

STUDIES IN THE EUPATORIEAE (COMPOSITAE). XXIX.

THE GENUS CHROMOLAENA

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In this treatment we recognize under the name Chromolaena that group of Eupatorian species previously known as Osmia or Eupatorium section Cylindrocephala. The genus falls in the general group we would call Critonioid with style bases glabrous and not enlarged, leaves opposite, few hairs on the corolla, and a small but distinct carpopodium. The most distinctive feature of Chromolaena, however, is the phyllaries. In other groups of Eupatorieae the phyllaries may differ greatly in closely related species and they have been much overused as indicators of relationship. In Chromolaena, the phyllaries show a rather consistent pattern of many rows which are progressively longer and which often give a markedly cylindrical appearance to the head. Also rather characteristic of the genus is the anther collar usually enlarged below and with short cells which are prominently annulate in various directions.

Among the many species of Chromolaena, there are some evident specializations. The typical element of the genus is characterized by prominent pales on the receptacle, and because of these, separate generic or sectional status has been maintained. However, consistently placed in Chromolaena, was the species epaleacea which was otherwise nearly identical to the type species. The relationship of the two species is close enough to warrant careful field studies. Another group of species in Brazil seem particularly close in habit to the related genus Praxelis (King & Robinson, Studies XXVIII) and one species Chromolaena decumbens is usually placed in that group. The carpopodium, ribs of the achene, receptacle, and even the phyllaries of C. decumbens do show the critical characters of Chromolaena, however, and indicate a substantial separation between the genera. A group of West Indian species including C. dussii (Urban) R.M.King & H.Robinson, C. geranifolia (Urban) R.M.King & H.Robinson, C. mononeura (Urban) R.M.King & H.Robinson, and C. trigonocarpa (Griseb.) R.M.King & H.Robinson have only 3-4 ribs on the achenes and the corolla lobes have distinct papillae inside only along the lateral margins.

The most distinctive group of species in the genus we have placed in a separate subgenus Osmiella. These species all lack the papillae in the inner surface of the corolla lobes. The subgenus is geographically limited to Mexico-Central America with a few species in Hispaniola. The less specialized anther collars with only transverse markings in some of the species and the more Critonia-like corollas lead to the belief that Osmiella is a more

primitive element in Chromolaena. It is in Osmiella that the involucre is most reduced having only 3-4 series in C. collina (DC.) R.M.King & H.Robinson and 2-3 series with very reduced scarcely imbricated basal scales in C. ortegae (B.L.Robinson) R.M.King & H.Robinson. In spite of such departures from the Chromolaena standard the involucres are unlike those of Critonia and its relatives and the species can be placed microscopically by the short cylindrical or even rather peg-like shape of the carpopodium. There are interesting species in Osmiella that are very similar to others in the subgenus Chromolaena. The involucre of C. opadoclinia (Blake) R.M.King & H.Robinson is strikingly like that of the type species of Chromolaena horminoides and both have prominent pales. Both species have their paleless equivalents which are respectively C. glaberrima (DC.) R.M.King & H.Robinson and C. epaleacea DC. Chromolaena (Osmiella) pulchella (H.B.K.) R.M.King & H.Robinson is markedly like C. odorata (L.) R.M.King & H.Robinson but in addition to lacking papillae on the corolla lobes it has a very unique elongate large-celled carpopodium. Both C. (Osmiella) bigelovii (A.Gray) R.M.King & H.Robinson of Mexico and C. rhinanthacea (DC.) R.M.King & H.Robinson of Brazil have phyllaries that are very reddish with sharply acute spreading tips.

The pollen aberration that we have previously designated Type II (King & Robinson, 1967) seems particularly common in Chromolaena, occurring in many species of both subgenera. Such pollen is known from the genus Stevia and has recently been reported from Aster (Quintero, 1969). Otherwise, only the much more irregular Type II pollen of some species of Ageratina (A. adenophora) is known at present.

