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A taxonomic revision of *Lantana* sect. *Lantana (Verbenaceae)* in the Greater Antilles

Abstract

Méndez Santos, I. E.: A taxonomic revision of *Lantana* sect. *Lantana (Verbenaceae)* in the Greater Antilles. – Willdenowia 32: 285-301. 2002. – ISSN 0511-9618.

The revision of *Lantana* sect. *Lantana* for the projects "Flora of the Republic of Cuba" and "Flora of the Greater Antilles" confirmed the presence of 10 species and 16 infraspecific taxa in the territory. Their diagnostic characters are specified, two new forms are described *(L. camara* f. *caffertyi* and *L. flava* f. *sandersii),* the rank of three taxa is modified, and eight new combinations are established.

Introduction

Lantana L. *(Verbenaceae)* comprises about 270 species and subspecific taxa, mostly native to tropical and subtropical America, many of which are broadly distributed all over the world as ornamentals or aggressive weeds of disturbed areas (Moldenke & Moldenke 1983). The study of this genus is complicated by the high number of described species, the wide anthropogenic distribution of several of them, the mixture of wild and subspontaneous or naturalised plants, as well as the pronounced variability in morphology, flower colour, etc. According to López-Palacios (1991) "... this complicated genus has made breaking their head to all who have worked with *Verbenaceae,* from Schauer to Moldenke ...".

The infrageneric system followed by Schauer (1847) and Briquet (1895, 1904) recognised five sections, among which *Lantana* sect. *Lantana* is regarded as seemingly monophyletic (Sanders 1987b) and characterised as follows: drupes black when mature, with but a single pyrene, two fertile and two sterile locules, and fistulose peduncles. This section includes between 14 and 50 species with several infraspecific taxa and cultivars, whose differences are not well specified as yet.

Most of our knowledge of this group in the Greater Antilles stems from the sporadic description of new taxa by various authors or from general analyses of regional floras. A special taxonomic study has been limited to certain subgroups. The evaluation of useful diagnostic characters has not been extended to all member taxa, nor has it always included the study of type specimens, leaving room for much nomenclatural imprecision.

This present contribution aims to fill the mentioned gaps and to establish an order among the taxa that have so far been described by using the methods of classic taxonomy. It establishes the

basis for the application of modern techniques, by which an even greater simplification of the proposed system may be achieved.

Taxonomic and nomenclatural history

The knowledge of this group in the Antilles dates back to the establishment of the genus when Linnaeus published *Lantana* in 1753 as he included binomials for two species represented in the region: *L. camara* and *L. aculeata*. Until the first part of the 19th century, only very similar species to these were subsequently described (Linnaeus 1767, Miller 1768, Medikus 1775, Jacquin 1804, Ventenat 1805, Rafinesque 1838), without significant advancement in the establishment of taxonomic limits or of the more important diagnostic characters. The first contributions to the infrageneric classification were made in the 1840's, when the subgenus *Camara* (Chamisso 1832) was defined and later, by Schauer (1847), promoted to the rank of section (universally accepted by later authors).

During the 20th century, a considerable increase of the number of described taxa (with varied rank) took place, together with frequent changes in nomenclatural combinations and taxonomic status. In the measure in that the scientific and technological development has allowed it, new characters have been added to the analysis, but the real utility of each one is still under discussion, given the great variability of the members of this group. Six authors realised the main contributions during this period:

Bailey (1901) began the infraspecific treatment of *L. camara,* modifying the rank of species that were described during the 18th century. Britton (1905 & 1910), Hayek (1906) and Urban (1911-12), continued the description of Antillean species.

Moldenke deployed intense activity in the systematic studies of this group over 48 years. In his work it is possible to appreciate a clear tendency to use the phenotypic variability to segregate new taxa: species (1940 & 1941), varieties (1949, 1955, 1962 & 1982) or forms (1948 & 1975). He also modified the infraspecific system initially established under *L. camara,* first incorporating new varieties for species described during the 18th century (1934 and 1976) and finally changing the rank of all varieties represented in the Antilles to forms (1980a).

In the 1980's Sanders described one new species and made new nomenclatural combinations for the Antillean taxa (1987a-b & 1989). His more important contribution was related to the interpretation of the diagnostic characters in the group and the critical analysis of Moldenke's work. He advanced considerably the clarification of diagnostic importance of the indument in twigs, peduncles and leaves, and he studied the correlation of this evidence with the karyology, comparing his own results with those obtained by Paterman (1935), Natarajan & Ahuja (1957), Sen & Sahni (1955), Tandon & Balí (1955), Tandon & Chandi, (1955), Spies (1984) and Spies & Stirton (1982a-b). Unfortunately, he did not complete the evaluation of all of the section and for this reason he did not verify the real diversity of the pubescence. Also, due to the insufficient study of type specimens he did not establish substantial synonymies nor clarify nomenclatural combinations (especially concerning *L. arida, L. urticifolia* and *L. camara*).

In spite of the evident progress in research, the systematics of this group are still confused, for a large part due to the following circumstances:

– Although these species are native to the neotropical region, many of them are broadly cultivated in the entire world. Some cultivars obtained by selection in other regions have been reintroduced to the Neotropics and their naturalisation has allowed the interaction with the native gene-pool. The juxtaposition of native taxa and naturalised cultivars has led to complex morphological variations (Sanders 1987b).
– Spontaneous hybridisation (Spies 1983-84) and polyploidy in natural populations as demonstrated by Sanders (1987b).

It is also necessary to add the nomenclatural inconveniences:

– Some taxa initially described from cultivars, have today different ranks under the Interna-

tional Code of Botanical Nomenclature, and whilst some remain in cultivation, others have escaped in diverse parts of the world and exhibit a wide range of morphological variation.
– The typification of all effective and legitimate names was not completed. For this reason, different denominations are used for the same phenotype and a correct application of the principle of priority is not in place.

The principal diagnostic characters

The actual taxonomic value of different phenotypic characters has been discussed by many botanists that have studied this section in the Caribbean area. In 1984, Sanders outlined that some of those used traditionally are really unsubstantial, others can change during ontogeny and others are not persistent because they are conditioned by the environment (Sanders 1984).

