

**TAXONOMY OF *IVA ANGUSTIFOLIA* AND *I. ASPERIFOLIA*
(ASTERACEAE)**

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ABSTRACT

Iva angustifolia and *I. asperifolia* are treated as belonging to a single species, *I. asperifolia*. The species is treated as having three varieties: var. *angustifolia*, widespread in the south-central U.S.A.; var. *laticus*, largely confined to the beaches of southern Texas; and var. *asperifolia*, confined to the coastlines of central Mexico, with an introduced outlier in Wakulla Co., Florida. Keys to the taxa are provided, along with maps showing their distribution. *Phytologia* 91(1):76-83 (April, 2009).

KEY WORDS: Asteraceae, *Iva angustifolia*, *I. asperifolia*, *I. texensis*, Texas, Mexico, Florida

Strother (2006), in his treatment of *Iva* for the Flora of North America, provided a taxonomic account of *I. angustifolia* Nutt. ex DC. In this he did not provide for infraspecific categories, nor did he discuss its relationship to its closest congener, *I. asperifolia*, a taxon from dune sands along the Gulf Coast of Mexico. He did place in synonymy under his broad interpretation of *I. angustifolia* the names *I. a.* var. *laticus* Shinnery and *I. texensis* R.C. Jackson, both typified by material from sandy or clay saline dunes of southernmost coastal Texas.

Jackson (1960) proposed the name *Iva texensis* (typified by Jackson 2505 from saline soils ca. 8 mi S of Falfurrias, Brooks Co., Texas). Oddly, other than the type, he listed numerous additional collections, these introduced with the statement that "A number of specimens from the coastal regions of Texas are tentatively assigned to

I. texensis. These plants have a woody stem, but in involucre length and plant height are not always in agreement with the type.”

Shinners (1964) inexplicably described again Jackson's *Iva texensis* with his proposal of *I. angustifolia* var. *laticor*, the latter also typified by specimens from Brooks Co., Texas. Indeed, Shinners did not mention *I. texensis* in his account of the proposed variety, although he did cite Jackson's revision of *Iva* in which the name was first proposed.

Strother's account of *Iva angustifolia* for the U.S.A. is confounded by the earlier name, *I. asperifolia* Lessing, this proposed in 1830. Strother did comment upon the latter, noting in the introduction to his treatment, that “Records of *Iva asperifolia* Lessing from Florida are evidently based on specimens that are treated as members of *I. angustifolia*.” A similar sentiment was expressed by Wunderlin (1998) who thought the name *I. asperifolia*, was “misapplied” to plants from Wakulla Co. Florida, that he took to be *I. angustifolia*. This, in spite of the fact that Jackson (1960) stated, “The specimens of *I. asperifolia* from Florida may represent an introduction [of *I. asperifolia*] from Mexico.” Plants grown from seeds by Jackson in his greenhouse (the seeds provided by Dr. R. K. Godfrey from Wakulla Co.) reportedly “gave plants with procumbent terms (sic).” Jackson further noted that the Mexican plants, which he observed along the beaches of Veracruz, Mexico, were similarly decumbent perennials that root at the nodes. One must assume that Jackson knew what he was talking about, hence the comments of Clewell (1985), no doubt bowing to the judgment of Jackson to the effect that the Wakulla populations, which he took to be *I. asperifolia*, are “decumbent perennials rooting at the nodes;” Clewell further noted that the plants occur in tidal marshland and were “Probably introduced from Mexico.” I have also examined collections from the Florida populations concerned and they appear to be closer in **habit** to *I. asperifolia* than to *I. angustifolia*, as noted by Jackson.

Miao, Turner and Mabry (1995) examined chloroplast DNA variation in all species of *Iva*, except for the mostly Cuban, *I. cheiranthifolia*. Their study included all four species of sect. *Linearibractea* R.C. Jackson, which included *I. angustifolia*, *I. asperifolia*, *I. texensis*, and *I. microcephala*. Indeed, in their sequence divergence study the four species of sect. *Linearibractea* formed a tight

cluster, the most distinct being *I. microcephala*, which was found to be the most divergent member of the tetrad. The remaining three taxa were found to have few differences among them. In particular, the two herbaceous taxa, *I. angustifolia* and *I. asperifolia*, were found to differ by only one restriction site mutation. Unfortunately, DNA data for *I. asperifolia* was obtained from the Wakulla Co. population, which Jackson accepted as an introduction from the Mexican beaches. The taxonomic status of the latter population is controversial, as noted in the above. Considering the Pleistocene history of the southeastern U.S.A., it is possible that the Wakulla population is but an isolated relic of a once more widespread, highly variable, var. *angustifolia*, perhaps deserving of its own formal varietal name. Additional study of the *I. asperifolia* complex is clearly needed, especially from Tamaulipas where the two taxa presumably intergrade.

