

ANACARDIACEAE: Rhoideae: Lithraea*

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Of the approximately 38 genera of the tribe Rhoideae there are four which have stamens twice as many as the petals, the tricarpellary ovary one-celled, and have a disk between the stamens and ovary: Lithraea, Mauria, Schinus and Pachycormus. Lithraea differs from the other three in that it has basal seed and the leaves have a prominent white corneous margin.

The first entity of this genus to be known was apparently described by Molina as Laurus caustica in his Saggio Storia Naturale del Chile 176, in 1782 as "Laurus fol. ovalibus rugosis perennantibus, flor. quadrifidis". Vellozo described an entity from Brazil in 1825 as Schinus molleoides and this was followed by the description in 1833 of Schinus ternifolius Gillies ex Hooker & Arnott, two entities variously treated, but historically mostly treated as synonymous.

In 1826 Miers published Lithraea venenosa in Trav. in Chile 2: 529, thereby establishing the genus Lithraea, by which name these species have been consistently known since that time.

The genus is represented by southern Brazil, Paraguay, Bolivia, Uruguay, Argentina and Chile by a series of polygamo-dioecious poisonous-sapped trees.

LITHRAEA Miers

Miers, Trav. in Chile, 2: 529. 1826.

Endl., Gen. 1130. 1840.

Walp., Rep. 1: 551. 1842.

Lindl., Veg. King. 467. 1847.

Blume, Mus. Bot. Lugd. 1: 15. 1850.

Bentham & Hooker, Gen. Plant. 1: 418. 1862.

Marchand, Rev. Anacard. 9, 182. 1869.

Engler in Martius & Eichler, Fl. Brasil. 12²: 394. 1876; in de

Candolle, Monogr. Phaner. 4: 345. 1883; in Engler und Prantl, Nat. Pflanzenfam. 35: 164. 1892.

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Cabrera, Rev. Museo La Plata n.s. 2: 35. 1938; Rev. Argent. Agron. 6: 104. 1939.

Lithrea Gay, Flora Chilena 2: 43. 1846.

Lithrea Hook., Bot. Misc. 3: 175. 1833.

Trees with poisonous sap and slender branches. Leaves alternate, coriaceous, simple, ternate or pinnately 5-foliolate, the compound leaves with narrowly alate rachis and often alate petiole. Panicles usually lateral but clustered in the axils of the uppermost leaves, rarely terminal. The bracts deltoid and caducous. Pedicels usually glabrous above the abscission plate. Calyx usually with 5 semicircular or broadly deltoid lobes, glabrous except the margin of some ciliate. Petals usually 5, valvate, lanceolate, acutish, glabrous. The stamens twice as many as the calyx lobes, in staminate flowers slightly shorter than the petals, the anthers oblong, filaments as long as the anthers or with the alternate ones slightly shorter, in the pistillate flowers $1/2$ to $1/3$ as large and the anthers completely sterile. The disk with as many lobes as the stamens. The pistil in pistillate flowers with three hemispherical stigmas, one style, and a subspherical ovary with one cavity and one basal ovule, the staminate flowers have much smaller and abortive pistil with two points to each stigma. The fruit has whitish epicarp readily separating from the dark resinous mesocarp, the mesocarp adhering to the bony, smooth to rough endocarp.

Type species: Lithraea venenosa Miers, Trav. in Chile 2: 529. 1826 (- Lithraea caustica (Mol.) Hook. & Arn.)

The two major problems which confronted the present author were the specimens of the mountains of northwestern Argentina and those from northeastern Argentina which have traditionally been treated as conspecific and a series of specimens from northeastern Argentina to southern Brazil which have been variously segregated.

In regard to the first problem, after a study of the specimens it has seemed better to segregate the Bolivian-Argentinian series of tall trees with large fruits as specifically distinct from the similar but smaller trees with smaller fruits from the lower tropical regions. This mountainous species was first described by Gillies and published by Hooker and Arnott as Schinus ternifolius and later described as Lithraea Gilliesi Gris. The other major problem involving a complex of the tropical regions, has been treated as two or three distinct species: one a simple-leaved species L. brasiliensis March. only more or less separable from the one or two pinnately compound leafed species. The pinnately compound-leafed species, Lithraea molleoides (Vell.) Engl., is a plant with leaflets lanceolate-oblong and obtuse. This is common in southern Brazil. In northeastern Argentina is a plant with linear-lanceolate acuminate leaflets, which Hieronymus named Lithraea Lorentziana. It has been included in Lithraea molleoides by most authors and is united to that species by a large series of intermediate specimens. To the author it appears that there are three entities with some intermediates. The three entities which may well represent specific elements

or cytogenetic studies may show that they are three variations of a single species. At present it seems to the writer best to treat them as two species and one variety, although Lithraea brasiliensis is scarcely better differentiated from Lithraea molleoides than Lithraea molleoides var. Lorentziana.

KEY TO THE TAXA

- 1 Leaves simple or mostly so.
 - 2 Leaves ovate, heavily coriaceous, the margins entire or slightly irregular, inclined to be scalloped; fruit large; Chile.
 - 3 Leaves and branches glabrous, leaves often larger and more coriaceous, the margin more scalloped.
 4. LITHRAEA CAUSTICA
 - 3 Leaves and branches pilose, leaves usually smaller and slightly thinner and less scalloped.
 - 4a. LITHRAEA CAUSTICA var. PILOSA
 - 2 Leaves oblong or ovate-lanceolate, the margin entire or irregular, rarely scalloped; fruit small; Brazil and Argentina.
 1. LITHRAEA BRASILIENSIS
 - 1 Leaves compound or mostly so.
 - 2 Fruit small, 4.5-5.5 mm. in diameter; lowlands of north-eastern Argentina to Brazil.
 - 3 Leaflets usually ovate-lanceolate, usually obtuse but often acute.
 2. LITHRAEA MOLLEOIDES
 - 3 Leaflets usually linear-lanceolate, acuminate.
 - 2a. LITHRAEA MOLLEOIDES var. LORENTZIANA
 - 2 Fruit large, 7-9 mm. in diameter; highlands of western Argentina and Bolivia.
 3. LITHRAEA TERNIFOLIA
1. Lithraea brasiliensis March., Rev. Anacard. 185. 1869.
Ehretia venulosa Spreng. ex Engl. in Mart. & Eichl., Flora Brasil. 12: 395. 1876, in synon.
Lithraea australiensis Engl., Engl. Bot. Jahrb. 1: 422. 1881; Engl., in de Candolle, Monogr. Phaner. 4: 347. 1883, in syn.
Lithraea verrucosa Miers ex Engl. in de Candolle, Monogr. Phaner. 4: 347. 1883, in syn.
 Evergreen tree of 7 or 8 m.; branches slender, glabrous or sparsely puberulent, grayish brown; the leaves simple, or leaves

in part with leaflets 2, 3 or 5, leaves thinly coriaceous, the margin white, entire or somewhat irregular, glabrous or very sparsely puberulent on the veins, obtuse at apex or rarely subacute, cuneate at base and decurrent on the 4 to 10 mm. long petiole, 4 to 9 cm. long, 12 to 30 mm. broad, the compound leaves with leaflets sessile, similar to the leaves, the petiole and rachis winged; inflorescences axillary panicles mostly clustered near the apex of the branches, about 5 to 10 cm. long, with the branches of the inflorescence sparsely puberulent; bracts caducous, deltoid, often one larger (5X7 mm.) and two smaller bracts (2 X 4 mm.) clustered together, glabrous except for a few cilia on the margins; pedicels about 1.5 mm. long, sparsely pilose-puberulent below, glabrous and shining above, in fruit to 3 mm. long; sepals 5, rounded-deltoid, glabrous, margin more or less irregular and with very few cilia, 1 X 1 mm.; petals glabrous, obovate, obtuse to subacute, 1 X 2 mm.; stamens 10, anthers 1 mm. long, filaments 1 mm. long; disk 1.5 mm. in diameter; pistil with stigmas 3, flaccid, .2 mm. in diameter; the pistillate flowers with petals .7 X 1.8 mm., stamens with anthers sterile, .5 mm. long, filaments slender .5 mm. long, the disk 1.2 mm. broad, less lobed than in the staminate flowers, the three stigmas large, the style .4 mm. long and the ovary spheroid, 1 mm. in diameter; fruit 4 to 5 mm. in diameter, slightly flattened, style persistent and brownish, epicarp creamy yellow, readily separating from the thin resinous mesocarp; seed lenticular, slightly larger at one end, 4 mm. wide, 5 mm. long, 2.2 mm. thick, essentially smooth, brownish black.

TYPE: Gaudichaud 925 from Sao Paulo, Brazil, in the Paris Herbarium.

The range of the species is from Minas Geraes, Brazil to Misiones, Argentina.

Common names: "Aruera", "Salitre", "Laurel del Monte", "Molle de beber", "Arbol malo", "Litre", "Aroeira Braba", "Pan de Bugre", "Braúna".