Chromolaena A.P.Decandolle, Prod. 5: 133. 1836.

Heterolaena Schultz-Bipontinus ex Benthams and Hooker, Gen. Pl. 2: 245. 1873.

Osmia Schultz-Bipontinus, Pollachia 22-24: 251. 1866.

Eupatorium section Cylindrocephala A.P.Decandolle, Prod. 5: 141. 1836.

Sparingly to densely branched herbs or shrubs; leaves opposite, triangular to elliptical, margins subentire to highly lobed. Inflorescence laxly to densely corymbose; heads 10-40 flowered; involucre of 18-45, ovate to lanceolate densely imbricate very unequal sometimes deciduous phyllaries in 4-6 series; receptacle flat to convex, glabrous, pales sometimes present. Corolla tubular with scarcely constricted base; outer surface smooth with tips of lobes usually capped with a group of

thick walled often prominently projecting cells, outer surface with few to many short stalked glands and often with rather stiff hairs without stomates; inner surface of lobes usually papillose with a dense layer of projecting cells, cells inside of corolla tube narrow with sinuous walls with upper ends sometimes projecting. Anther collar composed of numerous quadrate cells below, elongate cells above, usually with prominent ornate banding on walls, bands transverse in elongate cells and oblique or vertical in many of the short cells; exothecial cells mostly about as long as wide; anther appendage large, entire or toothed at the apex; pollen spherical, tricolpate, spinose, modified "type II" present in many species. Style without basal node; surface cells of stylar appendage smooth to long projecting. Achene prismatic, 5 or rarely 3 costate, bearing setae mostly on costae, sometimes with glands; carpopodium short cylindrical or narrowed below, cells small often wider than high with usually thickened walls; embryo usually borne high in the achene on a distinct highly vascularized stalk, lower end of embryo projecting below point of insertion of stalk and partially sclerotized, basal vasculature of achene united to well above level of carpopodium; pappus of ca 40 slender, scabrous persistent setae, with usually pointed apical cells.

Chromosome numbers are known for 8 species: C. callilepis $n = 20$, C. congesta $n = 20$ (Coleman, 1968); C. ivaefolia var. hirsuta $n = 50I$ (Turner, Powell, and Cuatrecasas, 1967); C. mononeura $n = 10$, C. odorata $n = ca\ 40$ (Powell & King, 1969a); C. odorata $2n = 58$ (Ghosh, 1961); C. laevigata $n = 20$, C. scabra $n = 10$, C. tacotana $n = 10$ (Powell & King, 1969b).

Type species: Chromolaena horminoides A. P. Decandolle

Our studies indicate that the genus contains the following 2 subgenera and 129 species.

Subgenus Chromolaena

Plants with phyllaries in 4-6 series; corolla lobes papillose on inner surface; anther collars with cells irregularly annulate. 116 species.

Chromolaena adenolepis (Schultz-Bip. ex Baker) R.M.King & H.Robinson, comb. nov. Eupatorium adenolepis Schultz-Bip. ex Baker in Mart., Fl. Bras. 6(2): 291. 1876. Brazil.

Chromolaena arnottiana (Griseb.) R.M.King & H.Robinson, comb. nov. Eupatorium arnottianum Griseb., in Goett. Abh. 19: 167. 1874. Argentina, Bolivia.

Chromolaena arrayana (Gardn.) R.M.King & H.Robinson, comb. nov. Eupatorium arrayanum Gardn., Hook. Lond. Journ. Bot. 6: 439.

1847. Brazil.

Chromolaena ascendens (Schultz-Bip. ex Baker) R.M.King & H.Robinson, comb. nov. Eupatorium ascendens Schultz-Bip. ex Baker in Mart., Fl. Bras. 6(2): 344. 1876. Argentina, Brazil, Paraguay.

Chromolaena austera (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium austerum B.L.Robinson, Contr. Gray Herb. n.s. 68: 9. 1923. Bolivia.

