruto verde. Uso como especia o condimento. "Pipián"», *L. Hernández Sandoval 1090*, 14-VI-1984 (MO 3649588).
- 14QPK14 Villa González, «(munic. Villa González) Bernal de Horcasitas: faldas. Bosque tropical caducifolio. Árbol 8 m; fruto verde. Se emplea como especia, condimento. "Pipián"», *L. Hernández Sandoval 1091*, 14-VI-1984 (MEXU 803199).
- 14QPK14 Villa González, «(munic. Villa González) Estación de Microondas Peña Bernal: ladera NE, 300 m. Selva baja caducifolia; suelos derivados de basalto. Árbol», *F. González Medrano 12622 & P. Hiriart Valencia*, 18-V-1982 (MEXU 555995). *Folia* tantum brachyblastis disposita sunt; *petioli* usque 60 mm; limbi usque 110  $\times$  90 mm.
- 14QML51** 22.74°, -099.44°; «El Pensil: 2,5 km N de Flores Magón, 22°45'N, 099°24'W, 380 m. Arbusto 3 m», *I. R. Trejo Vázquez 2293*, 22-VII-1992 (MEXU 1062128).
- 14QNL84** 23.02°, -098.17°; «(munic. Aldama) El Nacimiento: 3 km N, 23°00'28"N, 098°10'05"W, 230 m. Selva baja caducifolia con *Sapium*. Arbusto 2.5 m; látex translúcido; flores femeninas verdosas, flores masculinas blancas; frutos maduros e inmaduros», *E. M. Martínez Salas 40162*, 23-VI-2008 (MEXU s/n, holo-; typus *J. Sotoi-Nunyezii*).
- 14QNL84 «(munic. Aldama) ejido el Nacimiento (a unos 25 km de Aldama): 4,5 km NW, junto a la primera gruta, 150 m. Selva baja caducifolia, matorral derivado; suelo negro, rendzina; calizas aflorantes. Arbusto 1 m», *F. González Medrano 17725*, 23-VII-1991 (MEXU 1045247).
- 14QPK15** 22.20°, -097.89°; Tampico de Tamaulipas, 22°13'N, 097°51'W, «Sierra del Abra: zw. Valles  $\times$  Tampico, 200 m. Wald mit succulenten», *C. Troll 479*, 05-IV-1954 (M 79853).

**MÉXICO, (30) VERACRUZ-LLAVE:**

- 14QQG22** 19.22°, -096.86°; Zacualpán (ppl), 19°13'N, 096°53'W, «Zacuapán: barranca de Panoaya», *C. A. Purpus 8816*, IX (US 159993).
- 14QQG32** 19.22°, -096.76°; «Rancho la Palmilla: near. Rocky barranco», *C. A. Purpus 16167*, IV-1932 (C, loan 131/2005, n° 344).



**14QQG45** 19.49°, -096.67°; «(munic. Emiliano Zapata) entre Cerro Gordo y Plan del Río: 19°26'N, 096°39'W. Selva baja caducifolia, primaria; suelo arcilloso, rocoso. Arbusto 3 m; flores verdes; fruto verde», *G. Castillo Campos 2598 & J. L. Tapia*, 08-IV-1981 (XAL 57265). Tentative identification; without leaves, but with one quite ripe seed.

**14QQG63** 19.31°, -096.47°; «Puente Nacional: alrededores. Arbusto 2 m; fruto verde», *J. González González 22*, 26-VI-1970 (MEXU 144073).

#### ACKNOWLEDGEMENTS

To the curators and other responsible personnel of the herbaria C, ENCB, M, MEXU, MICH, MO, US, XAL, who lent us their material or facilitated our visits. Luis García-Bermejo Santos, of “Instituto de Bachillerato Bartolomé José Gallardo”, in Campanario (Badajoz), helped us with efficiency in the Latin composition.

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