Specimens examined:-

BRAZIL: 1881, Glaziou 18199 (K); Ulissipona, Martius s.n. (M) and 1820, s.n. (M); Riedel s.n. (K); Sello s.n. (S) and 19333 (NY); St. Hilare 134/5 (BM); MINAS GERAES: St. Hilare 1762 (BM) and 1772 (BM). RIO DE JANEIRO: Cap. Frio, (BR); Cabo Frio, 18 Sept. 1881, Glaziou 12947 (F, US) and 12547 (R), and 1882, Glaziou 12549 (G, K); Cabo Frio, Sept. 1881, Netto, Glaziou y Schwacke s.n. (R); Cobacabana, strouch in der Restinga bei Cabo Frio, Oct. 1899, Ule 4714 (CORD, R); SAO PAULO: Sorocabana, Briga deiro Folios, 12 Dec. 1947, Betzler s.n. (RB); Gaudichaud 925 (BM--ISOTYPE); PARANA: Curityba, 25 Nov. 1903, Dusen 2229 (R), 1908, 6849 (S), Itaperussu, 18 Nov. 1908, 7144 (G, S), Curityba, 19 Oct. 1909, 8740 (S, US), Pinchaes, 13 Nov. 1911, 13353 (F, S), and Rio Capinzal, 29 Febr. 1916, Dusen 17883 (S); Sao Matheus, 26 Dec. 1929, Gunzel s.n. (RB) and 6 Nov. 1936, 16102 (RB); Curityba, Estacao Bariguy, 4 Oct. 1946, Hatschbach 421 (LIL, RB) Trancheira, 10 Oct. 1914, Jonsson 1112a (F, G, Mich, NY, S); SANTA CATHARINA: Herval, 8 Junio 1911, Dusen s.n. (S); 1837, Gaudichaud 269 (F, G, US)

Florianopolis, 16 Sept. 1145, Joao y Rohr 504 (LIL); Sombrio, 23 Nov. 1944, Reitz c708 (RB) and Sombrio, 10 m. alt., 19 Sept. 1945, C1227 (LIL); RIO GRANDE DO SUL: Miamao, Campo do Varejao, 25 Oct. 1945, Emrich 1167 (LIL); Sao Joao do Montenegro, Pareci-Novo, Oct. 1944, Eugenio 26570 (LIL); Sao Joao do Montenegro, Pareci-Novo, 16 Oct. 1945, Henz y Rambo 29655 (LIL); Sao Leopoldo, 20 m. alt., 10 Oct. 1946, Eugenio 35403 (LIL, S) and Oct. 1941, 3003 (GH); Porto Alegre, 3 Nov. 1892, Lindman a581 (S); Rio Grande, 29 Oct. 1901, Malme 63 (S), 30 Oct. 1901, 86 (S), Porto Alegre, 16 Dec. 1901, 860 (S) and Porto Alegre, 5 Nov. 1892, Malme 258 (S, US); Morro Sapucaia, 29 Jan. 1948, Palacios & Cuezco 444 (LIL), Porto Alegre, Morro da Policia, 2 Febr. 1948, 607 (LIL), Tristeza, 3 Febr. 1948, 698 (LIL) and Porto Alegre, Tristeza, 3 Febr. 1948, Palacios & Cuezco 740 (LIL, U); Cai, Morro Cauastra, 16 Mar. 1933, Rambo 1720 (LIL, SP), Morro da Gloria, 16 Oct. 1945, 29302 (LIL, S), Vila Manresa, 21 Oct. 1951, 51333 (US) and 10 Sept. 1945, 35515 (US), Porto Alegre, Morro da Gloria, Oct. 1944, 27097 (LIL), Sao Leopoldo, Sapucaia, 5 Sept. 1945, Rambo 29486 (LIL), Sao Francisco de Paula, Vila Oliva, 8 Enero 1946, 31132 (LIL), Aprados da Serra, Bom Jesus, 1000 m. alt., Enero 1947, 35008 (S), Bom Jesus, Faz. Belem Velho, Jan. 1947, 35403. (LIL), Porto Alegre, 2 Oct. 1948, 37793 (LIL), Garroupilha, 29 Jan. 1949, 40338 (LIL) and Porto Alegre, 30 Sept. 1949, 43667 (LIL), Sao Leopoldo, 17 Oct. 1949, 43915 (BAL), Lagoa dos Barros, Osorio, 24 Nov. 1944, 44509 (LIL) and Furna do Tigre, Itapoan, 19 Nov. 1949, Rambo 44500 (LIL); Belem Velho, Oct. 1897, Reineck & Czermak 140 (S, MG) and Arraial da Floria y Belem Velho, 31 Oct. 1897, 62 (G); von Thering 1 (R);

URUGUAY: Arechavaleta s.n. (CORD); Berro 883 (G, CORD); Feb. 1925, Duello Jurado s.n. (BA); CERRO LARGO: Sierra Tupamba, Dec. 1892, Arechavaleta s.n. (CORD); Co de las Cuentas, 25 Febr. 1938, Rosengurt B2583 (LP) and B2583E (LIL), and 29 Dec. 1938, B-2796 (LIL); FLORIDA: La Palma, Nov. 1934, Herter 1537c (US); Arroyo Mansavillagra: Picada Castro: Rincon de Santa Elena, Nov. 1946, Rosengurt & Gallinal 5744 (LIL, S, US); LAVALLEJA: Sierra de Minas, Nov., Arechavaleta s.n. (CORD); Minas: Penitente, 200 m. alt., 1-2 Nov. 1931, Herter 1537A (F, G. U); MALDONADO: Pirapolis: Cerro del Toro, 10 Febr. 1933, Clos 4971 (BAB); Cerro de Animas, 7 May 1936, Legrand 809 (F); Sierra de Animas: Nov. 1922, Hauman s.n. (BA); Cerro de las Animas, 500 m. alt., Sept. 1934, Rosa 526 (BA, LIL); Punta Ballena: Bosque Lussich, 11 Febr. 1943, Rosengurt B-4520 (LIL); ROCHA: San Vicente: 28 Jan. 1921, Wetmore 859 (US); TREINTA Y TRES: Tacuari, Nov. 1933, Herter 1537B (F, G. US) UC and 1537D (RB); ARGENTINA: Misiones: San Pedro, 4 Nov. 1886, Niederlein 713 (1591) (BA).

2. Lithraea molleoides (Vell.) Engl. in Mart., Fl. Bras. 122: 394, t.83. 1887; Cabr., Rev. Museo de la Plata n.s. 2: 38. 1938, p.pr.
Schinus molleoides Vellozo, Florae Fluminensis 10: pl. 134.

1825.

Rhus clauseniana Turcz., Bull. Soc. Nat. Mosc. 1: 469. 1858,
fide Engl. in DC. Monogr. Phaner. 4: 346. 1883.

Lithraea Aroeirinha March. ex Warm. in Kjoeb. Vidensk. Meddel.
61. 1873.

Schinus Molle Hort. ex Engler in DC., Monogr. Phan. 4: 346.
1883.

Schinus leucocarpus Mart. ex Engl. in Mart. & Eichl. Fl. Bras.
12²: 394. 1887.

Schinus brasiliensis March. ex Cabr., Rev. Museo de la Plata n.s.
2: 41. 1938, pr.p.

Tree 3-5 meters tall with slender branches at first tan, finely and (usually) densely puberulent, later glabrate and creamy-tan; leaves ternately compound, or rarely 5-foliolate or very rarely some simple, leaflets sessile, thinly coriaceous, terminal usually slightly larger, 6-7 cm. long, 1.8-2.2 cm. broad, lateral 3-5.5 cm. long, 1.5-2 cm. broad, ovate to ovate-lanceolate, mucronate, typically rounded obtuse, but often subacute to acuminate, base broadly to narrowly cuneate, entire to slightly irregular, rachis 1.3-1.7 cm. long, alate, petiole 1.5-3 cm. long, narrowly winged in the upper half; panicles erect, lateral and axillary, clustered near the apices of the branches, or rarely terminal, shortly pilose, 5-6 cm. long; bracts caducous, broadly deltoid, sparsely pubescent on outer surface, sparsely ciliate with simple hairs; pedicels 1 mm. long, increasing to 2 mm. in fruit, pubescent below, glabrous above; calyx lobes very broadly deltoid, 1 mm. broad, .5 mm. high, glabrous except margin sparsely ciliate with simple hairs; petals lanceolate-ovate, 1.8 mm. long, .8 mm. broad, acutish, glabrous; stamens in the staminate flowers with filaments .8 mm. long, anthers oblong, .8 mm. long, in the pistillate flowers much smaller; disk about .8 mm. broad, lobes as many as the stamens; ovary in the pistillate flowers about .8 mm. broad, stigmas 3, style 1, in staminate flowers the pistil much smaller; fruit 5 mm. long, 5.5 mm. broad, 4 mm. thick, epicarp creamish, readily separating from the dark resinous mesocarp, the mesocarp adhering to the bony endocarp; the seed 3.5 mm. high, 2 mm. thick, and 4.5 mm. long, brownish, rough.

TYPE: Warming s.n., from Minas Geraes, Brazil.

Common names: "Aroeira branca", "Aroeira brava", "Arroeira branca", "Aroeira miuda", "Aruera", "Aroeirinha", "Anieira", "Aroeira", "Chichita", "Molle Guazu".

Range: from Minas Geraes, Brazil, to Misiones, Argentina.

Specimens examined:- BRAZIL: Cuming s.n. (UPS) Glaziou
10486 (C) and 13679 (C), San Jose dos Campos, 8 Sept. 1909,
Lofgren 339 (S); St. Ignacio, 1837, Pohl 1542 (NY); 25 Jan. 1859,
Sello (w) s.n. (LISU, US) and 4887 (LISU, S); Goiania, alt. 700m.,
20 Aug. 1944, Williams 8179 (LIL); MINAS GERAES: Sept. 1887,
Arechaveleta s.n. (R); Lavras, 14 Aug. 1944, Black 154M (RB);
1838, Bois 88 (NY); Pontalate, 18 Jul. 1916, Campos 345 (RB);
1838, Claussen s.n. (NY) and 475 (NY, UPS), Lagoa Santa, Oct.