Chromolaena bahamensis (Northrop) R.M.King & H.Robinson, comb. nov. Eupatorium bahamense Northrop, Mem. Torrey Bot. Club 12: 70. 1902. Bahama Isl.

Chromolaena bangii (Rusby) R.M.King & H.Robinson, comb. nov. Eupatorium bangii Rusby, Mem. Torrey Bot. Club 6: 56. 1896. Bolivia.

Chromolaena barbacensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium barbacense Hieron., Engl. Bot. Jahrb. 22: 750. 1897. Brazil.

Chromolaena barranquillensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium barranquillense Hieron., Engl. Bot. Jahrb. 28: 564. 1901. Colombia.

Chromolaena bathyphlebia (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium bathyphlebium B.L.Robinson, Contr. Gray Herb. n.s. 100: 12. 1932. Venezuela.

Chromolaena borinquensis (Britt.) R.M.King & H.Robinson, comb. nov. Osmia borinquensis Britt., Sc. Surv. Porto Rico & Virgin Isl. 6: 288. 1925. Puerto Rico.

Chromolaena bullata (Klatt) R.M.King & H.Robinson, comb. nov. Eupatorium bullatum Klatt, Engl. Bot. Jahrb. 8: 34. 1886. Colombia.

Chromolaena caaguazuensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium caaguazuense Hieron., Engl. Bot. Jahrb. 22: 760. 1897. S.Brazil, Paraguay.

Chromolaena calamocephala (Baker) R.M.King & H.Robinson, comb. nov. Eupatorium horminoides var. calamocephalum Baker in Mart., Fl. Bras. 6(2): 300. 1876. Brazil.

Chromolaena callilepis (Schultz-Bip. ex Baker) R.M.King & H.Robinson, comb. nov. Eupatorium callilepis Schultz-Bip. ex Baker in Mart., Fl. Bras. 6(2): 285. 1876. Brazil.

- Chromolaena campestris (A.P.Decandolle) R.M.King & H.Robinson,
comb. nov. Eupatorium campestre A.P.Decandolle, Prodr. 5:
152. 1836. S.Brazil.
- Chromolaena chaseae (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium chaseae B.L.Robinson, Contr. Gray Herb.
n.s. 104: 14. 1934. Brazil.
- Chromolaena christieana (Baker) R.M.King & H.Robinson, comb. nov.
Eupatorium christieanum Baker in Mart., Fl. Bras. 6(2):
298. 1876. S.Brazil.
- Chromolaena chrysosticta (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Eupatorium chrysostictum B.L.Robinson, Proc.
Amer. Acad. 54: 240. 1918. Colombia.
- Chromolaena cinereoviridis (Schultz-Bip. ex Baker) R.M.King &
H.Robinson, comb. nov. Eupatorium cinereoviride Schultz-Bip.
ex Baker in Mart., Fl. Bras. 6(2): 294. 1876. Brazil.
- Chromolaena columbiana (Heering) R.M.King & H.Robinson, comb. nov.
Eupatorium columbianum Heering, Mém. Soc. Neuchât Sci. Nat.
5: 421. 1913. Colombia.
- Chromolaena congesta (Hook. & Arn.) R.M.King & H.Robinson, comb.
nov. Eupatorium congestum Hook. & Arn. in Hook. Comp. Bot.
Mag. 1: 239. 1835. Brazil, Uruguay.
- Chromolaena connivens (Rusby) R.M.King & H.Robinson, comb. nov.
Eupatorium connivens Rusby, Mem. Torrey Bot. Club 6: 57.
1896. Peru, Bolivia.
- Chromolaena corymbosa (Aubl.) R.M.King & H.Robinson, comb. nov.
Eupatorium corymbosum Aubl., Hist. Pl. Guiane Fr. 2: 799.
1775. West Indies, French Guiana.
- Chromolaena decumbens Gardn., Hook. Lond. Journ. Bot. 5: 466.
1846. Brazil.
- Chromolaena densiflora (Morong.) R.M.King & H.Robinson, comb.
nov. Eupatorium densiflorum Morong., Ann. N.Y. Acad. Sci.
7: 136. 1893. Paraguay.
- Chromolaena dussii (Urban) R.M.King & H.Robinson, comb. nov.
Eupatorium dussii Urban, Symb. Ant. 5: 521. 1908.
Guadeloupe.
- Chromolaena elliptica (Hook. & Arn.) R.M.King & H.Robinson,
comb. nov. Eupatorium ellipticum Hook. & Arn. in Hook.
Comp. Bot. Mag. 1: 240. 1835. Argentina, Brazil.