The information accumulated over the years (especially Sanders 1989), the observations carried out during 17 years of field work in Cuba and Puerto Rico; the revision of more than 300 herbarium specimens, including 14 holotypes, 3 isotypes and 3 lectotypes (from: B, BM, BR, C, F, FL, GH, HAC, HAJB, HIPC, HIVC, HPPR, JBSD, JE, M, NY, PR, S and US), and anatomical-morphological studies of the Cuban species (Méndez 1994 & 1998), has allowed me to select and value some vegetative characters, which are easily verifiable and have proved useful in establishing a coherent and consistent taxonomic system, for example:
– Vigour of hairs in abaxial leaf surfaces (weak and filiform vs. stout and attenuately conical), the form in which they grow (erect from basal insertion, sometimes falcate or lying vs. geniculate toward base with 2/3 held parallel to lamina or vein surface), as well as their disposition (on all veins including areoles and no innervate laminar tissue vs. limited mostly to midrib, secondary and tertiary veins).
– Density of pubescence on the adaxial leaf surface (less than 5 vs. more than 10 hairs per mm² on average, with some exceptions in certain parts) and the proportion of long hairs (0.7-1.5 mm) vs. short hairs (0.2-0.5 mm).
– Presence of gland-tipped hairs on twigs, peduncles and leaves.
– Disposition of leaves, size and form of sheaths. Although the size is extremely variable (sometimes within the same specimen), the limit values (by defect and by excess), the relative prevalence of those magnitudes in each specimen and inside the population are of taxonomic utility.
– Presence of prickles on the twigs (conspicuous, inconspicuous or completely absent). Although the consistency of this character is relative, it is of utility in certain groups and taxonomic ranks.
– Number of teeth in leaf margin (distinguishing classes of: 2-6, 6-11, 12-30, 13-17 and 17-30 teeth per side).
– Corolla that keeps the same colour throughout ontogeny (pink, white, orange, yellow or combinations of two last).
– Corolla that shows two or more colours from the bud to the caducity (the change of colouration being more or less uniform in each individual): from pink to orange; from yellow or orange to pink; from saffron to yellow or brilliant red; from yellowish red to brilliant red; from yellow to orange or red; from yellow, orange or pink to orange or scarlet red, etc.

Key to the species of *Lantana* sect. *Lantana* in the Greater Antilles

1. All or at least a significant portion of hairs found abaxially on leaf veins robust, conical, conspicuously deflexed and with their distal 2/3 parallel to the lamina 2
– All hairs on abaxial leaf surface weak and filiform, mostly patent (on midrib, some may be recurved in the upper half or become appressed through pressing) 4
2. Abaxial leaf pubescence very sparse, restricted to veins; all hairs deflexed . . 5. *L. flava*
– Abaxial leaf pubescence rather dense, covering veins and areoles; not all hairs deflexed . 3
3. Adaxial leaf pubescence sparse, usually less than 5(-7) hairs per mm² . 3. *L. bahamensis*

– Adaxial leaf pubescence dense, (7-)10 or more hairs per mm² . . . . . 1. *L. aculeata*
4. Gland-tipped hairs on twigs, peduncles and leaf blades either absent or inconspicuous, scarce and short (0.2-0.5 mm); only plants with ovate, up to 3(-4) cm long leaves may look resinous and sticky 5
– Gland-tipped hairs on twigs, peduncles and/or leaf blades conspicuous, mostly 0.7-1.5 mm long; plants always with a resinous, sticky look 8
5. Most hairs on adaxial leaf surface short (0.2-0.5 mm), with but few longer ones (0.5-1.5 mm) limited to veins and midrib; twigs, peduncles and petioles appressed-pubescent . . . . . 4. *L. camara*
– Most or many hairs on adaxial leaf surface long (0.5-1.5 mm), sometimes mixed with other shorter ones (0.2-0.5 mm) but never limited to the veins; twigs, peduncles, and sometimes petioles patent-pubescent, with or without gland-tipped hairs 6
6. Twigs hirsute, with long hairs (≥ 1.5 mm) only . . . . . 9. *L. mista*
– Twigs pubescent, with long eglandular hairs (≥ 1.5 mm) mixed with shorter (0.2-0.5 mm), sometimes gland-tipped ones 7
7. Leaf lamina with more than 10 teeth on each side, subcordate to truncate at base . . . . . 10. *L. subcordata*
– Leaf lamina with 6-13 teeth on each side, cuneate to truncate at base . . . . . 2. *L. arida*
8. Adaxial leaf pubescence sparse (5-7 hairs per mm²), mostly only with long hairs (0.7-1.5 mm) that often collapse at base and become appressed to the surface by pressing; abaxial indumentum similar on the midrib and veins but shorter on the areoles . . . . . 7. *L. insularis*
– Adaxial leaf pubescence dense (10 or more hairs per mm², rarely less in places), long hairs (0.7-1.5 mm) mixed with equally abundant shorter ones (0.2-0.5 mm); abaxial indumentum uniform 9
9. Leaf blade ovate . . . . . 6. *L. glandulosissima*
– Leaf blade narrowly triangular to narrowly elliptic . . . . . 8. *L. leonardorum*

Taxonomic treatment

1. *Lantana aculeata* L., Sp. Pl.: 627. 1753 ≡ *Lantana camara* var. *aculeata* (L.) Moldenke in Torreya 34: 9. 1934. – Lectotype (designated by Méndez & Cafferty in Taxon 50: 1138. 2001): [icon] "Viburnum Americanum odoratum Urticae foliis latioribus spinosum floribus miniatis" in Plukenet, Phytographia: t. 233, f. 5. 1692.

Shrubs more or less erect. *Twigs* conspicuously prickly, with scarce and small prickles or completely unarmed; appressedly pubescent (hairs geniculate, with the uppermost part growing parallel to surface) and without gland-tipped hairs (neither in peduncles nor leaves). *Leaf lamina* of 2.5-9 × 2-5 cm, ovate; apex acute to obtuse, sometimes apiculate, base truncate and shortly decurrent on the petiole; margins with 17 (or less)-30 teeth per side, teeth not usually tipped by a seta noticeably stouter and longer than those on the remainder of the margin; adaxial surface with hairs closely disposed (usually 10 or more per mm², sometimes less in some parts of the lamina) and short (0.2-0.5 mm); abaxial surface with hairs relatively abundant, usually on all veins (including areoli), robust, conical, all, most, or at least a significant portion on the midrib, secondary or tertiary veins geniculate toward base and with distal 2/3 held parallel to vein surface, all those that grow on lower vein shorter and erect. *Inflorescence bracts* linear-oblong. *Corolla* pink changing to yellow, orange, red and other colours with age, or white throughout the whole cycle.

Distribution. – Native to tropical America (probably to the West Indies). Broadly cultivated, subspontaneous and naturalised or aggressive weed in disturbed areas in many others part of the world. In the Greater Antilles it grows in Cuba, Hispaniola and Puerto Rico (also reported from Jamaica by Moldenke 1980b).

Notes. – *Lantana aculeata* is very closely related to *L. camara* and was considered an infraspecific taxon of this by Moldenke (1934), a view accepted by most authors since then. It differs from *L. camara,* however, besides the characters of leaf pubescence (specified in the key to the species), by having pink and white as more widespread colours in the corolla (the yellow, orange, red and other colours, only appear fleetingly in transitional intermediate stages during ontogeny in some infraspecific taxa). For these reasons, the name is here restored to the rank of species.

Variation. – *Lantana aculeata* is very variable with regard to presence of prickles on twigs and in corolla colour. The study of populations in the Greater Antilles reveals that the phenotypic expression of these characters is continuous and that the morphological segregation is unrelated to phytogeographic or ecological patterns. For such variation, the form is the most appropriate rank at the infraspecific level.