1839, s.n. (G), 93 (G) and 1841, Claussen 8 (NY); Jul. 1842, Gardner 4497 (G); Grei de Barbacena, 23 Jun. 1879, Glaziou 10486 (F. R. US); Prata, Triangulo Mineiro, 3 Sept. 1949, Labouriau s.n. (RB); Caldas, Sept. 1854, Lindberg 421 (S); Bello Horizonte, Villa Novo Horizonte, 25 Jul. 1933, Mello 750 (F. R.); Bello Horizonte, Engenho Nogueira, 26 Jul. 1942, Magalhaes 3155 (BEL); Caldas, 20 Sept. 1873, Mosen 338 (UPS, S) Sept. 1862, Netto s.n. (R); Caldas, 29 Feb. 1843, Regnell 63 (S, UPS, US), Caldas, Dec. 1846, II 43 (UPS), April 1847, II 63 (NY, UPS), Caldas, 5 Oct. 1858, s.n. (US) and II 63 (S), July 1848, II 63 (NY, UPS), 1864, II 63 (R), 12 Sept. 1874, II 63 (UPS), and 1875, Regnell II 63 (UPS); 1822-1828, Riedel 541 (S, US); Rio das Vehas, 12 Sept., Schwacke s.n. (R); Lagoa Santa, 1 Sept. 1867, Warming s.n. (S--IOSType); 1845, Widgren 1080 (BR, U, UPS) and Caldas, 1845, 1082 (S); Municipio de Belo Horizonte, Morro das Pedras, 1000 m. alt., 4-5 Sept. 1945, Williams & Azzis 7481 (LIL, US); SAO PAULO: Botucatu, Nov. 1896, Edwall s.n. (SP) and Rio Feio, 15 Nov. 1905, 159 (SP); 18 Sept. 1931, Handro 73 (F, NY) and s.n. (RB, SP); Chacara, Joao Jorge, 25 Aug. 1904, Heiner 161 (S); Butantan, 23 Aug. 1917, Hoehn s.n. (SP), 23 Nov. 1917, 942 (SP, US) and 18 Sept. 1931, Hoehne 23801 (F); Cunha, 19 Oct. 1939, Kiehle y Franco s.n. (SP); Sierra da Cantareira, Koscinsky s.n. (SP); Itapetininga, 28 Nov. 1943, Lima s.n. (RB); Itapetininga, 22 Sept. 1887, Lofgren s.n. (SP) and San Jose dos Campos, 8 Sept. 1909, 339 (RB); Taubate a Sao Luiz do Parahytinga, Sept. 1892, Lofgren y Edwall s.n. (SP); Ypiranga, Nov. 1913, Luederwaldt s.n. (SP); 20 Jun. 1875, Mosen 3835 (S); Helvetia, 6 Dic. 1941, Pickel 5547 (US); Sellow 3228 (R); Campinas, 8 Sept. 1873, Severin 72 (S, UPS) and 12 Sept. 1873, 60 (UPS); Campo Limpo, 13 Sept. 1934, Smith 2 (SP); Oct. 1912, Tamandare 125 (RB); Capital, Avenida Paulista, 18 Nov. 1906, Usteri s.n. (SP); Jan.-Febr., Vecchi s.n. (R); Loreto, 1909, Vecchi s.n. (SP); Campinas, Joaquim Egidio, 27 Aug. 1939, Viegas s.n. (SP); PARANA: Ponta Grossa, 12 Dec. 1903, Dusen 3421 (R, S); Ponta Grossa, 18 Marzo 1904, s.n. (S) and Ponta Grossa y Acuariahyua, 26 Sept. 1911, Dusen 13059 (S); Palmyra, 2 Nov. 1931, Gunzel s.n. (RB) and entre Cantagallo y Palmyra, 12 Nov. 1931, s.n. (RB); Ponta Grossa, 2 Nov. 1928, Hoehne s.n. (SP) and Boa Esperanca, 8 Nov. 1928, s.n. (SP); Ventania, Aug. 1916, Lutzburg 6795 (NY); RIO GRANDE DO SUL: Andrelandia: Capoeira: Faria, 23 Aug. 1936, Mello 5262 (F, R) and Santa Luzia: Capeira: Baccaria, 19 Sept. 1937, 9206 (F); Santa Maroa, 3 Jan. 1902, Malme 928 (S) and 1198 (S); Pinhal, 6 Mar. 1948, Palacios y Cuezco 2090 (LIL);

PARAGUAY: rio Alto Parana, 1909-1910, Fiebrig 5666 (L, LP, US); GUIARA: Villarica, Jan. 1905, Hassler 8729 (G); Canon Villa Rica, 10 Oct. 1928, Jorgensen 3428 (BAB, BABosq, LIL, LP, NY, US) and Sept. 1931, 3428 (F, S); PARAGUARI: Carapegua, Sept. 1941, Rojas 9151 (LIL); SAN PEDRO: Sierra de Maracayu, San Estanislao, Hassler 4192 (G, OC); YHU: Nov. 1874, Balansa 2525 (G, S);

URUGUAY: 1894, Arechavaleta 109 (G) and 191 (C); CERRO LARGO: Rio Negro y A. Pallegros, Enero 1936, Rosengurtt a796 (US); DURAZNO: rincon de Cabrera sobre el rio Negro, Dec. 1934, Legrand 322 (F); FLORIDA: Rio Yi: cerca del Arroyo Timote, 2 Nov. 1946, Castellanos 15882 (LIL); Rincon de Santa Elena, 21 April 1943, Callinal, Aragone, Bergalli, Campal & Rosengurtt PE-5173 (LIL); PAYSANDER: Chapicuy, Crillas del Rio Uruguay, 11 Nov. 1942, Rosengurtt B-4178 (LIL) and B-4178E (LIL); RIVERA: Galgo, 240-300 m. alt., 2-4 Dec. 1933, Herter 977a (F, G, U, RB, OC US); TACUAREMBO: Oct. 1895, Arechavaleta 279 (G); Valle Eden, 19 Febr. 1927, Castellanos 15876 (LIL);

ARGENTINA: MISIONES: CAINGUAS: Puerto Rico, 12 Sept. 1947, Schwindt 419 (LIL) and Salto Encantado, 230 m. alt., 1 Jul. 1950, 4652 (LIL); CANDELARIA: Santa Ana, 8 Sept. 1912, Rodriguez 556 (Fac CRA).

2a. Lithraea molleoides var. Lorentziana Hieron. ex. Lillo, Contr. Conoc. Arb. Arg. 2 1910. Arbor 5 m. alta; foliis-5 foliolatis, angusto-lanceolatis, acuminatis; drupis 4.5-5.5 mm. in diametro.

Lithraea Lorentziana Hieron. ex Niederl., Bot. Mens. Mus. Prod. Arg. 3³¹:292. 1892; ex Niederl., Result. Bot. 24. 1890.

Lithraea chichita Speg. in Speg. & Girola, Cat. Descr. Maderas 395. 1910.

Lithraea molleoides Engl. ex Cabrera, Rev. Museo de La Plata n.s. 2:38, 1933, pr. p.

Tree to 5 meters with slender glabrous branches gray to tannish-gray; the leaves alternate, glabrous, 5-foliolate or partly 3-foliolate (very rarely with a simple leaf); leaflets about equal, 4-7 cm. long, 6-10 mm. broad, linear-lanceolate, acute to acuminate at the apex, narrowly cuneate at the base, sessile, margin entire or slightly irregular; panicles lateral and axillary, clustered near the apices of the branches, erect, the branches very sparsely and shortly pilose; bracts caducous, deltoid, glabrous except ciliate on the margins, .5 mm. broad, .7 mm. long, usually associated with two caducous bracteoles .2X .3 mm.; pedicels about 1 mm. long in flower, increasing to 2 mm. in fruit, sparsely pilose below, enlarged and glabrous above; calyx lobes deltoid-semicircular, glabrous, .8 mm. wide, .5 mm. long; stamens usually 10, in the staminate flowers anthers oblong, 1 mm. long, filaments .5 mm. long, in the pistillate flowers anthers much smaller; disk about 1 mm. broad, lobes as many as the stamens; stigmas 3, style 1, ovary one-celled and one seeded, in the pistillate flowers about 1 mm. broad, much smaller in staminate flowers; fruit 5 mm. long, 5 mm. broad, 4 mm. thick, with smooth creamish or greenish-white epicarp which readily separates from the resinous mesocarp, the mesocarp adhering to the endocarp; seed tan, smooth 4 mm. long, 4 mm. broad, 2 mm. thick.

TYPE: Niederlein 1590, Esteros y Paso de Ibero, 7 October 1886, in the Herbarium of the National Museum in Buenos Aires.

Common names: "Chichita", "Chicha", "Aruera", "Arbol malo", "Molle Guazu", "Molle Gris", "Molle", "Corazon de bugre."

The species ranges from southern Brazil, through Uruguay and Paraguay, to northeastern Argentina.

Specimens examined:- BRAZIL: RIO GRANDE DO SUL: Quarai, estancia do Jarau, 26 Dec. 1944, Rambo 26310 (LIL), and 14 Jan. 1945, 26310 (LIL);

PARAGUAY: in valle fluminis Y-aca: Valenzuela, Jan. 1900, Hassler 6945 (G); Alto Parana, Fiebrig 6666 (LIL); ENCARNACION: Alto Parana, Jan. 1943, Jimenez 100 (LIL); Sept. 1915, Hassler 1368 (G); Jan. 1944, Rojas 10851 (LIL); 23 Jan. 1907, Spegazzini s.n. (BAB); GUAIRA: Villa Rica, 10 Sept. 1929, Hassler 3428 (C); Villarica, Nov. 1941, Rojas 3437 (LP) and Sept. 1941, 9151 (LP); YHU: Cosme, entre Villa Rica y Caaguazu, Nov. 1874, Balansa 2325 (BAF);

URUGUAY: ARTIGAS: Santa Rosa Guareim, Nov. 1927, Herter 977, (F, G, LIL, NY, S, U); CERRO LARGO: Rio Negro, Palleros, Jan. 1936, Gallinal, Aragone, Bergalli, Campal & Rosengurt A-796 (LIL); Sierra Acegna, Jan. 1926, Herter 18444 (MVM, S); Rio Negro, y A° Palleros, 7 Jan. 1936, Rosengurtt 1126 (LP); LAVALLEJA: Minas, Argua, Mar. 1920, Schroeder 15198 (MVM); PAYSANDU: Chapicuy, A° Guariyu, Kilda, Rosengurtt B-4919 (LIL);