With the above as an introduction, I hasten to add that I also (Turner et al. 2003) recognized Texas populations of the *I. asperifolia* complex as *I. angustifolia*, largely following the work of Jackson. Unlike Strother, I did recognize the more robust, seemingly perennial, var. *laticor* of Shinners, with the assumption that it intergraded northwards along the shores of Texas into the typical var. *angustifolia*, as also noted by Jackson. I also believe that the var. *laticor* intergrades southwards along the Gulf beaches of Mexico into var. *asperifolia*. This suggested by a single intermediate, cited below. I provide herein a synopsis of the *I. asperifolia* complex as currently understood, along with a nomenclature that appears to fit the biology.

IVA ASPERIFOLIA Lessing, *Linnaea* 5: 151. 1830.

TYPE: MEXICO. VERACRUZ: **Mpio. Veracruz**, "In pascuis pr. Vera-Cruz." Jul. *Scheide* 332 (holotype B; fragment and drawing, GH).

Jackson (1960) provided a detailed description of the taxon, positioning it in his sect. *Linearbractea*.

Key to infraspecific taxa:

- 1. Plants annuals mostly 0.75 m high or less; south-central U.S.A. (Kan., Okla., Tex., Ark., La.).....var. **angustifolia**
- 1. Plants perennial herbs to 1.5 m high; Gulf Coastal dunes, southernmost Texas, northern Mexico and panhandle Florida.....(2)
- 2. Stems decumbent, rooting at the nodes; leaves mostly oblong-lanceolate; involucre without markedly spreading, broad-based hairs; coastal Tamaulipas and Veracruz, Mexico.....var. **asperifolia**
- 2. Stems stiffly erect, only rarely rooting at the nodes; leaves mostly lanceolate; involucre with markedly broad-based spreading hairs, rarely not; northern coastal Tamaulipas, Mexico, and southern Texasvar. **latior**

IVA ASPERIFOLIA var. **ANGUSTIFOLIA** (Nutt. ex DC.) B.L

Turner, **stat. & comb. nov.** Fig. 1

Based upon *Iva angustifolia* Nutt. ex DC., Prodr. 5: 529. 1836.

TYPE: U.S.A. ARKANSAS: without locality, *Nuttall s.n.* (holotype: G-DC; isotype NY)

Jackson (1960) provided an adequate account of this taxon, noting in his key the principal differences that distinguish it from var. *latior*, the latter being larger, mostly perennial, plants having somewhat larger involucre, the latter well endowed with spreading hairs. In my opinion, var. *angustifolia* grades into var. *latior* in regions of near contact, as noted below, hence their treatment as but populational variants (or variety) of a widespread *Iva asperifolia*.

Variety *angustifolia* is highly variable and, other than habit, is best recognized by a suite of characters, most having to do with the involucre, as noted below and by Jackson (1960).

IVA ASPERIFOLIA Lessing var. **ASPERIFOLIA** Fig. 1, 2

As noted in Figures 1 and 2 (based upon specimens at MEXU, TEX), this taxon is restricted to the Gulf Coastal area of northern Tamaulipas and Veracruz, Mexico, with an isolated population in

Wakulla Co., Florida. In Tamaulipas, Mexico, it seemingly grades into the var. *latior*, to judge from the following collection: Mpio. Altamira, *Dunas 856* (MEXU, TEX).

The taxonomic status of the Florida populations of var. *asperifolia* is in doubt. According to label data on *Godfrey 70060* (TEX), the Wakulla population occurs "On a large flat area into which spoils from dredging of the St. Marks River had been placed; very abundant; St. Marks." The DNA voucher of Miao et al. (1995) was obtained "In limestone piles of spoil, St. Marks, just west of end of county Road 363 and north of St. Marks River." Both of the aforementioned collections are seemingly perennial. The Godfrey collection has a capitulescence much resembling var. *angustifolia*; the Miao voucher (*Garland 751*, TEX) has an atypical capitulescence. Based on the DNA data from the latter voucher and the comments of Jackson (1960), it would appear that the Wakulla population is closest to var. *asperifolia*. Alternatively, it is remotely possible that the Wakulla populations represent a localized yet undescribed variety of *I. asperifolia*, as noted above.

IVA ASPERIFOLIA var. **LATOR** (Shinners) B.L. Turner, **comb. nov.** Fig.1

Based upon *Iva angustifolia* var. *latior* Shinners, Sida 1: 378. 1964.
TYPE: **U.S.A. TEXAS: Brooks Co.**, "south of Falfurrias." 15 Sep 1942, *Lundell & Lundell 11947* (holotype SMU; isotypes LL!)

Iva texensis R.C. Jackson, Univ. Kansas Sci. Bull. 41: 807. 1960.
TYPE: **U.S.A. TEXAS: Brooks Co.**, 8.1 mi S of Falfurrias along U.S. highway 281, 24 Aug 1957, *Jackson 2505* (holotype KANU; isotype SMU)

Jackson's *Iva texensis* was published prior to Shinner's var. *latior*; unfortunately nomenclatural priority is predicated upon rank; were the present taxon recognized as a species, its correct name would be *I. texensis*!