Key to the formae of *Lantana aculeata*

1. Twigs conspicuously prickly 2
– Twigs unarmed or with scarce and small prickles 3
2. Corolla yellow or orange, changing to rose . . . . . 1.1. *L. aculeata* f. *aculeata*
– Corolla white throughout flowering . . . . . 1.3. *L. aculeata* f. *nivea*
3. Corolla white throughout flowering, sometimes with the tube and/or throat yellow . . . . . 1.2. *L. aculeata* f. *alba*
– Corolla pink or yellow, at least initially 4
4. Corolla pink throughout flowering . . . . . 1.5. *L. aculeata* f. *rubella*
– Corolla changing from pink to orange or yellowish orange, creamy red and eventually pink again; or from yellow to pinkish orange, creamy red, pink or other colour shades . . . . . 1.4. *L. aculeata* f. *parvifolia*

1.1. *Lantana aculeata* L. f. ***aculeata***

Twigs conspicuously prickly. *Corolla* yellow or orange, changing to pink.

Distribution. – The same as the species.

Other examined specimens (select exsiccata). – CUBA: Ciudad de La Habana, Guanabacoa, 2.5.1914, *Ekman 606* (S). — HISPANIOLA: Haiti, Port-au-Prince (in streets), 24.9.1924, *Ekman H 1997* (US). — PUERTO RICO: Near Juncoa, 8.12.1963, *Wagner 427* (S). — VIRGIN ISLANDS: St John, 30.6.1989, *Acevedo 2826* (NY).

1.2. *Lantana aculeata* f. ***alba*** (Moldenke) I. E. Méndez, **comb. nova** ≡ *Lantana camara* var. *alba* Moldenke in Phytologia 5: 132. 1955 ≡ *Lantana camara* f. *alba* (Moldenke) Moldenke in Phytologia 45: 296. 1980. – Holotype (designated by Moldenke & Moldenke 1983): "West Bengal, India, from cultivated material in de B.W.M. Nursery at Kharacpur", *V. M. Sani* (Moldenke herbarium [n.v.]).

Twigs unarmed or with scarce and small prickles. *Corolla* white throughout the whole cycle, sometimes with the tube and/or throat yellow.

Distribution. – Apparently, initially it was only recognised as a cultivar, which later became naturalised, at least, in Sri Lanka (Moldenke & Moldenke 1983). It is cultivated as an ornamental plant in many parts of the world, including the Greater Antilles, where it is only known as a horticultural taxon (at least in Cuba and Puerto Rico).

Examined specimens (select exsiccata). – CUBA: Ciudad de La Habana, Santiago de la Vegas, 25.9.1909, *Baker* (B); Las Tunas, 16.9.2001, *Méndez 10046* (HIPC)

1.3. *Lantana aculeata* f. *nivea* (Vent.) I. E. Méndez, **comb. & stat. nov.** ≡ *Lantana nivea* Vent., Jard. Malm. : 8, t. 8. 1805 ≡ *Lantana camara* var. *nivea* (Vent.) L. H. Bailey, Cycl. Amer. Hort.: 884. 1900. – Type not selected.

Twigs conspicuously prickly. *Corolla* white throughout the whole cycle.

Distribution. – Initially this was only treated as a cultivar, later becoming naturalised in many countries (Moldenke 1980b). In the Greater Antilles it is only reported as a cultivated plant in Jamaica (Moldenke 1980b), but herbarium specimens could not be examined as part of this project.

1.4. *Lantana aculeata* f. *parvifoli*a (Moldenke) I. E. Méndez, **comb. nova** ≡ *Lantana camara* f. *parvifolia* Moldenke in Phytologia 2: 467. 1948. – Holotype: "USA, New York Botanical Garden, cultivated plant (seeds from *Alexander & Mc Dowgall 1150* from Thuantepec, Oxaca, México)", 5.1945, collector unspecified, *1580* (NY!).
= *Lantana bahamensis* f. *canescens* Moldenke in Phytologia 31: 26. 1975. – Holotype: "Bahamas, near St. James' Hill, Sandy Point community, North Caicos" 11.10.1974, *Correll 43382* (NY!).

Twigs unarmed or with scarce and small prickles. *Corolla* changing from pink to orange; from pink to yellowish orange, creamy red and finally pink; from yellow to pink-orange, creamy red or pink or other combinations.

Distribution. – Distributed in Mexico, Bahamas, Cuba and Jamaica (Moldenke 1980b). This author also reported it for Puerto Rico, but this assertion could not be confirmed during this present work.

Other examined especimens. – CUBA: Holguín, Sagua de Tánamo, Sierra Cristal, Arroyón, camino de El Quemado a El Culebro, 9.4.1987, *Méndez 3372* (HIPC). — JAMAICA: Hill between Vale and Croft Hill, 16.7.1962, *Fosberg 42709* (US). — PUERTO RICO: Maricao, 9.7.1963, *Liogier 9804* (US).

1.5. *Lantana aculeata* f. *rubella* (Moldenke) I. E. Méndez, **comb. nova** ≡ *Lantana camara* var. *rubella* Moldenke in Phytologia 3: 61. 1949 ≡ *Lantana camara* f. *rubella* (Moldenke) Moldenke in Phytologia 45: 296. 1980. – Holotype: "Cuba, La Habana, Guanabacoa", 27.11.1948, *Moldenke & Moldenke 19861* (NY!).

Twigs unarmed or with scarce and small prickles. *Corolla* pink throughout the whole cycle (sometimes with the throat yellow).

Distribution. – Distributed in Cuba (spontaneous or in cultivation) and Hispaniola. It has been seen in Jamaica as a horticultural plant (Raul Verdecia, pers. comm. 2001).

Other examined specimens (select exsiccata). – CUBA: Havana, Cojimar, 13.12.1931, *Killip 13806* (US). — HISPANIOLA: Dominican Republic, Province of Santiago, vicinity of Santiago, 14.1.1946, *Allard 14599* (US).

2. *Lantana arida* Britton in Bull. Torrey Bot. Club 37: 357. 1910. – Holotype: "Fort Henderson, Jamaica", 2.3.1908, *Britton & Hollick 1824* (NY!).

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; patulous-hirsute (hairs at 90° in relation to the surface), hairs short (0.2-0.5 mm), sometimes with gland-tipped hairs (also peduncles and leaves). *Leaf lamina* 2.5 × 2 cm, cordate or ovate, base cuneate and shortly decurrent on the petiole to truncate; margin with 6 (or less)-13 teeth per side; occassionally each tooth tipped with one or more robust seta, longer than those on the remainder of the

margin; adaxial surface with hairs closely disposed (usually 10 or more hairs per mm², sometimes less in some parts of the lamina) and mostly long (0.7-1.5 mm), alternating with other shorter hairs (0.2-0.5 mm); abaxial surface with uniform pubescence, on all veins; hairs weak, filiform and mostly erect (some of those that grow on midrib vein, curved in the apical half or lying on the surface, especially after drying and pressing, but not conspicuously geniculate toward base and distal 2/3 held parallel to vein surface). *Bracteoles* oblong. *Corolla* orange throughout the whole cycle or changing from yellow to orange in age.

