

SOUTH AMERICAN SPECIES OF STOMATANTHES  
(EUPATORIEAE, COMPOSITAE)

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The concept of Stomatantes R.M.King & H.Robinson, originally described from Africa, is extended here to include twelve species from South America having hairs on the base of the style, often enlarged tips on the style branches, short thick filaments on the stamens, and sometimes stomates on the corolla. The species are erect herbs and subshrubs from the campos of eastern Brazil, Bolivia and Uruguay, and show clear indication of close relationship in spite of some differences in habit and corolla and leaf pubescence. The concept includes material previously referred to under the herbarium name Microconia P.Dusen (King & Robinson, 1970a) and others which have a greater number of flowers and phyllaries than are found in the type species S. africanus.

The expanded style branches found in some of the South American species of Stomatantes are basically like those found in many Critonioids though in some cases more extreme. Still, the hairy style base and stomates on the corolla are not known in the Critonioid genera. Stomatantes actually belongs in the Eupatorioid series where stomates are found on the corollas of Eupatoriadelphus R.M.King & H.Robinson. The blunt tips on the pappus setae of S. hirsutus are reminiscent of both Eupatorium L. of the North Temperate region and Austroeupatorium R.M.King & H.Robinson of South America. Both these genera differ from Stomatantes by having only glands on the achene and by their more slender anther filaments. Eupatorium is further distinct by the inornate anther collars, and Austroeupatorium by the enlarged and large-celled carpopodium.

The occurrence of stomates on the corollas of Eupatorieae has been mentioned in previous papers on Stomatantes (King & Robinson, 1970a) and Eupatoriadelphus (King & Robinson, 1970b). Such stomates are often difficult to see, especially in the South American species where they are scarce, small or hidden by glands. Stomates have been seen on corollas of S. dictyophyllus, S. oblongifolius, S. loefgrenii, S. subcapitatus and S. trigonus. In spite of repeated efforts no such stomates have been found in any of the closely related group including S. corumbensis, S. dentatus, S. hirsutus or S. pinnatipartitus. Further examination of S. africanus indicatus stomates may be completely lacking on corollas of some specimens of that species.

Stomatantes R.M.King & H.Robinson, Phytologia 19: 430. 1970.

Plants perennial, herbaceous or subshrubs. Stems erect or ascending, sparingly to densely branching. Leaves alternate, opposite or sometimes near the base nearly ternate, elliptical, oblanceolate or ovate to orbicular, entire to grossly dentate. Inflorescence usually paniculate-corymbose. Involucre with 5-12 narrowly oblong or lanceolate subimbricate scales in 2-3 series; receptacle scarcely convex, glabrous. Heads with 4-11 flowers; corollas tubular or funnelform, glabrous inside, glabrous or glandular with few to many hairs outside, outer surface of lobes often with stomates, cells narrow with sinuous walls; anther filaments very thick throughout, inserted well above corolla base, collar with two layers of transversely or irregularly banded cells, anther appendage elongate or short with rather large cells; style base without enlarged node, with numerous hairs, style appendages usually with short sharp papillae, tips of appendages sometimes slightly or greatly enlarged with smooth surfaces; achenes prismatic, 5-8 costate, densely setiferous and sometimes glanduliferous; carpodia usually distinct, cells rather small and subquadrate with rather thin nodulose walls; pappus of numerous scabrous setae, apical cells of setae acute or obtuse.

Type species: Eupatorium africanum Oliv. & Hiern.

Chromosome number known only for S. africanus,  $x = 10$  (Turner & Lewis, 1965).

#### Key to Species of Stomatanthes

1. Plants with long scapose inflorescence; leaves glabrous, without glands or hairs S. oblongifolius
1. Plants with large paniculate-corymbose inflorescence; leaves with glands and at least a few indistinct hairs.
  2. Tip of style branch not or scarcely enlarged; anther appendage as long as wide or longer.
    3. Phyllaries obtuse S. africanus
    3. Phyllaries narrowly acute to caudate tipped.
      4. Leaves ovate to spatulate or oblanceolate.
        5. Leaves spatulate-oblanceolate, pinnate-veined, not obviously reticulated, often subopposite or alternate S. polycephalus
        5. Leaves ovate to obovate, somewhat 3-nerved, closely and obviously reticulated, mostly opposite S. pernambucensis
      4. Leaves broadly ovate to orbicular.
        6. Leaves with few sparse hairs S. warmingii
        6. Leaves densely pubescent below S. dictyophyllus
    2. Tip of style branch distinctly enlarged; anther appendage usually much shorter than wide.
      7. Corolla glabrous S. subcapitatus
      7. Corolla lobes densely glandular.
        8. Leaves broadly ovate to orbicular, serrate or entire.