Chromolaena epaleacea Gardn., Hook. Lond. Journ. Bot. 6: 436.
1847. Brazil.

Chromolaena eripsima (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium eripsum B.L.Robinson, Proc. Amer. Acad.
55: 14. 1919. Peru.

Chromolaena extensa (Gardn.) R.M.King & H.Robinson, comb. nov.
Eupatorium extensum Gardn., Hook. Lond. Journ. Bot. 6: 440.
1847. Bolivia, Brazil.

Chromolaena farinosa (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium farinosum B.L.Robinson, Contr. Gray Herb.
n.s. 80: 19. 1928. Venezuela.

Chromolaena foliata (Hieron.) R.M.King & H.Robinson, comb. nov.
Eupatorium foliatum Hieron., Engl. Bot. Jahrb. 22: 748.
1897. Brazil.

Chromolaena frustrata (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium frustratum B.L.Robinson, Proc. Amer. Acad.
47: 193. 1911. Florida.

Chromolaena furcata (Lam.) R.M.King & H.Robinson, comb. nov.
Eupatorium furcatum Lam., Encyc. 2: 407. 1788. West Indies.

Chromolaena geranifolia (Urban) R.M.King & H.Robinson, comb. nov.
Eupatorium geranifolium Urban, Symb. Ant. 1: 458. 1899.
Puerto Rico.

Chromolaena haughtii (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium haughtii B.L.Robinson, Contr. Gray Herb.
n.s. 90: 25. 1930. Peru.

Chromolaena herzogii (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium herzogii B.L.Robinson, Contr. Gray Herb.
n.s. 68: 19. 1923. Bolivia.

Chromolaena heteroclinia (Griseb.) R.M.King & H.Robinson, comb.
nov. Eupatorium heteroclinium Griseb., Fl. Brit. W. Indies.
358. 1861. Jamaica.

Chromolaena hirsuta (Hook. & Arn.) R.M.King & H.Robinson, comb.
nov. Eupatorium hirsutum Hook. & Arn. in Hook. Comp. Bot.
Mag. 1: 239. 1835. Argentina, Brazil, Uruguay.

Chromolaena horminoides A.P.Decandolle, Prodr. 5: 133. 1836.
Brazil.

Chromolaena hypericifolia (H.B.K.) R.M.King & H.Robinson, comb. nov. Eupatorium hypericifolium H.B.K., Nov. Gen. et Sp. 4: 118. ed. fol. 1818. Colombia.

Chromolaena integrifolia (Bert. ex Spreng.) R.M.King & H.Robinson, comb. nov. Eupatorium integrifolium Bert. ex Spreng., Syst. 3: 410. 1826. Guadeloupe.

Chromolaena iridolepis (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium iridolepis B.L.Robinson, Proc. Amer. Acad. 54: 247. 1918. Colombia.

Chromolaena ivaefolia (L.) R.M.King & H.Robinson, comb. nov. Eupatorium ivaefolium L., Syst. ed. 10, 2: 1205. 1759. Texas, Mississippi, Cuba, Jamaica, Lesser Antilles, Mexico to Bolivia and Brazil.

Chromolaena jelskii (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium jelskii Hieron., Engl. Bot. Jahrb. 36: 464. 1905. Peru.

