

STUDIES IN THE EUPATORIEAE (ASTERACEAE). LXXXVII.

THE GENUS, ALOMIA

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The genus Alomia has long been recognized in the Eupatorieae primarily on the basis of one character, the lack of a pappus. The long over-due critical study of the genus has provided the basis for considerable subdivision and redistribution of the species. The subdivisions prove to have vastly differing relationships which we summarize here and place in other genera in following papers of the series. A remnant of Alomia does survive containing four of the previously recognized species and a fifth species newly described here.

The broad concept of Alomia, which is rejected here, contains six very distinct elements. The first element Alomia itself, is strictly Mexican and contains some species which in both habit and corolla structure indicate unmistakable relationship to Brickellia. A second element, that has affected previous concepts of relationship of the genus, is a group to be transferred to Ageratum, having conical receptacles, glandular punctations on the leaves and strongly annulated anther collars. These species lack the particular form of distorted carpodium with thick-walled cells found in Alomia and also lack the peculiar gland shaped setae on the achene. Ageratum has no close relationship to Alomia but is instead allied to the Gyptoid series. Perhaps in the latter relationship, is a third element from Alomia from Guatemala and Honduras which has a plane receptacle, scarcely annulated anther collars, nearly symmetrical carpodia and different forms of glands on the leaves, which we place in a distinct genus Blakeanthus. A fourth element from Alomia, in eastern Brazil, has plane receptacles, glabrous leaves with closely reticulate veins and a few very short smooth pappus setae. This last we place in a separate genus, Acritopappus which might be a remote relative of Ageratum. The fifth element in Brazil belongs in Trichogonia as suspected by B.L. Robinson (1913). The sixth element from Alomia is a species of Matto Grosso in Brazil that has an enlarged style base and other features of the Ayapana

series. This last species we place in Alomiella with relationships to two other Central Brazilian genera, Monogerion and Gymnocondylus. The artificial series of "Alomia" has paralleled to an amazing extent the artificial series of "Eupatorium" in the old concept.

The species retained in Alomia show rather complete uniformity in a number of features. The receptacles are all broadly convex with generally the same number of flowers, the leaves and stems show a strong tendency toward long-stalked glands and have no sessile glands, the carpodia have a sharp double bend with sharply defined foramens directed downward, the carpodial cells are oblong with thickened lateral walls, and the achenes bear few to many peculiar short gland-shaped setae. These latter structures are setae structurally though they look like glands, and they are apparently unique to the genus. Lack of uniformity occurs in the genus in an expected form with variations of phyllaries in different species. A less expected variation is that of corolla form and style branch papillosity. It is unusual to find forms with flaring corollas and slender papillose style branches like A. ageratoides and A. hintonii so closely related to forms with very narrow corollas and broad smooth style branches like A. alata and A. callosa. The former seem particularly out of place considering the apparently Brickellioid relationships of the genus Alomia.

Alomia Humbolt, Bonpland and Kunth, Nov. Gen. et Sp. 4: 118. 1818. Ed. fol.

Sparingly branched erect to decumbent annual herbs. Stems terete to six-angled, puberulous to pilose, hairs with or without gland tips. Leaves opposite, long petiolate, blades ovate with short cuneate to cordate bases, weakly trinerved at the base, lower surface without sunken glandular punctations. Inflorescence cymose, phyllaries 25-30 subimbricate in 2-4 series unequal to subequal externally with few hairs or glands; receptacle broadly convex. Heads with 40-50 flowers; corollas tubular or funnellform with short lobes, externally glabrous or with short minute glands; collars of anthers narrow with mostly elongate cells, cell walls with only weak annular thickenings, anther appendages about as long as wide; style scarcely broader near the base, glabrous, style appendages long-clavate to scarcely thickened, smooth or with short papillae; achene prismatic, 5-angled, bearing short gland-shaped setae; carpodium greatly twisted

with distinct foramen, cells elongate with thickened lateral walls; pappus completely lacking.

Type species: Alomia ageratoides H.B.K.

All the species of Alomia seem to be small herbaceous annual plants growing by or in streams. The five species are distinguished by the following key.

1. Corollas funnellform with spreading throat; style branches with short papillae 2
1. Corollas tubular; style branches smooth 3
  2. Stems with long non glandular hairs and short gland tipped hairs; leaves rounded to cordate at base with rather blunt tip and blunt teeth A. hintonii
  2. Stems with only gland tipped hairs; leaves with shortly cuneate bases and sharp teeth A. ageratoides
3. Petiole narrowly but distinctly winged A. alata
3. Petiole not winged 4
  4. Phyllaries acute or with short apiculus A. callosa
  4. Phyllaries with very long acuminate tips A. stenolepis

Our studies of the genus indicate that it contains the following five species.

Alomia ageratoides H.B.K. Nov. Gen. et Sp. 4: 119.  
1818. Ed. Folio. Mexico.

Alomia alata Hemsl., Biol. Centr. Am. Bot. 2: 79.  
1881. Mexico.

Alomia callosa (Watson) B.L.Robinson, Proc. Amer. Acad.  
49: 443. 1913. Mexico.

Alomia hintonii R.M.King & H.Robinson, sp. nov.  
Herbae erectae 2-3 dm altae pauce ramosae.  
Caules sexangulares longe pilosi etiam glandulis

breviter stipitatis obsiti. Folia opposita petiolata, petiolis tenuibus 1.0-4.5 cm longis, laminis ovatis 3.0-7.0 longis 1.5-4.0 cm latis ad apicem anguste obtusis margine crenato-serratis basi rotundatis vel leniter cordatis infirme trinervatis, subtus in nervis et nervulis hirsutis. Inflorescentiae profuse cymosae, pedicellis plerumque 1-2 cm longis glandulis breviter stipitatis obsitis. Capitula 2.5-3.0 mm alta; involucri squamae 25-30 subimbricatae 3-seriatae inaequilongae 1.5-3.0 mm longae lanceolatae vel anguste oblanceolatae extus leniter striatae parce glanduliferae. Flores ca. 45-50 in capitulo; corollae 1.5 mm longae infundibulares inferne distincte breviter tubulares extus glabrae, lobis late triangularibus extus raro glanduliferis; filamenta antherarum in parte superiore ca. 150 $\mu$  longa, cellulis oblongis vel longioribus, thecae ca. 0.6 mm longae, appendicibus non longioribus quam latioribus; appendices stylorum vix incrassatae dense breviter papillosae; achaenia ca. 1.0 mm longa temere setiferae, setis glanduliformibus. Grana pollinis 15-20 $\mu$  diam.

Type: MEXICO: Mexico: District of Temascaltepec: Platanal. In the water. Feb. 7, 1933. G.B.Hinton 3347 (Holotype US!); additional specimen: México: Mexico: District of Temascaltepec: Ocotepec. Alt. ca. 1500 m In the water. Dec. 9, 1932. G.B.Hinton 2911 (US!).

The species is close to Alomia ageratoides H.B.K. with the broad corolla and papillose style branches, but the stems have long hairs not found in the latter and the leaves are more rounded to cordate at the base with blunter tips and teeth. The new species also differs slightly in its corollas having few or no glands.

Alomia stenolepis Blake, Journ. Wash. Acad. Sc. 27: 375. 1937. Mexico.

#### Reference

Robinson, B.L. 1913. Revision of Alomia, Ageratum and Oxylobus. Contr. Gray Herb. n.s. 42: 438-491.

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