Distribution. – Distributed in Cuba, Jamaica, Hispaniola, Puerto Rico and Virgin Islands.

Notes. – This species is very closely related to *Lantana camara,* but it differs in addition to the characters of the leaf pubescence (specified in the key to the species), by having smaller leaves.

Variation. – *Lantana arida* is very variable with regard to size and margin of leaf lamina. The study of populations in the Greater Antilles reveals that the phenotypic expression of these characters is continuous and that the morphological segregation is unrelated to phytogeographic or ecological patterns as previously stated, and for such variation, the form is the most appropriate rank at the infraspecific level.

Key to the formae of *Lantana arida*

1. Leaf lamina 2(-3) × 1.5(-2.5) cm; margin with 8 or less teeth per side that are never tipped by particularly stout and long setae . . . . . 2.1. *L. arida* f. *arida*
– Leaf lamina 4 × 3 cm; margin with 6-13 teeth per side that are sometimes tipped by one or more particularly stout and long setae . . . . . 2.2. *L. arida* f. *zanonii*

2.1. *Lantana arida* Britton f. ***arida***

Leaf lamina 2(-3) × 1.5(-2.5) cm; margin with 8 (or less) teeth per side, often unequally distributed, widely obtuse to rounded, prominent, teeth never tipped by one or more robust seta and longer than those on the remainder of the margin. *Peduncles* thin (less than 1 mm in diameter), usually wavy after pressing and drying. *Flowers* orange.

Distribution. – Cuba, Jamaica, Hispaniola and Virgin Islands.

Other examined especimen (select exsiccata). – Cuba: Guantánamo, Baitiquirí, camino a Mina del Yeso, 19.8.1971, *J. Bisse 20013* (HAJB). — Hispaniola: Dominican Republic, Río Yaque del Norte, S of Monte Cristi, 23.10.1946, *Howard & Howard 9574* (B, US). — Virgin Islands: St Thomas, 1880, *Eggers 256* (BR).

2.4. *Lantana arida* f. ***zanonii*** (R. W. Sanders) I. E. Méndez, **comb.** & **stat. nov.** ≡ *Lantana urticifolia* subsp. *zanonii* R. W. Sanders in Moscosoa 5: 206. 1989. – Holotype: "La Española, República Dominicana, Pedernales", 1.8.1984, *Sanders, Zanoni & Pimentel 1682* (JBSD[n.v.]; isotypes: F[n.v.], FTG[n.v.], GH[n.v.], NY!, TEX[n.v.]).

Leaf lamina of 1-3 (rarely 4) × 2.5 cm; margin with 6-11 (rarely 13) teeth per side, evenly distributed, sometimes each tooth tipped by one or more seta stouter and longer than those on the remainder of the margin. *Peduncles* more than 1 mm in diameter. *Corolla* changing from yellow to orange with age.

Notes. – In different herbaria, Roger Sanders identified as *Lantana urticifolia* subsp. *zanonii,* very heterogeneous specimens with regard to characters of pubescence, among which it is possible to differentiate at least three groups (see also *Lantana camara*). The epithet of this author is conserved because the holotype is a good match for the diagnosis.

Distribution. – Cuba, Jamaica, Hispaniola and Puerto Rico.

Other examined specimens (select exsiccata). – CUBA: N de Sierra Las Casa, Isla de Pinos (actualmente Isla de la Juventud), 28.4.1954, *Killip 44172* (US); Santiago de Cuba, 10.3.1912, *Britton, Britton & Cowell 12264* (US). — JAMAICA: Hellshire Hills, E side, Kingston area, 20.6.1980, *Fosberg 59415* (US). — HISPANIOLA: Dominican Republic, Cabo Rojo, Oviedo Road, 13.3.1969, *Liogier 16965* (GH). Haiti, Vicinity of St Marc, 25.-28.2.1920, *Leonard 3001* (NY). — PUERTO RICO: Vieques Island, Brigadier Point to Puerto Negro, 17.2.1914, *Shafer 2925* (US).

3. *Lantana bahamensis* Britton in Bull. New York Bot. Gard. 3: 450. 1905. – Holotype: "Bahamas, New Providence", 23.8.1904, *Britton & Brace 174* (NY!).

Shrub more or less erect. *Twigs* sometimes with scarce and small prickles; appressedly pubescent (hairs geniculate, with the upper part growing parallel to surface) and without gland-tipped hairs (neither in peduncles nor leaves). *Leaf lamina* 2-8 × 1.5-5 cm, ovate to suborbiculate, base truncate and shortly decurrent on the petiole; margin with 17 (or less)-13 teeth per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with usually less than 5 hairs per mm², sometimes up to 7 per mm² in some parts of the lamina and short, 0.2-0.5 mm; abaxial surface with relatively abundant hairs, usually on all veins (including areoles), hairs robust, conical, all, most, or at least a significant portion on the midrib, secondary or tertiary veins geniculate toward base and with distal 2/3 held parallel to vein surface, all those that grow on lower vein shorter and erect. *Inflorescence bracts* linear-lanceolate. *Corolla* initially yellow, changing to orange in age.

Notes. – This species is very closely related to *Lantana camara*. It differs from the rest of the Antillean species of this group in the characters of leaf pubescence (specified in the key to the species), especially on the adaxial surface.

Distribution. – Bahamas, Cuba, Jamaica, Hispaniola and Puerto Rico.

Other examined specimens (select exsiccata). – CUBA: Guantánamo, Santa Rosa, 20.11.1987, *Dechamp 12113* (US). — HISPANIOLA: Dominican Republic, bank at La Cumbre, vicinity of Santiago, Provincia of Santiago, 11.1.1946, *Allard 14599* (US). — JAMAICA: Near Port Antonio, 6.4.1903, *Maxon 714* (US). — PUERTO RICO: El Yunque, along road 186, between El Verde and Benítez, near Quebrada Grande, 4.12.1990, *Knudsen & Stahl 76* (US).

4. *Lantana camara* L., Sp. Pl.: 627. 1753. – Lectotype (designated by Moldenke & Moldenke in Rev. Handb. Fl. Ceylon: 220. 1983): Herb. Linn. No. 783.4 (LINN [photo!]).
= *Lantana urticifolia* Mill., Gard. Dict., ed. 8: *Lantana* no. 5. 1768. – Lectotype (designated by Sanders in Moscosoa 5: 208. 1989): "México, Veracruz", 1731, *Houston* (BM[photo!]).
= *Lantana crocea* Jacq., Pl. Hort. Schoenbr. 4: t. 473. 1804. – Lectotype (designated by Sanders in Howard, Fl. Less. Ant. 6(3): 231. 1989): [icon] Jacquin, Pl. Hort. Schoenbr. 4: t. 473, 1804.
= *Lantana scabrida* Ait., Hort. Kew. 2: 352. 1789. – Type not selected.