Chromolaena jujuiensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium jujuiense Hieron., Engl. Bot. Jahrb. 22: 744. 1897. Argentina.

Chromolaena kleinii (Cabrera) R.M.King & H.Robinson, comb. nov. Eupatorium kleinii Cabrera, Bol. Soc. Argent. Bot. 7: 187. 1959. Brazil.

Chromolaena laevigata (Lam.) R.M.King & H.Robinson, comb. nov. Eupatorium laevigatum Lam., Encyc. 2: 408. 1788. Mexico to Argentina.

Chromolaena latisquamulosa (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium rhinanthaceum var. latisquamulosum Hieron., Engl. Bot. Jahrb. 22: 759. 1897. Argentina, Brazil.

Chromolaena leivensis (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium leivense Hieron., Engl. Bot. Jahrb. 21: 329. 1895. Colombia.

Chromolaena leptocephala (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Eupatorium leptcephalum A.P.Decandolle, Prodr. 5: 148. 1836. Colombia, Ecuador, Peru.

Chromolaena lilacina (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium lilacinum Hieron., Engl. Bot. Jahrb. 22: 757. 1897. Brazil.

- Chromolaena linearis (Malme) R.M.King & H.Robinson, comb. nov.
Eupatorium lineare Malme, Arkiv. Bot., Stockh. 24A(8): 23.
1932. Brazil, Guayana.
- Chromolaena lucayana (Britt.) R.M.King & H.Robinson, comb. nov.
Eupatorium lucayanum Britt. in Britt. & Millspaugh, Bahama
Fl. 439. 1920. Bahama Isl.
- Chromolaena luguensis (Chod.) R.M.King & H.Robinson, comb. nov.
Eupatorium luguense Chod., Bull. Herb. Boiss. ser. 2. 1:
413. 1901. Paraguay.
- Chromolaena macrantha (Sw.) R.M.King & H.Robinson, comb. nov.
Eupatorium macranthum Sw., Fl. Ind. Occ. 3: 1315. 1806.
West Indies.
- Chromolaena mallota (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium mallotum B.L.Robinson, Proc. Amer. Acad.
55: 22. 1919. Bolivia.
- Chromolaena margaritensis (Hassl.) R.M.King & H.Robinson, comb.
nov. Eupatorium margaritense Hassl., Feddes, Rep. Sp. Nov.
14: 279. 1916. Brazil, Paraguay.
- Chromolaena mattogrossensis (Hieron.) R.M.King & H.Robinson,
comb. nov. Eupatorium mattogrossense Hieron., Engl. Bot.
Jahrb. 22: 761. 1897. Brazil.
- Chromolaena meridensis (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Eupatorium meridense B.L.Robinson, Proc. Amer.
Acad. 54: 252. 1918. Venezuela.
- Chromolaena molina (B.L.Robinson) R.M.King & H.Robinson, comb.
nov. Eupatorium molinum B.L.Robinson, Contr. Gray Herb.
n.s. 68: 25. 1923. Venezuela.
- Chromolaena mononeura (Urban) R.M.King & H.Robinson, comb. nov.
Eupatorium mononeuron Urban, Symb. Ant. 3: 392. 1903.
Dominica Isl.
- Chromolaena moritziana (Schultz-Bip. ex Hieron.) R.M.King &
H.Robinson, comb. nov. Eupatorium moritzianum Schultz-Bip.
ex Hieron., Engl. Bot. Jahrb. 28: 565. 1901. Venezuela.
- Chromolaena multiflosculosa (A.P.Decandolle) R.M.King & H.Robinson,
comb. nov. Eupatorium multiflosculosum A.P.Decandolle,
Prodr. 5: 141. 1836. Brazil.
- Chromolaena myriocephala (Gardn.) R.M.King & H.Robinson, comb.
nov. Eupatorium myriocephalum Gardn., Hook. Lond. Journ.

Bot. 6: 442. 1847. Brazil.