ARGENTINA: MISIONES: Denis s.n. (LIL); 1913, Rodriguez s.n. (SI) and Itaimbe, 21 Aug. 1934, Rodriguez 296 (BA, BAB); Spegazzini 1348 (LP); APOSTOLES: San Jose de Pindapoy, 16 Jan. 1942, Bridarolli 2629 (LP), San Jose, 27 Dec. 1944, Sesmero 237 (LIL), Azara, 14 Jan. 1945, 291 (LIL) and 31 Jan. 1945, 346 (LIL);

CAINGUAS: Puesto Mineral, 250 m. alt., 23 Aug. 1950, Schwarz 10654 (LIL); Puerto Rico, 5 Mar. 1948, Schwindt 641 (LIL);

CANDELARIA: Loreto, 8 Dec. 1947, Cosso 124M (BA); entre Garupa y Candelaria, 9 Oct. 1943, Gavio s.n. (BA); Sept. 1939, Goytia s.n. (BAB); Estacion Experimental de Loreto, 9 Mar. 1930, Gruner 85 (LIL); Bonpland, Nov. 1910, Jorgensen 155 (BAB); Santa Ana, 2 Dec. 1904, 723 (BAB) and Santa Ana, 2 Dec. 1904, 803 (BAB, G); Loreto, 220 m., Montes 53999 (BA), Yabebyri, 20 April 1945, 796, (BAB, LIL), Loreto, 218 m., 14 Jul. 1945, 1000 (LIL), Santa Ana, 216 m., 6 Nov. 1945, 1261 (LIL), La Pastora, 220 m., 6 Jun. 1946, 2327 (LIL, U), Loreto, 220 m., 9 Oct. 1946, 8 (BAB), Loreto, 220 m., 1 Dec. 1946, 83 (BAB) and Loreto, 31 Mar. 1947, Montes s.n. (BA); Loreto, Jul. 1942, Perez s.n. (BA); Santa Ana, 8 Sept. 1912, Rodriguez 556 (LIL, NY, SI), and Santa Ana, 23 Dec. 1912, 12574 (LIL); Santa Ana, 4 Feb. 1907, Spegazzini s.n. (BAB, LP), Santa Ana, 21 Jun. 1909, Venturi 96 (LIL); CAPITAL: Posadas, Zarman, 27 Aug. 1945, Bertoni 1826 (LIL); Posadas, La Granja, 5 Dec. 1907, Ekman 1957 (S); Posadas, Oct. 1900, Gallardo 3739 (BA); Posadas, 16 Febr. 1944, Meyer 5427 (LIL) and Arroyo Vera, 24 Jan. 1947, Meyer 11400 (LIL); Posadas, Jan. 1907, Spegazzini 1349 (LP); CONCEPCION: Concepcion, 1 Febr. 1948, Schulz 6916 (LIL); IGUAZU: Salto Iguazu, April 1913,

Rodriguez 12500 (LIL); El Dorado, 160 m., 26 Sept. 1949, Schwindt 2117 (LIL); SAN IGNACIO: Ihaca-guazu, 11 Sept. 1945, Bertoni 1876 (C, LIL); 17 Febr. 1945, Descole 3275 (LIL); San Ignacio, 20 Nov. 1922, Devoto 156 (BAB) and 156B (BAB); San Ignacio, 27 Jan. 1947, Meyer 11604 (LIL, U); Teyuanare, 222 m., 5 April 1946, Montes 2107 (LIL), San Ignacio, 4 Febr. 1947, sn. (BA) and 8 Febr. 1947, s.n. (BA); 15 Sept. 1913, Quiroga s.n. (BA); camino a la Plantadora, Jul. 1927, Scala s.n. (LP); Gobernador Roca, 8 Sept. 1945, Schwarz 1229 (LIL, U), Balsa Nancanguazu, 31 Aug. 1945, 1188 (LIL), Gisela, 14 Sept. 1946, 3374 (LIL), Santo Pipo, 3 Oct. 1947, 4873 (LIL), Nancanguazu, 22 Oct. 1947, 4994 (LIL, U), Gobernador Roca, 13 Nov. 1947, 5158 (LIL), Santo Pipo, 27 Sept. 1948, 6175 (LIL) and Santo Pipo, 4 Oct. 1948, Schwarz 6281 (LIL); SAN JAVIER: Concepcion de la Sierra, 1 Febr. 1945, Sesmero 360 (LIL); SAN PEDRO: San Pedro, 4 Nov. 1886, Niederlein 713 (SI); El Alcazar, 1 April 1949, Schwindt 1449 (LIL); Campo Cumprido, 22 Sept. 1945, Bertoni 2102 (LIL); CORRIENTES: Esteros y Paso de Ibera, 7 Oct. 1886, Niederlein 1590 (BA, SI) and Esteros y Paso de Ibera, 7 Oct. 1886, 719 (BA); BERN ASTRADA: Dern de Astrada, 20 Oct. 1949, Schwarz 8358 (LIL) and 8361 (LIL); CONCEPCION: Loma Alta, 17 May 1944, Ibarrola 540 (LIL) and 29 Aug. 1945, Ibarrola 3191 (F, LIL, S); ESQUINA: Barranca rio Parana: Puerto Mercedes, 24 Jul. 1922, M. H. 84 (BAB); Rio Parana: Puerto Mercedes, 24 Aug. 1922, Rojas 4337 (BAF); GENERAL PAZ: Lomas Vallejos, 11 Oct. 1945, Ibarrola 3499 (LIL) and Lomas Vallejos, Rincon de Vences, 21 Oct. 1945, 3578 (LIL); MBURUCUYA: Mburucuya, 22 Sept. 1944, Hunziker s.n. (CORD); Estancia Santa Teresa, 15 Nov. 1947, Pederson 56 (C); Estancia Santa Teresa, 400 m. alt., 14 Nov. 1949, Schwarz 8707 (LIL); SAN LUIS: San Luis Palmar, Cerrudo Gue, 5 Oct. 1945, Ibarrola 3434 (F, LIL, S), SAN MARTIN: Tres Cerros, 8 Nov. 1936, Burkart s.n. (LP), 7976 (SI) and 8094 (SI); Yapeyu, 2 Jan. 1945, Ibarrola 1928 (LIL); SAN MIGUEL: Loreto, 8 Sept. 1944, Ibarrola 818 (LIL); SANTO TOME: Santo Tome, 26 Nov. 1947, Cozzo 27M (BA); 9 Febr. 1910, Venturi 444 (LIL); Santo Tome, 25 Nov. 1944, Ibarrola 1421 (LIL); ITATI: Itati, 20 Jul. 1930, Fonseca s.n. (BA); ENTRE RIOS: URUGUAY: Salto Grande, 5 Febr. 1931, Castellanos s.n. (BA); Concepcion del Uruguay, Dec. 1917, Hauman s.n. (BA, LP); Concepcion del Uruguay, Oct. 1877, Lorentz (UPS) and Oct. 1878, s.n. (CORD), 1665 (BAF, CORD, K), and 1665E (L); CHACO: RESISTENCIA: Fontana, Nov. 1935, Meyer 2014 (LIL); Colonia Benitez, Jan. 1928, Schulz 34 (BAB) and Fontana, May 1928, Schulz 843 (LP).

3. Lithraea ternifolia (Gillies) Barkley, Rom. n. comb.
Schinus ternifolia Gillies ex Hook. & Arn., Bot. Misc. 3: 177.
 1833
Schinus tenuifolius Steud., Nom. ed. 2. 2: 530. 1841.
Lithraea Gilliesii Griseb., Goett. Abh. 19: 114. 1874.

Schinus Terebinthifolius var. ternifolius March., Rev. Anac.
166. 1869.

Tree to seven meters, branches tannish gray, at first minutely and sparsely puberulent but soon glabrate; leaves compound (or rarely the first leaf on a branch simple), glabrous, alternate; leaflets 3-5, thinly coriaceous, ovate-lanceolate, acuminate or rarely abruptly obtuse, the base cuneate, sessile, the margins entire or slightly irregular, the lateral one inequalateral, the terminal equalateral, mostly 5-8 cm. long, 8-25 mm. broad, rachis narrowly winged, 1.5-2.5 cm. long, petiole not winged, 2.5-4.5 cm. long; inflorescences lateral and subterminal panicles more or less clustered at the ends of branches, erect in flower, more or less lax in fruit, 3.5-5.5 cm. long, at first very sparsely puberulent (or glabrous) and soon glabrate; bracts .4 mm. broad (usually associated with 2 similar but smaller bracteoles), glabrous except with a few sessile glandular cilia on the margins, deltoid; pedicels about 1 mm. long or in fruit to 4 mm. long, at first sparsely pilose but becoming glabrate; the calyx with 4 to 5 glabrous lobes 1 mm. broad and .5 mm. long, with margins bearing a few sessile and glandular trichomes; petals 4-5, lanceolate, 1 mm. broad, 2.5 mm. long; in the staminate flowers the 8 to 10 stamens with filaments .6 mm. long, anthers oblong, 1 mm. long, while in the pistillate flowers they are less than half as large with the anthers sterile; the disk about 1 mm. broad, lobes as many as the stamens; the pistil of the staminate flowers with pistil .5 mm. long, .25 mm. broad, but in the pistillate flowers the ovary 1 mm. broad and the 3 stigmas hemispherical; fruit 6 mm. long, 8 mm. broad, and 4-5 mm. thick, glabrous, stigmas persistent, brownish, epicarp creamish-yellow or greenish-white, readily separating from the thin black resinous mesocarp; seed faintly rugose, 5 mm. long, 6 mm. broad, 2.8 mm. thick.

TYPE: There probably exists in the Kew Herbarium a specimen, but this has not been seen by the present writer, nor any direct citations of it.