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; appressedly pubescent (hairs geniculate, with the upper part growing parallel to surface), lacking of conspicuous gland-tipped hairs (when they are present, these are scarce and short, 0.2-0.5 mm, and the twigs do not have a resinous-adhesive aspect). *Leaf lamina* 2-12 × 1-6 cm, ovate to suborbiculate; base from truncate to cuneate and shortly decurrent on the petiole; margin with 6 (or less)-30 teeth per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs closely disposed (10 or more per mm², sometimes less in some parts of the lamina), hairs mainly short, 0.2-0.5 mm, although sometimes (restricted to midrib, secondary or tertiary veins) they can be long, 0.5-1.5 mm, in the rest of the lamina they never surpass 0.5 mm; abaxial surface with pubescence limited to midrib, secondary or tertiary veins or

evenly distributed on all veins and the areoli, hairs weak, setaceous, mostly erect, some of those that grow on midrib, curved in the apical half or lying on the surface, especially after pressing and drying, but not totally appressed to surface. *Inflorescence bracts* linear-lanceolate or oblong. *Corolla* orange during the whole cycle or changing in all inflorescences from yellow to orange, from red to orange or from yellow to pink and later to orange or lilac-pink.

Distribution. – Native to tropical America; it is broadly cultivated, subspontaneous and naturalised in all continents. Generally it has a high invader potential and it constitutes a terrible pest in many countries. In the Greater Antilles it grows in the Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico and Virgin Islands.

Notes. – Lantana camara differs from *L. aculeata* and *L. flava,* besides the details of the pubescence specified in the key to the species, by having yellow and orange as the predominant colour in the corolla (the pink, red and other colours, only appear fleetingly in transitional stages during the ontogeny in some infraspecific taxa).

The name, *L. camara,* has been so loosely applied by collectors and authors to so many diverse species that much of the recorded information in botanical, horticultural, ecological, medical, pharmacological and anthropological literature is completely unreliable, much of it probably incorrect, unless it can be verified by consultation of preserved herbarium voucher specimens (Moldenke & Moldenke 1983).

Sanders (1989) attributed this binomial to a phenotype very different from prevailing opinion among the authors later to Linnaeus and not in agreement with the lectotype selected by Moldenke & Moldenke (1983). For this reason, the system established by Sanders around *L. camara,* should be reinterpreted.

Variation. – Lantana camara in the Greater Antilles is very variable with regard to leaf lamina (pubescence and number of teeth in the margin) and corolla colour. The study of populations in the Greater Antilles reveals that the phenotypic expression of these characters is continuous and that the morphological segregation is unrelated to phytogeographic or ecological patterns. For such variation, the form is the most appropriate rank at the infraspecific level.

Key to the formae of *Lantana camara*

1. Leaves in whorls of 3 . . . . . 4.4. *L. camara* f. *ternata*
– Leaves opposite 2
2. Leaves with few hairs abaxially that are mostly limited to veins 3
– Leaves with abundant hairs abaxially, both on and between veins 4
3. Leaf lamina usually 1-4 cm long, with 6-11(-13) teeth per side (exceptionally more in longer leaves) . . . . . 4.3. *L. camara* f. *portorricensis*
– Leaf lamina usually > 3 cm long, mostly with 12-30 teeth per side . . . . . 4. . . . . 4.5. *L. camara* f. *urticifolia*
4. Leaf lamina generally with 13-17(-25) teeth per side, abaxial surface hirsute or hispid, rough to the touch . . . . . 4.1. *L. camara* f. *camara*
– Leaf lamina generally with 17-30 teeth per side, abaxial surface velutinous-pubescent, soft to the touch . . . . . 4.2. *L. camara* f. *caffertyi*

4.1. *Lantana camara* L. f. ***camara***

= *Lantana urticifolia* subsp. *moldenkei* R. W. Sanders in Moscosoa 5: 202. 1989. – Holotype: "República Dominicana, provincia Barahona", 23.2.1983, *Sanders, Zanoni & Pimentel 1621* (JBSD [n.v.]; isotypes: F[n.v.], FTG[n.v.], GH[n.v.], NY!, TEX[n.v.]).

Leaves opposite, more than 3 cm long; abaxial surface hirsute or hispid (rough to the touch), with abundant hairs on all veins and no innervate laminar tissue; margin generally with 13-17(-25) teeth per side. *Corolla* changing colour evenly in all inflorescences, from yellow to orange.

Distribution. – The same as the species.

Other examined specimens (select exsiccata). – CUBA: Holguín, Carretera a Guarda la Vaca, Lomas de Santa María, 9.10.1985, *Méndez 1634* (HIPC). — JAMAICA: Hanover, NW of Green Island, Cove, 24.6.1959, *Webster*, *Ellis* & *Miller 8579* (US). — HISPANIOLA: Dominican Republic, Provincia La Vega, Cordillera Central, 24.11.1986, *Zanoni* & *Boom 37097* (NY). — PUERTO RICO: Near Caguas, 24.6.1901, *Underwood* & *Griggs 356* (US). — VIRGIN ISLANDS: St Croix, 14.3.1972, *Little 26043* (NY).

4.2. *Lantana camara* f. ***caffertyi*** I. E. Méndez, **f. nova –** Holotype: "Cuba, provincia Guantánamo, municipio Yateras, Monte Cristo", 7-8 km al N del camino a Felicidad de Yateras, 23.1.1996, *Méndez & Romano 8630* (HIPC).

A forma typica speciei lamina foliorum in utroque margine dentibus 17-30 instructa subtus suaviter velutino-pubescente differt.

Leaves opposite, more than 3 cm long; abaxial surface velutinous-pubescent (soft to the touch), with abundant hairs on all veins and no innervate laminar tissue; margin generally with 17-30 teeth per side. *Corolla* changing colour evenly in all inflorescences, from yellow to orange.

Distribution. – Up to now only known from Cuba, but it is possible that it grows in other Antillean Islands, too.

Note. – This form is dedicated to Steve Cafferty (BM) for his important contribution to this project.

Other examined specimens (select exsiccata). – CUBA: Camagüey, La Sierrecita, cerca de Bahía de Las Nuevas, 25.9.1985, *Méndez 1528* (HIPC). — HISPANIOLA: Haití, Morne l'Hospital, Port au Prince, 17.2.1942, *Holdrige 999a* (US); Dominican Republic, Haina, 7.1921, *Faris 292* (US). — PUERTO RICO: Along roadside Guayama to Cayey, 27.6.1901, *Underwood & Griggs 450* (US). — JAMAICA: Dallas, St. Andrew, 14.2.1908, *Harris 10103* (US).

4.3. *Lantana camara* f. ***portorricensis*** (Moldenke) I. E. Méndez, **comb.** & **stat. nov.** ≡ *Lantana arida* var. *portorricensis* Moldenke in Phytologia 50: 215. 1982 ≡ *Lantana urticifolia* subsp. *portorricensis* (Moldenke) R. W. Sanders in Amer. J. Bot. 74: 915. 1987. – Holotype: "Puerto Rico, Cayey", 3.10.1885, *Sintenis 2379* (US!).