Chromolaena odorata (L.) R.M.King & H.Robinson, comb. nov.
Eupatorium odoratum L., Syst. ed 10, 2: 1205. SE U.S.,
Mexico, West Indies south to Argentina, and widely
adventive.

Chromolaena oinopolepis (Malme) R.M.King & H.Robinson, comb. nov.
Eupatorium rhinanthaceum var. oinopolepis Malme, Kgl. Sv.
Vet. Akad. Handl. 12(2): 35. 1933. Brazil.

Chromolaena orbignyana (Klatt) R.M.King & H.Robinson, comb. nov.
Eupatorium orbignyanum Klatt, Abh. Naturf. Ges. Halle 15:
324. 1882. Argentina, Paraguay.

Chromolaena ossaeana (A.P.Decandolle) R.M.King & H.Robinson,
comb. nov. Eupatorium ossaeum A.P.Decandolle, Prodr. 5:
144. 1836. West Indies.

Chromolaena oteroi (Monachino) R.M.King & H.Robinson, comb. nov.
Eupatorium oteroi Monachino, Phytologia 2: 406. 1948.
Puerto Rico.

Chromolaena oxylepis (A.P.Decandolle) R.M.King & H.Robinson,
comb. nov. Eupatorium oxylepis A.P.Decandolle, Prodr. 5:
145. 1836. Venezuela, Brazil.

Chromolaena palmaris (Schultz-Bip. ex Baker) R.M.King & H.Robinson,
comb. nov. Eupatorium palmare Schultz-Bip. ex Baker in
Mart., Fl. Bras. 6(2): 294. 1876. Brazil.

Chromolaena oyadensis (Hieron.) R.M.King & H.Robinson, comb. nov.
Eupatorium oyadense Hieron., Engl. Bot. Jahrb. 22: 752.
1897. Argentina, Paraguay.

Chromolaena paraguariensis (Hieron.) R.M.King & H.Robinson, comb.
nov. Eupatorium paraguariense Hieron., Engl. Bot. Jahrb.
22: 752. 1897. Paraguay.

Chromolaena parviceps (Malme) R.M.King & H.Robinson, comb. nov.
Eupatorium parviceps Malme, Arkiv. Bot., Stockh. 24A(8):
24. 1932. Brazil.

Chromolaena pedalis (Schultz-Bip. ex Baker) R.M.King & H.Robinson,
comb. nov. Eupatorium pedale Schultz-Bip. ex Baker in
Mart., Fl. Bras. 6(2): 295. 1876. Brazil.

Chromolaena pellia (Klatt) R.M.King & H.Robinson, comb. nov.
Eupatorium pellium Klatt, Ann. k. k. Naturh. Hofmus. Wien.
9: 357. 1894. Venezuela.

Chromolaena perforata (Schultz-Bip. ex Baker) R.M.King & H.Robinson, comb. nov. Eupatorium perforatum Schultz-Bip. ex Baker in Mart., Fl. Bras. 6(2): 289. 1876. Brazil.

Chromolaena perglabra (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium perglabrum B.L.Robinson, Contr. Gray Herb. n.s. 80: 28. 1928. Colombia.

Chromolaena pharcidodes (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium pharcidodes B.L.Robinson in Gleason, Bull. Torrey Bot. Club 58: 483. 1931. Guayana, Venezuela.

Chromolaena polyantha (Schultz-Bip. ex Baker) R.M.King & H.Robinson, comb. nov. Eupatorium polyanthum Schultz-Bip. ex Baker in Mart., Fl. Bras. 6(2): 279. 1876. Brazil, Paraguay, Uruguay.

Chromolaena porphyrolepis (Baker) R.M.King & H.Robinson, comb. nov. Eupatorium porphyrolepis Baker in Mart., Fl. Bras. 6(2): 280. 1876. Brazil.

Chromolaena punctata (Lam.) R.M.King & H.Robinson, comb. nov. Eupatorium punctatum Lam., Encyc. 2: 408. 1788. French West Indies.