Common names: "Molle de beber", "Molle blanco", "Molle dulce", "Molle de Cordoba", "Molle", "Palo Negro", "Molle de bebe."

This species ranges from Central Bolivia to Central Argentina, mostly in the mountains.

Specimens examined:- BOLIVIA: Bridges s.n. (K); COCHA-BAMBA: Vila-Vila a Mizque, 2400 m., --- 2116 (LP); LA PAZ: Larecaja: San Pedro cerca Sorata, 2650 m., 9 Nov. 1897 & Jan. 1898, Mandon 767 (F, G, NY, S, US); SANTA CRUZ: Vallegrande: Samaipata, 1200 m., 13 Mar. 1920, Steinbach 3725 (LIL, NY, US) and Bergwald, 1600m., 13 Oct. 1928, 8225 (BA, LIL, NY, S); TARIJA: Cuesta de Tambo, entre el Tambo y Narvaes, 2 May 1873, Lorentz & Hieronymus s.n. (CORD); ARGENTINA: 1873, Lorentz & Hieronymus s.n. (NY); JUJUY: Ledesma: Sierra de Calilegua, 750 m., 7 Oct. 1927, Venturi 5371 (F, LIL, S. SI, US); SALTA: CANDELARIA: Quebrada de Un-

quillo, 1200 m., 7 Nov. 1931, Schreiter 6644 (LIL, NY) and 6647 (LIL, NY); CHICOANA: San Pedro de Escobedo, 29 Aug. 1949, Hueck 231 (LIL); CORONEL MOLDES: La Hoyada, 14 Nov. 1942, Burkart 13148 (SI); GUACHIPAS: Quebrada del río Alemania, "bosques xerofilos", 12 Aug. 1936, Cabrera 3754 (LP, NY, SP); Pampa Grande, Nov. 1912, Jorgensen 13193 (LIL); Pampa Grande, Jan. 1897, Spegazzini 1341 (LP); La Vina: Jan. 1897, Spegazzini 1341 (LP); La Vina: Jan. 1897, Spegazzini 1342 (LP); TUCUMAN: Cerro del Periquillo, 1100 m., 26 Nov. 1888, Lillo 1015 (LIL) and Cuesta de las Juntas, 1500 m., 23 Dec. 1888, 1383 (LIL); BURRUYACU: Cerro del Campo, 1200 m., Mar. 1918, Bailetti 915 (LIL); Río del Nio, 10 Febr. 1914, Monetti 1961 (LIL); Cerro del Campo, 1000 m., 14 Sept. 1928, Venturi 7315 (BAB, F, US); CAPITAL: Alto de la Polvora, 500 m., 7 Oct. 1924, Venturi 3322A (BAB, LIL, LP, S); CHICLIGASTA: Alpachirin, 600 m., 7 Mar. 1924, Venturi 3322 (LIL, US); Río Cochuna, 10 Nov. 1945, Villa 645 (LIL); TAFI: Cabroharco, 12 Nov. 1944, Olea 1 (LIL); TRANCAS: Planchones, 1300 m., 13 Jan. 1899, Lillo 1876 (LIL); Lomas de Raco, 24 Sept. 1920, Schreiter 92 (LIL) and 1431 (LIL); CATAMARCA: Jun. 1942, Schaefer s.n. (BAB); Febr. 1897, Spegazzini 1340 (LP); Ambato: Camino al Rodeo, 1300 m., Febr. 1941, Parodi 14009 (LP); ANCASTI: "del fruto se prepara una bebida permanente llamada "aloja"", Jan. 1915, Santillan s.n. (LP); Huillapinna, desde Concepcion hasta Pampichuela, Nov. 1909, Spegazzini s.n. (BAB); ANDALGALA: 21 Sept. 1945, Castellanos s.n. (BAFacS); Andalgala, 10 Oct. 1915, Jorgensen 989 (BA, LIL, SI, US) and Dec. 1914, 989 (BA); Fuerte de Andalgala, Oct. 1872, Schickendantz s.n. (G) and en los bordes del Río Andalgala, Oct. 1872, 11 (CORD); Agua de la Chica, 1500 m., 3 Nov. 1930, Schreiter 6419 (LIL); CAPITAL: Quebrada del Tala, 20 April 1908, Castillon 165 (1339) (LIL) and 21 Jun. 1908, 291 (LIL); 11 Sept. 1910, 35 (SI) and Choya, 27 Sept. 1910, s.n. (BAB); La Brea, 25 Jan. 1947, Luna 1034 (LIL); COPALLAN: Miraflores, Las Rejas, 6 Jan. 1947, Luna 399 (LIL); PIEDRA BLANCA: de la Cuchilla del Cura, Jan. - Febr. 1910, Spegazzini s.n. (BAB); EL ALTO: El Alto, 7 Nov. 1948, Arganaraz 720 (LIL); Sierra de Gracian, 15 Jan. 1940, Castellanos s.n. (BA); LA RIOJA: Quebrada de Talampaya, 28 Jan. 1906, Kurtz 13310 (CORD); CAPITAL: Puerta de la Quebrada al K 9-10, 450 m., 10 Oct. 1941, Alaniz 30 (LIL, LP, U); GENERAL BELGRANO: Sierra de Olta, Agua del Medio, 3 Febr. 1940, Castellanos s.n. (BA) and 8 Febr. 1940, s.n. (BA, LIL); GENERAL ROCA: Chepes, 10 Nov. 1945, Cuezzo 1004 (LIL); GOBERNADOR GORDILLO: Retamo, 220 m., 17 Mar. 1933, Hayward 20 (BAB); SANAGASTA: Sierra Velasco; Yacuchí, Cuesta de la Casa de Piedra, 2100 m., 28 Febr. 1908, Kurtz 15472 (CORD); SAN LUIS: Comechingones, Castellanos s.n. (BA); Alto de las Jarillas, 7 Mar. 1882, Galander s.n. (CORD, G, OC); Bajo de Velis, 19 Jan. - 19 Febr. 1895, Kurtz s.n. (LP) and 8532 (CORD) and 8578 (CORD); quebrada de los Cordones, 4 Sept. 1948, Ruiz 11638 (LIL); AYACUCHO: 24 Nov. 1926, Castellanos s.n. (BA);

BELGRANO: Caleras del Gigante, 14 Nov. 1926, Castellanos s.n. (BA); Nogoli, 1922, Gez 70, (SI); CAPITAL: Sierra Varela, 22 Dec. 1925, Castellanos s.n. (BA); JUNIN: Piedra Blanca, 2 Febr. 1942, Digilio s.n. (LIL); Merlo, Nov. 1910, Gerth s.n. (L); Rincon del Este, 950 m., 10 Febr. 1948, Meyer 13793 (LIL); and 12 Febr. 1948, 13857 (LIL); Piedra Blanca, 11 Oct. 1942, Russo 21 (LIL); PEDERNEIRA: El Portejuelo, Jan. 1933, Vignati 382 (LP); PINGLES: Cerro en la Aguada, 5 Nov. 1940, Burkart 10950 (LIL); Quebrada de los Carrizales, 12 Febr. 1925, Castellanos s.n. (BA); Cerro de la Aguada, 5 Nov. 1940, Covas 1095 (LP, NY); CORDOBA: 1918, Bruch s.n. (BA) and 30 (LP); Castellanos 711 (F, SI); Lopez 36 (LP); Lorentz s.n. (SI); 25 Mar., Lossen 453 (F, SI); ASCOCHINGA: Cordon Oriental, 17 Aug. 1926, Millan s.n. (BA); CALAMUCHITA: Sierra Chica, Arroyo Cachicural, 1000-1800 m., Mar. 1894, Bobenbender s.n. (NY, R) and 8206 (CORD); Sierra Chica, Los Cocos, Mar. 1940, Cabrera 6388 (F, NY); Sierra Chica, Estancia La Reduccion, 600 m., 28 Dec. 1935, Burkart 7303 (F, SI); Capilla a Los Cocos, Nov. 1915, Hauman s.n. (BA); Sierra Chica, entre Dique y Casabamba, Sept. 1904, Holmberg s.n. (SI); Sierra Chica, La Falda, 1000 m. alt. 8 May 1917, Osten 10445 (LP); Sierra Chica, Nov. 1888, Spegazzini 1497 (LP); Sierra Chica de Cordoba, 3 Oct. 1904, Stuckert 14399 (CORD); CAPITAL: Altos Sud de Cordoba, 17 Febr. 1897, Stuckert 1809; alrededores de Cordoba, Nov. 1902-Febr. 1903, Spegazzini 1495 (LP); COLON: Sierra de Cordoba, Carlos Paz, 14 Febr. 1939, Bridarolli 593 (LP); Unquillo, 1926, Bruch s.n. (LP, S); Unquillo, Oct. 1939, Gonzalez Bonorino s.n. (FACCBA); Unquillo, Villa Diaz, 1 Nov. 1947, Cristiani 374 (BA); camino El Cuadrado, Mar. 1938, Dawson 255 (LP); Rio Ceballos, Oct. 1875, Hieronymus 240 (F, CORD); cerca de rio Ceballos, 11 Nov. 1886, Kurtz 4395 (CORD); Rio Ceballos, Jun. 1939, Lahitte s.n. (BAB); Sierra de Cordoba, Oct. 1872, Lorentz 381 (CORD); Salsipuedes, 26 Mar. 1944, O'Donnell & Rodriguez 691 (LIL); Unquillo, Cabana, 5 Febr. 1950, Scolnik, Araque & Barkley 20Cb011 (LIL); Sierra de Saldan, 8 Jun. 1897, Stuckert 3123 (CORD, LIL); Casa Bamba, 23 April 1899, Stuckert 6805 (CORD); ISCHILIN: 17 Sept. 1945, Hunziker 6100 (CORD, US); Las Penas, Feb. 1871, Lorentz 381 (CORD, G); Quilino a San Jose, 390 m., 17 Dec. 1947, Meyer 13471 (LIL); MINAS: Potrero de Marquez, 900 m., Mar. 1896, Stuckert 2510 (CORD, LIL) and 13 Nov. 1896, s.n. (CORD); PUNILLA: Capilla del Monte, Nov. 1895, Bodenbender s.n. (BAF); Capilla del Monte, La Toma, 15 Jun. 1945, Castiglioni 1908 (BABosq); Capilla del Monte, Febr. 1909, Guysssegur s.n. (SI); La Canada, en las pendientes inferiores del Pan de Azucar cerca de Rio Zeballos, 20-23 Dec. 1875, Hieronymus 76 (CORD); Los Cocos, Cerro Caravuelta, Valle de Punilla, 14 Sept. 1917, Hosseus 941 (CORD); Cuesta de Cosquin, 23 Jan. 1885, Kurtz 2 (CORD), Pan de Azucar, 1 Febr. 1885, 319 (CORD) and Quebrada del Pantano cerca Capilla del Monte, 20 Dec. 1889, 6643 (CORD, LP, NY); Dique San Roque, Sierra Chica, 14 Aug. 1908, Kurtz & Glaser 15718 (CORD); Cosquin, Pan de Azucar, 1000 m. Jan.-Feb. 1936,