Leaves opposite, 1-4 cm long; abaxial surface hirsute or hispid (rough to the touch), with very few hairs limited to veins; margin generally with 6-11(-13) teeth per side. *Corolla* changing colour evenly in all inflorescences, from yellow to orange.

Distribution. – Cuba, Hispaniola and Puerto Rico.

Other examined specimens (exsiccata selecta). – CUBA: Las Tunas, costa norte del municipio Jesús Menéndez, El Cupey, 19.3.1989, *Verdecia 4892* (HIPC). — HISPANIOLA: Haiti, Morne Hospital, 17.2.1942, *Holdridge 999* (US). — PUERTO RICO: Cayey, 3.10.1885, *Sintenis 2379* (US).

4.4. *Lantana camara* f. ***ternata*** (Moldenke) Moldenke in Phytologia 45: 296. 1980 ≡ *Lantana camara* var. *ternata* Moldenke in Phytologia 8: 160. 1962. – Holotype: "Cuba, Isla de Pinos, Siguanea, 21-V-s.a.", *Jennis 458* (NY!).

Leaves whorled (ternate), smaller than 4 × 2.5 cm; abaxial surface hirsute or hispid (rough to the touch), with very few hairs limited to veins; margin generally with 6(or less)-13 teeth per side. *Corolla* orange.

Note. – Only known from the type specimen.

4.5. *Lantana camara* f. ***urticifolia*** (Mill.) I. E. Méndez, **comb. nova** ≡ *Lantana urticifolia* Mill., Gard. Dict., ed. 8: *Lantana* no. 5. 1768. – Lectotype (designated by Sanders in Moscosoa 5: 208. 1989): "México, Veracruz", 1731, *Houston* (BM[photo!]).

Leaves opposite, more than 4 cm long; abaxial surface hirsute or hispid (rough to the touch), with very few hairs limited to veins; margin with 12(13)-30 teeth per side. *Corolla* changing colour evenly in all inflorescences (from yellow to pink and later to orange or lilac-pink, from red to orange).

Notes. – The Miller epithet was associated by Sanders (1989) with a phenotype that is not in agreement with the holotype and this situation has caused great confusion. It is hoped that this present infraspecific treatment will resolve this confusion (see also *L. arid* f. *zanonii*).

Distribution. – Distributed in Central America, Mexico, the Bahamas and the Greater Antilles (Sanders 1989), in the latter known from Cuba, Jamaica, Hispaniola and Puerto Rico.

Other examined specimens (select exsiccata). – CUBA: Camagüey, Guaimaro, alrededores del poblado Martí, Finca Las Delicias, 29.7.2001, *Méndez* & *Méndez 10045* (HIPC). — JAMAICA: Vicinity of Kingston, 25.-29.7.1907, *Britton 1686* (NY). — HISPANIOLA: Dominican Republic, San Cristobal, 21.4.1968, *Liogier 10924* (NY); Haiti, vicinity of Port de Paix, 21.-25.12.1928, *Leonard* & *Leonard 11085* (NY). — PUERTO RICO: Luquillo Mountains, 9.7.1902, *Wilson 41* (US).

5. *Lantana flava* Medik. in Acta Acad. Theod. Palat. III. Phys.: 225. 1775 ≡ *Lantana camara* f. *flava* (Medik.) Moldenke in Phytologia 45: 296. 1980. – Type not selected.
= *Lantana brittonii* Moldenke in Phytologia 2: 52. 1941. – Holotype: "Jamaica, Iweedside", 10.9.1908, *Harris & Britton 10541* (NY!).

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; appressedly pubescent (hairs short, geniculate, with the upper part growing parallel to surface), lacking conspicuous gland-tipped hairs (exceptionally present in some peduncles, but without the resinous-adhesive aspect). *Leaf lamina* 1.5-7 × 1-4 cm, ovate; base truncate; margin with 6-25 teeth per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs closely disposed (10 or more per mm², rarely up to 7 in some parts of the lamina), mainly short (0.2-0.5 mm); abaxial surface with very scarce hairs, restricted to the midrib, secondary or tertiary veins, all hairs geniculate toward base (with distal 2/3 held parallel to lamina or vein surface). *Corolla* yellow, changing from yellow or pink to orange and finally to scarlet red.

Notes. – It includes horticultural forms broadly cultivated in many parts of the world and wild forms (at least in the Antilles).

Lantana flava is very closely related to *L. camara,* but differs by the leaf pubescence (specified in the key to the species), and by having yellow and red as more widespread colours in the corolla (the pink and orange only appear fleetingly in transitional stages during the ontogeny in some infraspecific taxa).

This species had not been reported up to now from the Greater Antilles, but frequently, at least in Puerto Rico and in Cuba, plants occur with yellow corollas throughout the whole cycle, which can only be related with the epithet of Medikus. These individuals have similar density and distribution of pubescence, as well as size and form of the hairs on the abaxial leaf surface, a character used by H. N. Moldenke to identify plants from other geographical areas as this species. The pubescence details set out above, are also found in plants whose corollas do not show stable colours during development, but all have the yellow colour appearing in some of the stages. Such differences can be interpreted as infraspecific variation, except in *L. ovatifolia* Britton, endemic to the Bahamas (not included in this project), where they are accompanied by modifications in the habit of growth.

The study of populations in the Greater Antilles reveals that the form is the most appropriate rank at the infraspecific level, because the colour of the corolla is not related to phytogeographic or ecological patterns.

Key to the formae of *Lantana flava*

1. Corolla yellow throughout flowering . . . . . 5.1. *L. flava* f. *flava*
– Corolla colour changing from yellow or pink to orange and eventually scarlet red . . . . . 5.2. *L. flava* f. *sandersii*

5.1. *Lantana flava* Medik. f. ***flava***

Corolla yellow during all cycle.

Note. – This form was initially described from a cultivar but today it grows subspontaneously and is naturalised in many countries (Moldenke 1980b). In the Greater Antilles it is cultivated at least in Cuba and Puerto Rico (probably in other islands too).

Examined specimens. – CUBA: Las Tunas, Jardín Botánico (cultivated), 16.9.2001, *Méndez 10050* (HIPC). — PUERTO RICO: Arecibo Municipality, Cambalache State Forest Reserve, E of San Luis, 21.1.1988, *Kellof & Bradley 481* (US); San Juan, in gardens, 5.4.1997, *Méndez 9009* (HIPC).

5.2. *Lantana flava* f. ***sandersii*** I. E. Méndez, **f. nova –** Holotype: "Cuba, provincia Holguín, municipio Sagua de Tánamo, Sierra Cristal, alrededores del Campamento El Culebro", 8.4.1987, *Méndez 3373* (HIPC).
– *"Lantana camara"* sensu R. W. Sanders in Moscosoa 5: 202-215. 1989.