9. Heads with 5 flowers S. trigonus  
 9. Heads with 6-8 flowers S. loefgrenii  
 8. Leaves narrow or strongly lobed.  
 10. Leaves 1 cm or less in length, margins strongly lobed S. pinnatipartitus  
 10. Leaves 2 cm or more in length, dentate to entire.  
 11. Apical cells of pappus setae very blunt; leaves sharply dentate S. hirsutus  
 11. Apical cells of pappus setae subacute to acute; leaves serrate to entire.  
 12. Leaf blade lanceolate, lower surface covered with fine dense pubescence and appearing much paler than upper surface; heads with 9-11 flowers S. corumbensis  
 12. Leaf oblanceolate to spatulate, covered with very coarse hairs, lower surface scarcely grayer than upper; head with usually 4 flowers S. dentatus

Studies have shown that the following twelve South American species should be added to the genus.

Stomatanthes corumbensis (B.L.Robinson) H.Robinson, comb. nov.  
Eupatorium corumbense B.L.Robinson, Contr. Gray Herb. n.s.  
 104: 15. 1934. Brazil (Matto Grosso).

Stomatanthes dentatus (Gardn.) H.Robinson, comb. nov. Eupatorium dentatum Gardn., Hook. Lond. Journ. Bot. 6: 443. 1847.  
 Brazil (Goyaz, Matto Grosso, Minas Gerais, São Paulo);  
 Bolivia.

Stomatanthes dictyophyllus (A.P.Decandolle) H.Robinson, comb. nov. Eupatorium dictyophyllum A.P.Decandolle, Prodr. 5: 153.  
 1836 (as dyctiophyllum). Brazil (Dist. Fed., Goyaz, Minas Gerais, São Paulo).

Stomatanthes hirsutus H.Robinson, sp. nov.

Plantae suffrutescentes. Caules dense pilosi. Folia plerumque opposita, membranacea, ad 6 cm longa 2 cm lata, elliptica vel oblanceolata, in dimidio distali grosse dentata, laxe reticulata, inferne erecte hirsuta parum canescentia, superne breve pubescentia. Inflorescentiae laxae paniculatae. Involucri squamae lanceolatae acutae. Flores ca. 7 in capitulo; corollae extus dense glandulosae, lobis estomatophoris?; appendicibus antherarum brevibus; styli ad apicem distincte latiores; pappi interdum in monadis dehiscentes, cellulis apicalibus obtusis.

Brazil: Distrito Federal: Gama, Cerrado by Rio Gama (field A-43), 7 March 1965, L.B.Smith 15063 (holotype US).

The species is related to S. dentatus and S. corumbensis but the leaves lack the stout hairs of the former or the dense matted abaxial pubescence of the latter. The number of flowers

per head is also different. The most distinctive feature of S. hirsutus is the blunt apical cells of the pappus setae that can be seen under the compound microscope.

Stomatanthes loefgrenii (B.L.Robinson) H.Robinson, comb. nov.  
Eupatorium loefgrenii B.L.Robinson, Contr. Gray Herb. n.s.  
104: 18. 1934. Brazil (São Paulo).

Stomatanthes oblongifolius (Schultz-Bip. ex Baker) H.Robinson,  
comb. nov. Eupatorium oblongifolium Schultz-Bip. ex Baker  
in Mart., Fl. Bras. 6(2): 333. 1876. Brazil (Rio Grande do  
Sul); Uruguay.

Stomatanthes pernambucensis (B.L.Robinson) H.Robinson, comb. nov.  
Eupatorium pernambucense B.L.Robinson, Contr. Gray Herb.  
n.s. 90: 31. 1930 (nom. nov. E. bracteatum Gardn. not  
Hook. & Arn.). Brazil (Pernambuco). Should be  
S. bracte  
(Gardner) K  
det 18

Stomatanthes pinnatipartitus (Schultz-Bip. ex Baker) H.Robinson,  
comb. nov. Eupatorium pinnatipartitum Schultz-Bip. ex  
Baker in Mart., Fl. Bras. 6(2): 338. 1876. Brazil (São  
Paulo).

Stomatanthes polycephalus (Schultz-Bip. ex B.L.Robinson) H.Robin-  
son, comb. nov. Eupatorium polycephalum Schultz-Bip. ex  
B.L.Robinson, Contr. Gray Herb. n.s. 77: 30. 1926.  
Brazil (Minas Gerais).

Stomatanthes subcapitatus (Malme) H.Robinson, comb. nov.  
Eupatorium subcapitatum Malme, Kgl. Svensk. Vet.-Akad.  
Handl. ser. 3. 12(2): 45. 1933. Brazil (Paraná).

Stomatanthes trigonus (Gardn.) H.Robinson, comb. nov. Eupatorium  
trigonum Gardn., Hook. Lond. Journ. Bot. 6: 446. 1847.  
Brazil (Goyaz, Minas Gerais, São Paulo).

Stomatanthes warmingii (Baker) H.Robinson, comb. nov. Eupatorium  
warmingii Baker in Mart., Fl. Bras. 6(2): 339-340. 1876.  
Brazil (Minas Gerais).

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