Rodrigo 550 (LP, N Y, S); vicinity of Cosquin, 10 Sept. 1915, Rose 21081 (NY, US); La Cumbre, 25 Jan. 1948, de la Sota 466 (LIL), La Falda, 27 Jan. 1948, 485 (LIL) and Parque Los Cocos, 14 Febr. 1948, de la Sota 720 (LIL, U); Huerta Grande, 20 Febr. 1897, Stuckert 2108 (CORD), Ochoa, 17 Nov. 1902, 12055 (CORD, G, LIL), Ochoa, Sierras Chicas, Dec. 1900, 9987 (CORD, LIL), Ochoa, 3 Oct. 1904, 14399 (G, LIL), Los Cocos, April 1909, 20244 (CORD), and Huerta Grande, 10 May 1910, Stuckert 21548 (CORD); San Sebastian, 22 Jan. 1947, Villafane 449 (C, LIL); SAN ALBERTO: Cordon Central, Pampa de Achala, 9 Febr. 1922, Castellanos s.n. (BA); Mina Clavero, 25 Jan. 1935, Clos 5735 (BAB); Vista Alegre, 3 Febr. 1948, Meyer 13296 (LIL); Mina Clavero, 1000 m., 16 Dec. 1901, Stuckert 10603 (CORD, G); cerca Mina Clavero, 1000 m., 18 Jan. 1950, Vervoorst 641 (LIL); SAN JAVIER: San Javier, 700-1200 m., 30 Dec. 1926, --17 (LP); 20 Oct. 1927, Castellano s.n. (BA); Dique de la Vina, 30 Jan. 1948, Meyer 13352 (LIL); SANTA MARIA: entre Potrero de Garay y Los Molinos, 2 Nov. 1949, Krapovickas 6509 (LIL); Cerro La Cocha, 2000 m., 20 April 1946, Pierotti 5059 (LIL); SOBREMONTES: Potrerosillos, Jun. 1938, Devoto 379 (BABosq); TOTAL: Ascochinga, 20 Oct. 1936, Giardelli 482 (SI); TULUMBA: Cerro Colorado, 16 Oct. 1949, Hunziker 7788 (CORD); Cerro Colorado, 25 Aug. 1939, Maldonado 120 (BOG, LP, NY).

4. Lithraea caustica (Molina) Hooker & Arnott

Bot. Misc. 3: 175. 1833; Engler in Martius & Eichler, Flora Brasil. 12²: 396. 1876; Engler in De Candolle, Monogr. Phaner. 4: 348. 1883; Reiche, Anal. Univ. Chile 47: 62. 1897; Reiche, Flora de Chile 2: 26. 1898; Cabrera, Rev. Museo de La Plata n.s. 2: 36. 1938.

Laurus Caustica Molina, Saggio Sulla Storia Naturale del Chile 176. 1782.

Persea caustica Spreng., Syst. Veget. 2: 269. 1825.

Lithraea venenosa Miers, Trav. Chil. 2: 529. 1826.

Rhus caustica Hook. & Arnott, Bot. of Capt. Beech Voy. 15, t. 1830.

Duvaua pleuropogon Turcz., Bull. Soc. Nat. Mosc. I, 31: 467. 1858, pr.p.

Schinus Lithi Domb. ex March., Rev. Anac. 183. 1869, in syn.

Mauria simplicifolia Humb. & Kunth. ex Hook. & Arn., Bot. Misc. 3: 175. in syn.; Engl. in Mart. & Eichl., Fl. Brasil 12²: 396. 1876, in syn.

Shrub or small tree to four meters tall, evergreen; branches (mostly growing in length in February) greenish-tan and moderately thick, later becoming tan and then dark gray-brown, glabrous; leaves simple, lamina thickly coriaceous, glabrous, broadly lanceolate to ovate or rotund, obtusely acute, obtuse or emarginate at apex, cuneate to truncate at base, usually 21 x 55 mm. to 33 x 45 mm. but rarely from 16 x 25 mm. to 75 x 110

mm., veins white and prominent, margin thick and white, entire to irregular and subrenate, petiole 3 to 15 mm. long, thick, often winged almost to base by the decurrent lamina, glabrous; panicles axillary, 1 to 5 cm. long, very sparsely pilose at the base of the inflorescence; flowers yellow; bracts lanceolate-deltoid, brownish, about 1 mm. long, persistent; pedicels in flower 1 mm. long, in fruit 2 mm. long, very sparsely pilose; masculine flowers with calyx brownish-yellow, glabrous, lobes five, about two times as long as broad, petals 5, yellow, lanceolate, glabrous, obtuse and slightly inrolled at apex, 3 mm. long, 1 mm. wide, stamens 10, anthers 1.6 mm. long, filaments 1.5 mm. long, enlarged toward the base; disk cream-colored, 10 lobed, 1 mm. in diameter; pistil 1 mm. long, three stigmas and styles and a flaccid ovary; feminine flowers with calyx yellowish, glabrous, lobes about as long as broad, persistent, petals 5, yellowish, broadly lanceolate, obtuse and enrolled at apex, 2 mm. long, 1 mm. wide, tardily deciduous, stamens 10, anthers 5 mm. long, filaments 6 mm. long, slender, disk cream-colored, 10 lobed, 1 mm. in diameter, pistil 2 mm. long, 3 hemispherical stigmas, style 1.5 mm. long, ovary spherical 1.3 mm. in diameter; fruit 12 mm. long, 11 mm. wide, 3.5 mm. thick, the stigma and style brownish-black, persistent, epicarp cream-yellow, readily separating from the black thin resinous mesocarp, seed tan-brown, very slightly rugose, 4.5 mm. high, 5.5 mm. wide and 2.5 mm. thick.

Typical specimen: Kausel 874 from las planicies del Rio Claro, Curico, Chile, 18 January 1941.

Common names: "Litre", "Lithi", "Llithi".

The species is limited in distribution to central Chile.

Specimens examined:- CHILE: Beechey s.n. (G); La Leona, 1828, Bertero 413 pr.p. (G); Dombey s.n. (LISU); "Perou", Dombey 884 (G, L) and 885 (L, NY); 31 Oct. 1896, Dusen s.n. (S); Gay s.n. (G); Compania, Nov. 1853, Germain s.n. (SGO); Pavon 994 (G); Chile austral, Poeppig s.n. (L); Constitucion, Sept. 1907, Reiche s.n. (SGO); COQUIMBO: Illapel, Pichidanguí, 5 m. alt., 15 Oct. 1948, Looser 5632 (SGOLOoser); OVALIE: Quebrada del Chanar, 12 Nov. 1937, Ibarren s.n. (SGO); ACON-CAGUA: Punta Molles, 15 Oct. 1948, "forma rostrera", Kausel 2663 (SGOKausel); Los Molles, Nov. 1862, Landbeck s.n. (SGO); Punta Molles, 50 m. alt., 15 Oct. 1948, Looser 5631 (SGOLOoser); VALPARAISO: 8 Oct. 1895, Buchtien s.n. (US); 1832, Gaudichaud 111 (G); 1825, Macrae s.n. (G); SANTIAGO: Maypu, Bertero s.n. (L); 5 Nov. 1918, Claude-Joseph 643 (US), Jan. 1919, 782 (US) and 839 (US); Quebrada de Pinalolen, 850 m. alt., 11 Mar. 1951, Kausel & Barkley 21Ch040 (SGOKausel) and 21Ch041 (SGO Kausel), 1500 m. alt., 21Ch059 (SGOKausel) and 1000 m. alt., Kausel & Barkley 21Ch067 (SGOKausel); 870 m. alt., 20 Nov. 1927, Montes 456 (F); Cerro San Cristobal, 18 Jan. 1938, Perez s.n. (BA); Cerro San Cristobal, 1858, Philippi s.n. (SGO) and Chacabuco, April 1879, s.n. (SGO); Apoquindo, 1929, Roszczyń-