A forma typica speciei corolla florum primo flava vel rosea serius aurantiaca dein scarlatina discedit.

Corolla changing from yellow or pink to orange and finally to scarlet red.

Distribution. – Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico and Virgin Islands.

Note. – This form was erroneously associated by Sanders (1989) with *Lantana camara,* but this author has the merit of recognising it as an independent taxon and therefore the form is dedicated to Dr Roger William Sanders, researcher of the Antillean *Lantana*.

Other examined specimens (select exsiccata). – CUBA: Holguín, Sagua de Tánamo, Sierra Cristal, alrededores del campamento El Culebro, 8.4.1987, *Méndez 3373* (HIPC). — JAMAICA: Between Lluidas Vale and Croft, 16.7.1962, *Fosberg 42709* (US). — HISPANIOLA: Dominican Republic, Provincia de Peravia, Arroyo Tachuela, Cordillera Central, 17.5.1983, *Zanoni & Pimentel 25883* (NY); Haití, 11.8.1903, *Nash 312* (NY). — PUERTO RICO: Bosque Nacional del Caribe, 21.3.1997, *Méndez & Urquiola 8659* (HIPC). — VÍRGENS ISLANDS: St John, Cruz Bay Quarter, 20.1.1991, *Acevedo & Siaca 3385* (NY).

6. *Lantana glandulosissima* Hayek in Repert. Spec. Nov. Regni Veg. 2: 161. 1906. – Type: "México, Jalisco, hills about Tequila", 2.7.1893, *Pringle 4431* (isotype NY [photo[!])

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; patulous-hirsute, with conspicuous gland-tipped hairs, mostly long, 0.7-1.5 mm and all specimens with resinous-adhesive aspect (also in peduncles and leaves). *Leaf lamina* (2-)5 cm long or more, ovate; base cuneate; margin with 30 teeth or more per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs erect, closely disposed (usually 10 or more per mm², sometimes less in some parts of the lamina), long

(0.5-1.5 mm) and short (0.2-0.5 mm) hairs alternating; abaxial surface with hairs evenly disposed on all veins, weak, filiform and most erect (some of those that grow on midrib, curved in the apical half or lying on the surface, especially after pressing and drying, but not conspicuously geniculate toward base and distal 2/3 held parallel to vein surface). *Corolla* yellow, changing to orange or red.

Distribution. – Central America (from Mexico to Panama), Cuba, Jamaica, Hispaniola and Puerto Rico.

Note. – In *Lantana glandulosissima* the leaf lamina is variable with regard to size and length of the hairs on the adaxial surface. In the Greater Antilles the phenotypic expression of these characters is continuous and not related with phytogeographic or ecological patterns. For such variation, the form is the most appropriate rank at the infraspecific level.

Key to the formae of *Lantana glandulosissima*

1. Leaf lamina at least (4-)5 cm long; long (0.7-1.5 mm) and short (0.2-0.5 mm) hairs equally abundant on the adaxial leaf surface . . . . . 6.1. *L. glandulosissima* f. *glandulosissima*
– Leaf lamina up to 2.5 cm long; most hairs on the adaxial leaf surface short (0.2-0.5 mm), long hairs (0.7-1.5 mm) scarce or absent . . . . . 6.2. *L. glandulosissima* f. *sargentii*

6.1. *Lantana glandulosissima* Hayek f. ***glandulosissima***

Leaf lamina (4-)5 cm or longer; long (0.7-1.5 mm) and short (0.2-0.5 mm) hairs alternating in same proportion on the adaxial leaf surface.

Distribution. – The same as the species.

Examined specimens (select exsiccata). – CUBA: Camagüey, Meseta de San Felipe, al noroeste de la ciudad de Camagüey, 20.10.1986, *Méndez & Avilés 4021* (HIPC). — JAMAICA: *Arcutt* (US). — HISPANIOLA: Dominican Republic, Provincia de Paravia, Loma de Las Tablas, 14.7.1981, *Peláez 202* (S).

6.2. *Lantana glandulosissima* f. ***sargentii*** (Moldenke) I. E. Méndez, **comb. nova** ≡ *Lantana arida* var. *sargentii* Moldenke in Phytologia 50: 215. 1982. – Holotype: "Puerto Rico, Parguera", 25.2.1935, *Sargent 137* (US!).

Leaf lamina up to 2.5 cm long; hairs mainly short (0.2-0.5 mm) on the adaxial leaf surface (the longest hairs, of 0.7-1.5 mm, very scarce or absent).

Distribution. – Hispaniola, Jamaica and Puerto Rico.

Other examined specimens (select exsiccata). – HISPANIOLA: Dominican Republic, Independence Province, Lemba, 3.9.1960, *Marcano & Jiménez 4296* (US). — JAMAICA: Hellshiere Hill, E side, 29.1.1980, *Fosberg 59415* (US).

7. *Lantana insularis* Moldenke in Caribb. Forester 2: 16. 1940. – Holotype: "Jamaica, Trall from St Helens, Gap to Latimer River (1400-1475 m)", 9.3.1920, *Maxon & Killip 912* (NY!).

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; patulous-hirsute, with conspicuous gland-tipped hairs, mostly long, 0.7-1.5 mm and all specimens with resinous-adhesive aspect (also in peduncles and leaves). *Leaf lamina* usually less than 3 cm long, ovate, base truncate; margin with 30 teeth or more per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs very sparse (5-7 per mm²), mainly long, 0.7-1.5 mm, many of them lying on the surface after pressing and drying, (frequently collapsed at base); abaxial surfaces with hairs evenly disposed on all veins,

weak, filiform and most erect, on the midrib, secondary or tertiary veins, mainly long (0.7-1.5 mm) and lying on the surface (frequently collapsed at base), as well as others, which are shorter, on the areoles. *Corolla* yellow changing to orange or red.

Distribution. – Cuba, Jamaica and Hispaniola.

Other examined specimens (select exsiccata). – CUBA: Limones, Soledad, Cienfuegos, 27.7.1927, *Jack 5178* (US). — HISPANIOLA: Dominican Republic, Santo Domingo City, Prov. Santo Domingo 13.1.1929, *Ekman H-11122* (S).

8. *Lantana leonardorum* Moldenke in Caribb. Forester 2: 17. 1940. – Holotype: "Hispaniola, Haiti, vicinity of Jean Rabel", 1.-13.3.1929, *Leonard & Leonard 13782* (NY!).

Shrub more or less erect. *Twigs* conspicuously prickly; patent-pubescent, with conspicuous gland-tipped hairs, mostly long, 0.7-1.5 mm, and all specimens with resinous-adhesive aspect (also in peduncles and leaves). *Leaf lamina* lanceolate, 3 × 1.3 cm, base truncate; margin with 2-6 teeth per side, sometimes each tooth tipped by seta robust and longer than those on the remainder of the margin; adaxial surface with hairs very closely disposed (10 or more per mm², sometimes less in some parts) and mainly long, 0.7-1.5 mm; abaxial surface with hairs evenly disposed on all veins, weak, filiform and mostly erect, some on the midrib, secondary or tertiary veins curved in the apical half, especially after pressing and drying, but not conspicuously geniculate toward base and distal 2/3 held parallel to vein surface. *Corolla* yellow changing to orange or red.