Chromolaena punctulata (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Eupatorium punctulatum A.P.Decandolle, Prodr. 5: 147. 1836. Colombia, E.Brazil.

Chromolaena revoluta (Gardn.) R.M.King & H.Robinson, comb. nov. Eupatorium revolutum Gardn., Hook. Lond. Journ. Bot. 6: 444. 1847. Brazil.

Chromolaena rhinanthacea (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Eupatorium rhinanthaceum A.P.Decandolle, Prodr. 5: 146. 1836. Brazil.

Chromolaena rojasii (Hassl.) R.M.King & H.Robinson, comb. nov. Eupatorium rojasii Hassl., Feddes, Rep. Sp. Nov. 11: 168. 1912. Paraguay.

Chromolaena roseora (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium roseorum B.L.Robinson, Proc. Amer. Acad. 55: 29. 1919. Ecuador.

Chromolaena sagittata (A.Gray) R.M.King & H.Robinson, comb. nov. Eupatorium sagittatum A.Gray, Smithson. Contr. Knowl. 3: 88. 1850.

- Chromolaena sagittifera (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Eupatorium sagittiferum B.L.Robinson, Contr.
Gray Herb. n.s. 65: 52. 1922. Brazil.
- Chromolaena sanctopaulensis (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Eupatorium sanctopaulense B.L.Robinson, Contr.
Gray Herb. n.s. 68: 32. 1923. Argentina, Brazil.
- Chromolaena santanensis (Aristequieta) R.M.King & H.Robinson,
comb. nov. Eupatorium santanense Arsitequieta, Acta Bot.
Venez. 3: 45. 1968. Venezuela.
- Chromolaena scabra (Linn.f.) R.M.King & H.Robinson, comb. nov.
Eupatorium scabrum Linn.f., Suppl. 345. 1781. Guayana to
Peru, Brazil.
- Chromolaena squalida (A.P.Decandolle) R.M.King & H.Robinson,
comb. nov. Eupatorium squalidum A.P.Decandolle, Prodr. 5:
142. 1836. Brazil, Venezuela.
- Chromolaena squarroso-ramosa (Hieron.) R.M.King & H.Robinson,
comb. nov. Eupatorium squarroso-ramosum Hieron., Engl.
Bot. Jahrb. 22: 753. 1897. Bolivia, N.Argentina.
- Chromolaena squarrulosa (Hook. & Arn.) R.M.King & H.Robinson,
comb. nov. Eupatorium squarrulosum Hook. & Arn. in Hook.
Comp. Bot. Mag. 1: 239. 1835. S.Brazil, Paraguay, Uruguay.
- Chromolaena stachyophylla (Spreng.) R.M.King & H.Robinson, comb.
nov. Eupatorium stachyophyllum Spreng., Syst. 3: 420.
1826. Bolivia, Brazil.
- Chromolaena subscandens (Hieron.) R.M.King & H.Robinson, comb.
nov. Eupatorium subscandens Hieron., Engl. Bot. Jahrb. 22:
742. 1897. Colombia, Bolivia.
- Chromolaena suratensis (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Eupatorium suratense B.L.Robinson, Contr. Gray
Herb. n.s. 80: 29. 1928. Colombia.
- Chromolaena tacotana (Klatt) R.M.King & H.Robinson, comb. nov.
Eupatorium tacotanum Klatt, Engl. Bot. Jahrb. 8: 35. 1886.
Colombia.
- Chromolaena tecta (Gardn.) R.M.King & H.Robinson, comb. nov.
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Subgenus Osmiella R.M.King & H.Robinson, subg. nov.

Involucris squamae inaequilongae 3-5 seriatae valde imbricatae; corollae intus omnino laeves; filamenta antherarum in parte superiore transverse vel irregulariter annulata; carpopodia distincta brevia cylindrica. 13 species. Type: Eupatorium collinum A.P.Decandolle.

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Voy. 297. 1838. Mexico.

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