ski s.n. (SGOQF); Quebrada Dormida, 8 Mar. 1951, Sudzuki, Sotomeyer & Barkley 21Ch009 (SGO); TALCA: Talca, 16 Dec. 1925, Gunckel 8164 (SGOGunckel); O'HIGGINS: May 1829, Bertero 413 p.pr. (F); Termas de Cauquenes, 750 m. alt., 11-15 May 1946, Looser 5153 (SGOLOoser); Oct. 1890, Philippi 378c (LP); COLCHAGUA: Cauquenes, 3000-5000 m. alt., 14-17 May 1882, Ball s.n. (NY); Hacienda Los Tralhuenes (Hiuque), 15 Febr. 1946, Kausel 1792 (SGOKausel), Cutemu a Quirahue, 150 m. alt., 17 Febr. 1946, 1852 (SGOKausel), and Hacienda Lolol de Cerro Robles, 200-900 m. alt., 19 Febr. 1946, Kausel 1895 (SGO Kausel); Banos de Cauquenes, Barrancas del rio Cachapoal, 26 Jan. 1938, Perez s.n. (BA); CURICO: Los Quenes, Planicies del rio Claro, 18 Jan. 1941, Kausel 874 (LIL) and 875 (LIL); Llico, Dec. 1861, Miers s.n. (LP); LINARES: Cordillera de la Compania, 1888, Philippi s.n. (US); Quimamavida, Nov. 1926, Gunther s.n. (S); CONCEPCION: Talcahuano, 6 Sept. 1896, Dusen s.n. (G); Cerra Caracol, 15 Nov. 1923, Gunckel 29 (SGOGunckel), Isla, Quriguina, 23 Nov. 1924, 398 (SGOGunckel) and Parque Pedro del Rio, Gualpen, 150 m. alt., 1 Jan. 1941, Gunckel 9915 (LP, SGOGunckel); Chiguayante, 21 Nov. 1934, Junge 1103 (SGO Gunckel) and Hualqui, 15 Nov. 1937, 2100 (SGOGunckel); Laraqueti, Febr. 1938, Kausel 375 (LIL) and 375A (LIL), Villamavida, 12-25 Febr. 1945, 1578 (LIL) and 1580 (LIL), and Laraqueti, 14-27 Febr. 1949, Kausel 2800A (LIL, SGOKausel); Cerro Caracol, 7 April 1924, Looser 5649 (SGOLOoser); Concepcion, Mertens s.n. (NY); Fondo Boldol Librenal, 21 Nov. 1932, Olate 2530 (BOG, RB); San Vicente, Oct. 1890, Philippi 378a (SGO); hills back of Talcahuano, 22 Nov. 1916, Skottsberg & Skottsberg s.n. (S) and 1366 (F, NY); CAUTIN: Almagro, 50 m. alt., 21 Febr. 1943, Gunckel 14181 (SGOGunckel); MALLECO: Cordillera, Nahuelbuta, 8 Dec. 1943, Lavin s.n. (SGOGunckel); Angel, 10 Febr. 1892, Kuntze s.n. (NY, US).

4a. Lithraea caustica var. pilosa Engl. in Martius & Eichler, Flora Brasil 12^a: 396. 1876.

Lithraea caustica f. pilosa (Engl.) Cabr., Rev. Museo de La Plata n.s. 2: 38. 1938.

Tree with moderately slender rigid branches, branches ten and densely pilose at first, later becoming tannish-gray and eventually glabrate; leaves simple, oblong-obovate, 4-7 cm. long, 1.5-3.5 cm. broad, coriaceous, margin somewhat waxy but rarely plicatulate, subentire, white corneous, the veins whitish, the veins above, and the under surface, soft pilose at least at first, eventually becoming glabrate, apex truncate or emarginate, base broadly cuneate and slightly decurrent on the 5-7 mm. long, pilose petiole; inflorescences terminal and subterminal contracted panicles; axis of the panicle long pilose; bracts lanceolate-deltoid, pilose, 1.2 mm. long, .7 mm. broad, usually having two bracteoles associated, these less than half as large; pedicels in flower 1 mm. long, in fruit 2 mm. long,

sparsely long pilose; calyx very sparsely long pilose, the 5 lobes bluntly deltoid, .8 mm. broad, .6 mm. long, margin ciliate with long simple hairs; petals ovate-acute, 2 mm. long, 1.4 mm. broad, glabrous except for a pilosity of three or four hairs near the center outside; stamens in the staminate flowers with anthers 1 mm. long, oblong, the filaments about .7 mm. long or the alternate ones slightly shorter, in the pistillate flowers stamens less than half as large and the anthers sterile; disk about 1.1 mm. broad, lobes as many as the stamens; pistil in the pistillate flowers with three hemispherical stigmas, one style, and ovary hemispherical about 1 mm. in diameter, in the staminate flowers the pistil much smaller and the stigmas with two points; fruit 6 mm. long, 7 mm. wide, 4 mm. thick, the epicarp whitish, separating readily from the resinous dark mesocarp, the mesocarp adhering to the bony endocarp; seed, brown, 5.5 mm. high, 6.5 mm. wide, and 3 mm. thick, upper margin slightly rough.

Typical specimen: Werderman 501, from Hacienda Montegrande, Curico, Chile, 800 m., alt., Dec. 1924.

Common name: "Litre".

The variety is limited in distribution to central Chile.

Specimens examined:- CHILE: La Leona, 1828, Bertero 413 p.pr. (G); 1855-1856, Germain s.n. (G); Agua de Piedra, Sept. 1860, Philippi s.n. (SGO) and Iter Tinguiririca, s.n. (SGO); Constitucion, Sept. 1890, Reiche s.n. (SGO); 1884-1885, Statin s.n. (NY); 1838-1842, Wilkes s.n. (NY); OVALLE: Caren, 1889, Geisse s.n. (SGO); ACONCAGUA: Quillota, Aug. 1829, Bertero s.n. (G); Quillota, Germain s.n. (AGO); VALPARAISO: Laguna Verde, 500 m. alt., 14 Nov. 1937, Andreas 81 (U); Bridges s.n. (G); Oct. 1925, Claude-Joseph 3708 (SGOGunckel, US); Oct. 1928, Gunther & Buchtein s.n. (S); Harshberger 1066 (US) and in Chaparral at Las Zorras, 15 Aug. 1927, 3397 (NY); Limache, 22 May 1923, Looser s.n. (SGOLOoser) and 18 Sept. 1925, 5658 (SGOLOoser), and Cerro Huinca, 11 Oct. 1926, Looser 5653 (SGOLOoser); 1825, Macrae s.n. (G); Zapallar, 17 Sept. 1908, Skottsberg s.n. (UPS); SANTIAGO: Penalolen, 1000 m. alt., 25 Jun. 1938, Andreas 809 (U); Cerro San Cristobal, 14 May 1882, Ball s.n. (US); Maypu, Febr. 1829, Bertero s.n. (G) and 1835, 413 (NY); Los Condes, 12 Jan. 1936, Cabrera 3480 (LP, NY, S); San Cristobal, Oct. 1928, Franco 1859 (SGOQF); Arquero, Nov. 1830, Gay 1955 (SGO); Tilti, 700-1000 m. alt., 7 Sept. 1941, Gunckel 11431 (SGOGunckel); Estrella, 770 m. alt., 23 Nov. 1900, Hastings 199 (US); 1912, Husband 728 (US); Casa de Piedra, Penalolen, 1926, Kausel 296 (LIL) and Los Condes, 800 m. alt., 7 Dec. 1947, 2483 (LIL, SGOKausel); Quebrada de Penalolen, 11 Mar. 1951, Kausel & Barkley 21Ch039 (SGOKausel) and 21Ch060 (SGOKausel); Cerro San Cristobal, 22 Jul. 1923, Looser 5660 (SGOLOoser) and 9 Dec. 1923, 5659 (SGOLOoser), Apoguinto, 29 Mar. 1925, 5661 (SGOLOoser), Manzano, 29 Nov. 1925, 5654 (SGOLOoser), Sierra San Cristobal, 2 Mar. 1926, 5657 (SGOLOoser), San Alfonso, 23 Jun. 1926, 5655 (SGOLOoser), Manquehue, 1300 m. alt., 24 Oct. 1926, 5656 (SGOLOoser) and Hacienda Chacabuco, 1-3 Nov. 1929, Looser

s.n. (R); Cerro San Cristobal, 18 Jan. 1938, Perez 23202 (LIL);
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 Andesmo, 5 Jan. 1947, Wall 37 (S); O'HIGGINS: San Vicente de
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y Sudzuki 3508 (SGO); La Rosa, Dec. 1827, Pceppig 602 (G);
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 1944, Kausel 1365 (LIL); Rio Claro, Nov. 1924, Muno 1901 (SGOQF);
CONCEPCION: Mertens s.n. (G).

The Herbarium
 Department of Botany
 College of Agriculture
 University of Baghdad
 Abu Ghraib, IRAQ

Description of plates

PLATE I. Lithraea caustica (Molina) Hooker & Arnott, Claude-Joseph 839, January 1919, from Santiago, Chile, in the United States National Herbarium. Photograph by J. Araque M. X.25

PLATE II. Lithraea brasiliensis March., Dusen 8740, from Parana, Brazil, in the Missouri Botanical Garden Herbarium. Photograph by J. Araque M. X.25

PLATE III. Lithraea ternifolia (Gillies) Barkl., Gillies, San Luis, Argentina, in the Royal Botanic Garden Herbarium, Kew. Photograph by courtesy of the Royal Botanic Garden, Kew.

PLATE IV. Lithraea caustica var. pilosa Engl., Wilkes, 1838-1842, Chile, in the New York Botanical Garden Herbarium. Photograph by the author.

PLATE V. Lithraea molleoides (Vell.) Engl., Widgren 1082, Caldas, Minas Geraes, Brazil, 1845, from the Herbarium of the Naturhistoriska Riksmuseet of Stockholm. Photograph by the author. X.25

PLATE VI. Lithraea molleoides var. Lorentziana Hieron. ex Lillo, Rambo 26310, Rio Grande do Sul, Brazil, 14 January 1945, in the Herbarium of the Fundacion Miguel Lillo of Tucuman, Argentina. Sometimes a leaf of Lithraea brasiliensis will be ternate and appear much as the leaves of Lithraea molleoides. The leaves of Lithraea molleoides and of Lithraea ternifolia are very similar, however, the fruit of the latter is nearly twice the diameter of the former. Photograph by the author.