Distribution. – Endemic to Hispaniola.

Other examined specimens (select exsiccata). – HISPANIOLA: Dominican Republic, km 31 from Monte Cristi City, 7.6.1969, *Jiménez & Alain 5706;* Haiti, vicinity of Cabaret, Baie of Moustiques, 14.1.1929, *Leonard & Leonard 11984* (US).

9. *Lantana mista* L., Syst. Nat., ed. 12, 2: 417. 1767 ≡ *Lantana camara* var. *mista* (L.) L. H. Bailey, Cycl. Amer. Hort.: 884. 1900 ≡ *Lantana camara* f. *mista* (L.) Moldenke in Phytologia 45: 296. 1980. – Lectotype (designated by Méndez & Cafferty in Taxon 50: 1138. 2001): [icon] "Camara Lamii albi folio, flore misto" in Dillenius, Hort. Elth.: t. 56, f. 64. 1732.

Shrub more or less erect. *Twigs* unarmed or with scarce and small prickles; conspicuously patulous-hirsute, hairs long (1.5 mm or more), not gland-tipped, yellowish white. *Leaf lamina* up to 11.5 × 6 cm, ovate; base cuneate; margin with 30 (or more) teeth per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs densely disposed (10 or more per mm²), mainly long, 0.7-1.5 mm, sometimes alternating with other shorter ones, 0.1-0.5 mm, white; abaxial surface with hairs evenly disposed on all veins, weak, filiform and most erect, some on the midrib, secondary or tertiary veins, lying on the surface after pressing and drying (frequently collapsed at base). External *corollas* changing from yellow to brick-red, the interiors from yellow to orange.

Notes. – Lantana mista is very closely related to *L. camara* and was considered an infraspecific taxon of this species by Bailey (1901) and Moldenke (1980a). It differs, however, by the type of hairs on the twigs and adaxial leaf surface (specified in the key to the species).

Distribution. – It was originally described from a cultivar, but apparently it grows subspontaneously and is naturalised in some places (Moldenke 1980b). In the Greater Antilles it has been collected in Cuba and Hispaniola. Moldenke (1980b) also reports it for Puerto Rico.

Other examined specimens (select exsiccata). – CUBA: Cienfuegos, Soledad, 6.3.1926, *Jack 4208* (US). — HISPANIOLA: Dominican Republic, Santo Domingo, 1.3.1871, *Wright*, *Parry & Brummel 337* (US); Hato del Yunke, 7.10.1945, *Jiménez 841* (US).

10. ***Lantana subcordata*** Urb., Symb. Ant. 7: 351. 1912. – Holotype: "Santo Domíngo", *Schumburgk 5* (B [destroyed]; isotypes: K!, P [n.v.]).

Shrub cringing or procumbent. *Twigs* unarmed or with scarce and small prickles; patulous-hirsute, with long hairs (1.5 mm or more) alternating with other shorter, 0.2-0.5 mm, sometimes gland-tipped (also in peduncles and leaves). *Leaf lamina* 5 × 2.5 cm, subcordate to ovate or ovate-triangular, base cuneate to truncate; margin with more than 10 teeth per side, teeth not usually tipped by a seta noticeably robust and longer than those on the remainder of the margin; adaxial surface with hairs densely disposed (10 or more per mm², sometimes less in some parts), mainly long, 0.7-1.5 mm, alternating with other shorter ones, 0.1-0.5 mm; abaxial surface with hairs evenly disposed on all veins, weak, filiform and most erect, some on the midrib, secondary or tertiary veins curved in the apical half, especially after pressing and drying, but not conspicuously geniculate toward base and distal 2/3 held parallel to vein surface. *Corolla* changing from yellow to orange.

Distribution. – Cuba and Hispaniola.

Other examined specimens (select exsiccata). – Cuba: Guantánamo, municipio Maisí, alrededores del poblado de La Máquina, 19.1.1989, *Méndez 4495* (HIPC). — Hispaniola: Dominican Republic, Province of Santiago, Cordillera Central, road to Jánico 16.11.1930, *Ekman H16172* (S, US); Haiti, Morne Boutellier, SE of Port-au-Prince, 11.9.1955, *Proctor 10648* (US).

Excluded taxa

Lantana camara* f. *mutabilis (Hook.) Moldenke in Phytologia 45: 296. 1980 ≡ *Lantana nivea* var. *mutabilis* Hook. in Curtis's Bot. Mag.: ad t. 3110. 1831 ≡ *Lantana camara* var. *mutabilis* (Hook.) L. H. Bailey, Cycl. Amer. Hort.: 884. 1900. – Type not selected.

In this taxon, the corolla changes its colour differently in different inflorescences of one and the same plant: some from white to yellow, then lilac, pink and eventually blue; and others from white to yellow and eventually lilac. Moldenke (1980b) cited it for Puerto Rico, but its existence there cannot be confirmed. Only two Antillean specimens so identified by Moldenke were found (*Killip 43710* and *Sargent 1311,* both US), and their label data do not mention the cited colour change; in their vegetative character, they agree with *L. arida* f. *zanonii* and *L. aculeata* f. *aculeata,* respectively.

Lantana camara* f. *sanguinea (Medik.) Moldenke in Phytologia 45: 296. 1980 ≡ *Lantana sanguinea* Medik. in Acta Acad. Theod. Palat. Phys. 3: 229. 1775 ≡ *Lantana camara* var. *sanguinea* (Medik.) L. H. Bailey, Cycl. Amer. Hort.: 884. 1900. – Type no selected.

In this taxon, the corolla colour changes from saffron to yellow or brilliant red. The existence of this form in the area cannot be confirmed. It was never observed in the wild or escaped from cultivation. A single Antillean specimen so identified by Moldenke was found (*Allard 14599,* US), but its label data does not mention the change of flower colour, and its vegetative and reproductive characters associate it with *L. flava* f. *sandersii.*

Acknowledgements

I thank the Alexander von Humboldt Foundation for awarding me a George Foster fellowship so as to undertake a postdoctoral study at the Botanic Garden and Botanical Museum Berlin-Dahlem, which enabled me to obtain these results. I am also grateful to the directors and curators of many herbaria (BM, BR, C, F, FL, GH, JBSD, JE, M, NY, PR, S and US) for lending material for the purpose of my study; to Steve Cafferty for helping me to clarify the Linnaean nomenclature and for sending photographs of herbarium specimens from BM; to the Atlantea Project of the University of Puerto Rico, thanks to which I could conduct field and herbarium studies on

that island; to Dr Werner Greuter, Dr Silvia Arroyo de Leuenberger and Manuel García Caluff for revision of the present text.

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