Variety *latior* is a perennial herb to 1.5 m high, largely confined to the Gulf Coastal region of Texas, mostly occurring in sandy

or clay dunes along the beach front; numerous collections are in the herbarium at TEX (35 from along the coastal areas of Cameron, Kenedy and Nueces counties).

The earliest collections of var. *latior* were made by Robert Runyon in Cameron County between the years 1924-1945 (TEX, LL). He noted that the taxon was sufficiently well known as to have received the local common name "Pelocote." And that the taxon occurs "only along sea shore as colonies on sand dunes;" and describes its habit as an "erect branched herb," or "fruticose herb." Nevertheless, it also occurs sporadically inland into the Tamaulipan Biotic Province of southern Texas, as indicated in Fig. 1. Occasional intergrades between var. *latior* and var. *angustifolia* in this area are discerned (e.g., Carr 22574, Refugio Co., TEX). The more strictly coastal populations of var. *latior* pass into var. *angustifolia* near Galveston, Texas, the latter becoming strictly taprooted annual herbs mostly 0.5 m high or less, having smaller involucre with mostly shorter appressed hairs.

As suggested by its dune-site proclivities in Kenedy and Cameron counties, it is almost certain that southwards var. *latior* grades into var. *asperifolia*, as suggested by the intermediate specimen cited above. Even among the Texas coastal populations, some degree of past introgression is likely, to judge from the variation in leaf shape and pubescence noted among the Cameron county populations.

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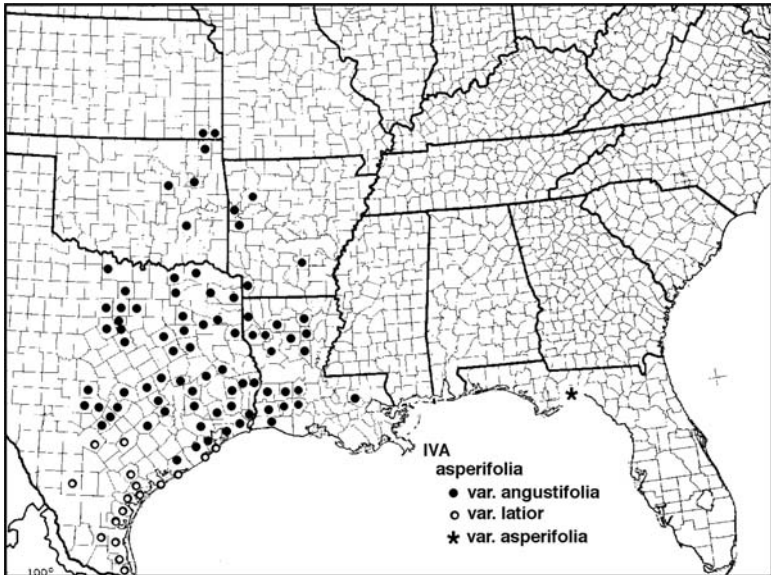


Fig.1. Distribution by county (and parish) of *Iva asperifolia* in the U.S.A.

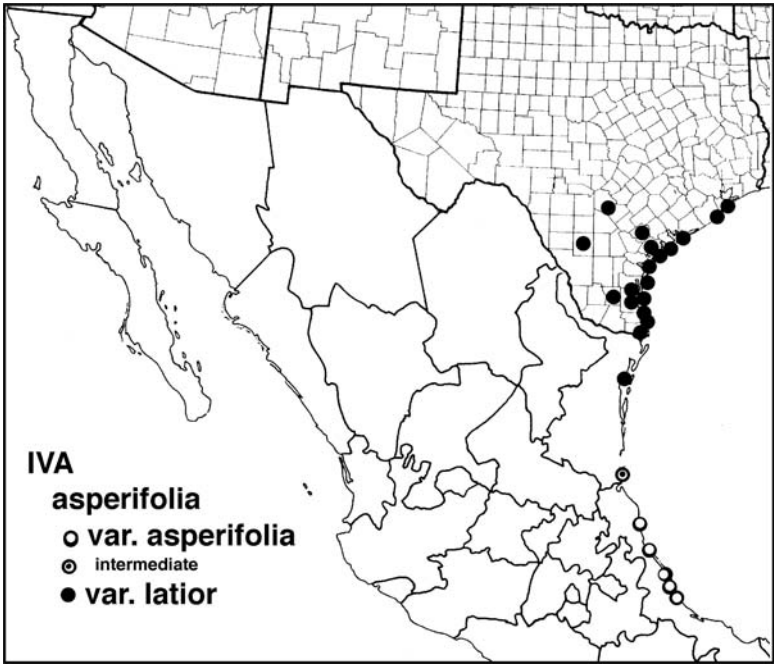


Fig. 2. Distribution of *Iva asperifolia* in Mexico.