Plate I



Plate II



MISSOURI BOTANICAL GARDEN
1105675
HERBARIUM

Plantae Brasilienses

8741 *Lithraea brasiliensis* L. Kunze
det. S. M. L. ...

Parana: ...

Plate III



Plate IV

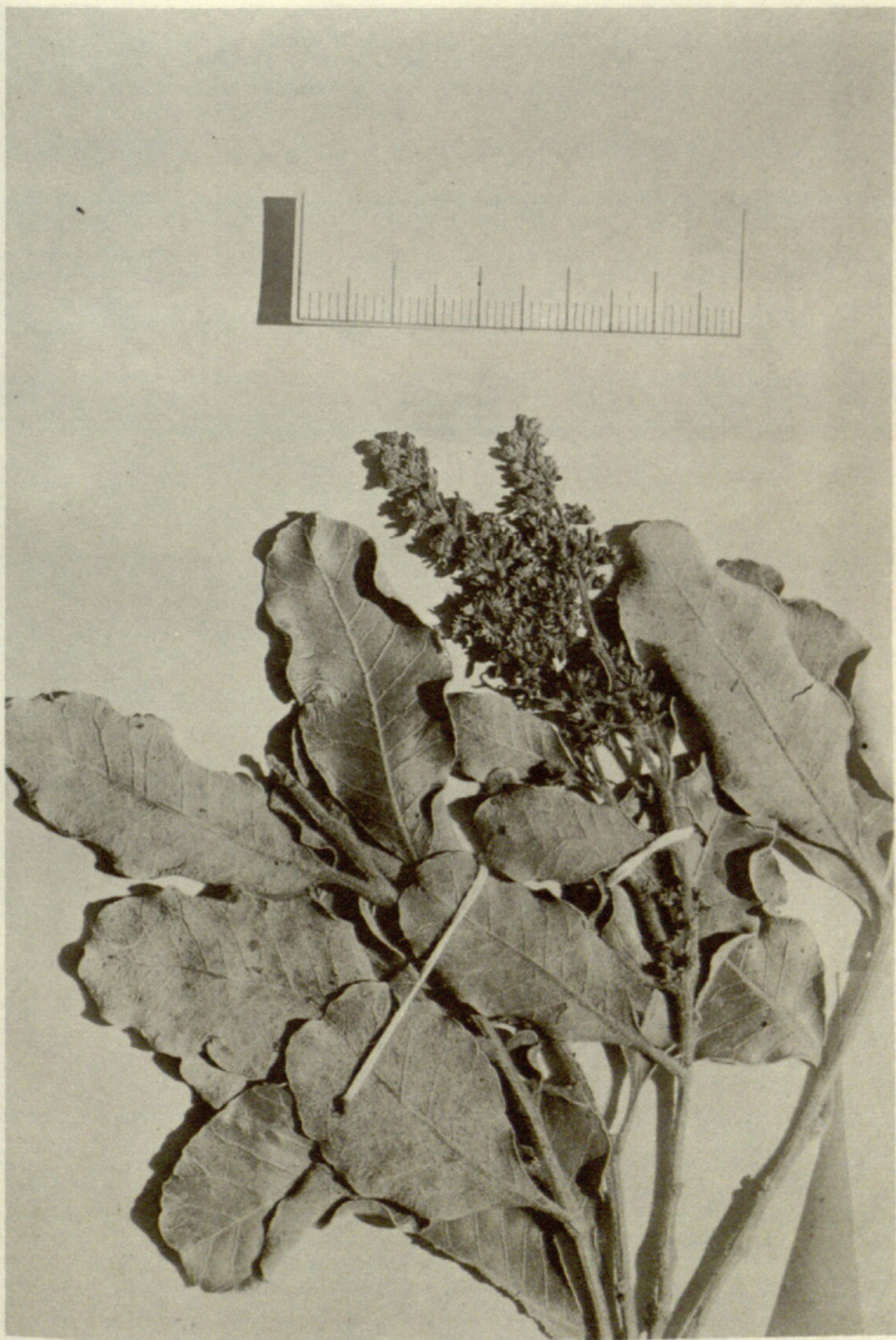
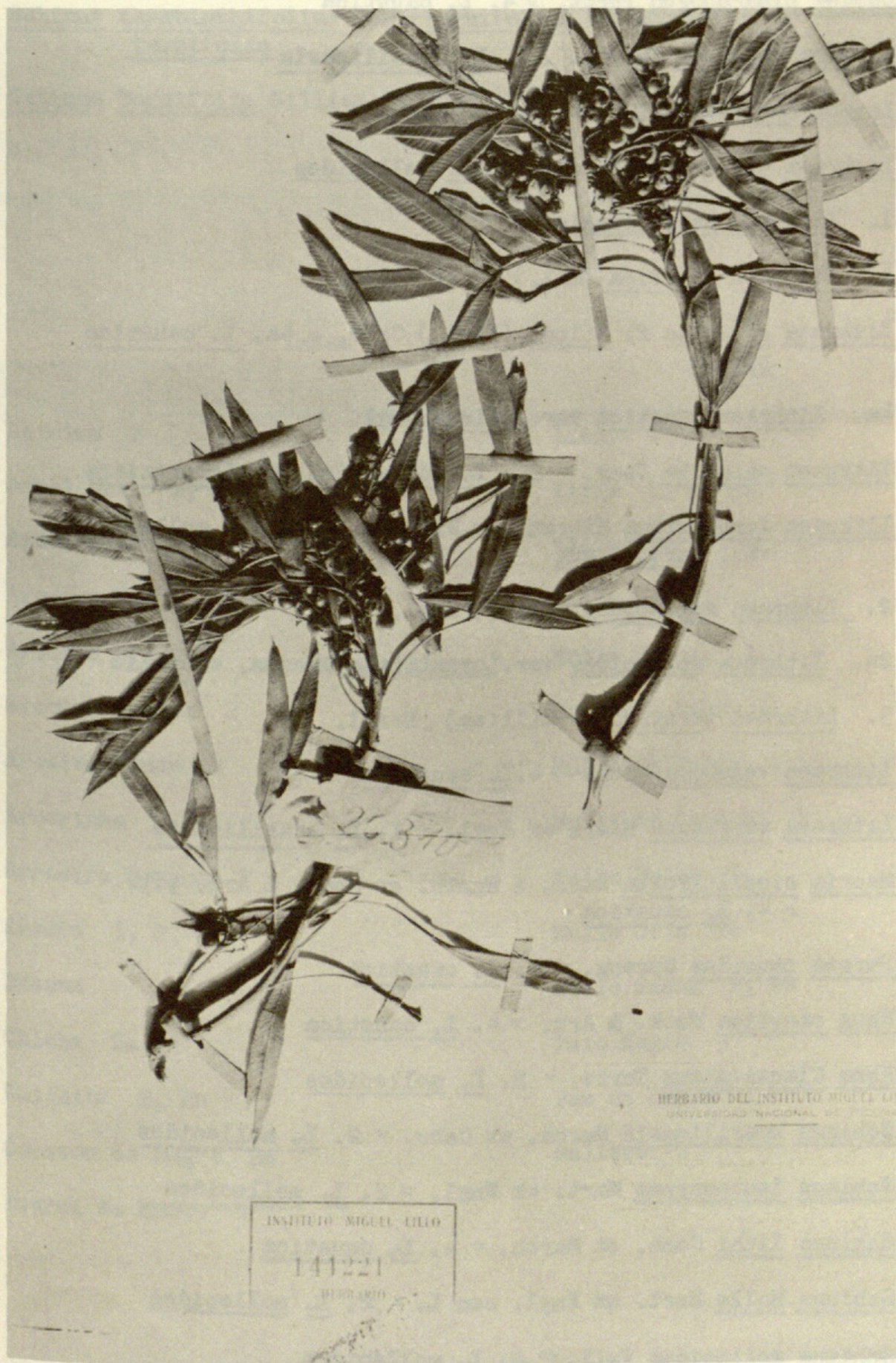


Plate V



Ex herb. Brasil. Reunellian. Mus. bot. St.

Plate VI



Index of Scientific Names

Duvaue pleuropogon Turcz. = 4. L. caustica

Ehretia venulosa Spreng. = 1. L. brasiliensis

Laurus caustica Mol. = 4. L. caustica

Lithraea Arceirinha March. = 2. L. molleoides

1. Lithraea brasiliensis.

4. Lithraea caustica (Mol.) Hook & Arn.

Lithraea caustica f. pilosa (Engl.) Cabr. = 4a. L. caustica pilosa

4a. Lithraea caustica var. pilosa Engl.

Lithraea chichita Speg. = 2a. L. molleoides var. Lorentziana

Lithraea Lorentziana Hieron. ex Niederl. = 2a. L. molleoides var. Lorentziana

2. Lithraea molleoides (Vell.) Engl.

2a. Lithraea molleoides var. Lorentziana Hieron. ex Lillo

3. Lithraea ternifolia (Gillies) Barkl.

Lithraea venenosa Miers = 4. L. caustica

Lithraea verrucosa Miers ex Engl. = 1. L. brasiliensis

Mauria simplicifolia Humb. & Kunth. ex Hook. & Arn. p.pr.
= 4. L. caustica

Persea caustica Spreng. = 4. L. caustica

Rhus caustica Hook. & Arn. = 4. L. caustica

Rhus Clausseniana Turcz. = 2. L. molleoides

Schinus brasiliensis March. ex Cabr. = 2. L. molleoides

Schinus leucocarpus Mart. ex Engl. = 2. L. molleoides

Schinus lithi Comb. ex March. = 4. L. caustica

Schinus Molle Hort. ex Engl. non L. = 2. L. molleoides

Schinus molleoides Vell. = 2. L. molleoides

Schinus tenuifolius Steud. = 3. L. ternifolia

Schinus terebinthifolius var. ternifolius March. = 3. L. ternifolia

Schinus ternifolia Gillies ex Hook. & Arn. = 3. L. ternifolia

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