

## KOSTELETZKYA TUBIFLORA (MALVACEAE): A NEW NAME BASED ON A SESSE & MOCINO PAINTING

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Within the genus *Kosteletzkya* Presl (Malvaceae) a few taxa from western Mexico which together comprise the section *Orthopetalum* Benth. are unique in having convolute, tubular corollas and strongly exerted staminal columns and styles. The most common of these species, *K. paniculata* Benth., must now be known under a new name as a result of the identification of the type of *Hibiscus tubiflorus* DC.

A. P. de Candolle (1824) described *H. tubiflorus* from a painting made during the Sessé and Mocino botanical expeditions in Mexico (Fig. 1). Unlike many of the *Icones Florae Mexicanae* in the de Candolle collection at Geneva, this painting, no. 83, is an original, not a copy (cf. A. de Candolle, 1874). It bears the original plate number (316) which was cited (under the name of *Hibiscus vitifolius* [Linnaeus]) in Sessé & Mocino's *Plantae Novae Hispaniae*, p. 112 (1889) and in ed. 2, p. 105 (1893). As was often the case in this work, the authors erroneously identified the Mexican plant with an Old-World Linnaean species. Nonetheless, the description provides important additional details about *Hibiscus tubiflorus*.

Among the tube-flowered Mexican Malvaceae, only the species in *Kosteletzkya* sect. *Orthopetalum* agree with the figure of *H. tubiflorus* in combining a depressed, 5-angled capsule with glabrous seeds and five style-branches. *Hibiscus spiralis* Cav., which is apparently endemic to the mountains immediately around Mexico City, differs from the figure in having an ovate capsule and hairy seeds. The various species of *Malvaviscus* differ in having ten style-branches and auriculate petals.

Within section *Orthopetalum* the species *K. paniculata* conforms most closely to the figure and descriptions in its general aspect and its hispid pubescence. This species (including *K. hibiscifolia* Standl.) extends from central Sinaloa and southern Durango southeastward to the western parts of the states of México and Guerrero (Fig. 2).<sup>1</sup> The three other names in section *Orthopetalum*, *K. madrensis* M. E. Jones, *K. thurberi* A. Gray and *K. malvaviscana* Rose, are typified by plants from further northwest in the canyons bordering the Sonoran Desert in Sonora and adjacent Chihuahua (Fig. 2). These three taxa, which probably represent a single species, differ from *K. paniculata* and both the painting and descriptions of *H. tubiflorus* in having fewer flowered, leafier inflorescences and shorter, mostly stellate pubescence.

Since these two distributions are separate, it was possible for us further to confirm the identity of *H. tubiflorus* by pinpointing the locality "in Mexici montibus Sancti-Hieronimi" cited by A. P. de Candolle. In the *Plantae Novae Hispaniae* the town

<sup>1</sup>Collections of this species at P are labelled as having been collected in Oaxaca by Ghiesbreght, but this may be questioned, as some of this collector's specimens supposedly from Oaxaca are known to have been erroneously labelled (cf. McVaugh, 1972). One specimen at P bears the statement "croit a Arumbaro." There is a locality called Arumbaro in northwestern Michoacán, about 35 km southwest of Zamora. Little is known about the details of Ghiesbreght's travels in western Mexico, but there are existing specimens credibly labelled as having been taken by him near the Nevado de Toluca, near Apatzingán, and near Colima. It is not impossible that he passed through Arumbaro. Galeotti, a collector who knew Ghiesbreght and on occasion travelled with him, also visited Arumbaro, which he located in Michoacán, "à 3,000 pieds" (Bull. Acad. Brux. 9, pt. 2: 385. 1842). In any event Mexican place-names ending in "-aro" are characteristic of northern Michoacán and adjacent Guanajuato and México, in an area well within the range of *K. tubiflora*.





FIG. 1. Type of *Hibiscus tubiflorus* DC. (Ic. Fl. Mex. 316 of Sessé & Mocino; plate 83 of the de Candolle collection at G-DC). Reproduced from Field Museum negative no. 30504.

of San Gerónimo ("oppidum Sancti Hieronymi") is said to be near Chilapa, [Guerrero], where the Botanical Expedition worked in 1789 during September, the month when "*Hibiscus vitifolius*" was said to be in flower (McVaugh, 1977). A list of the paintings (mss., MA) made during the so-called "Second Excursion," that to Guerrero in 1789, includes no. 316, under the name of *Hibiscus vitifolius*, thus strengthening the assumption that the locality in Guerrero is the one cited by de Candolle. San Gerónimo not only lies far to the southeast of the range of the Sonoran representatives of *Kosteletzkya* sect. *Orthopetalum*, but also more than 150 km





FIG. 2. Known distributions of taxa of *Kosteletzkya* sect. *Orthopetalum* in western Mexico. Dots, *K. paniculata*. Triangles, composite distribution of *K. thurberi*, *K. madreñsis* and *K. malvaviscana*. Star, *Hibiscus tubiflorus*. Distributions, except for *H. tubiflorus*, based on specimens examined at A, BH, CU, F, GH, MICH, MO, NY, US.

southeast of the nearest known localities for *K. paniculata* in Guerrero and México (Fig. 2). The Chilapa locality, however, is geographically a logical extension of the known range of *K. paniculata*. A rather surprisingly large number of species reported by Sessé & Mociño from Guerrero remained lost or not surely known until they were discovered through specific searches in recent years near Chilpancingo, Chilapa, Mazatlán, Acahuizotla, and other places near the route of the expedition. One example of this, also in the Malvaceae, is *Anotea flavida* (DC.) Ulbr. (Fryxell, 1968).

It is fortunate that the nearly inaccessible mountains of Michoacán, western Guerrero and southern México were carefully collected by G. B. Hinton. Without his eight collections of *K. paniculata* the gap between the Sessé and Mociño plant and the closest known neighboring population would be doubled to more than 300 km and might have cast some doubt on the identity of *H. tubiflorus*. As it now stands, the hiatus between the Chilapa locality and the nearest Hinton collection is no greater than between some populations in the northwestern part of the species' range. Undoubtedly



as the mountains of western and southern Mexico become more accessible to botanists, these gaps will be filled in.

The flower color of *H. tubiflorus* is consistent with its presumed eastern position within the range of *K. paniculata*. Sessé and Mociño described the flowers as pink ("pallide rubri") and A. P. de Candolle called them red, tinged with yellow ("ex flavo-rubra"). The most common color noted in *K. paniculata* by collectors is yellow, the pinks apparently being confined to that half of the species' range south and southeast of Lago de Chapala, and hence among the nearest known populations to the San Gerónimo locality.

***Kosteletzkya tubiflora* (DC.) O. Blanchard & McVaugh, comb. nov.** *Hibiscus tubiflorus* DC. Prodr. 1: 447. 1824. Type: Plate 83 of the de Candolle Collection (G-DC; cf. A. de Candolle, 1874), constituting Ic. Fl. Mex. 316 of Sessé & Mociño.

There is a specimen (sheet no. 3563) in the Sessé & Mociño herbarium at Madrid labelled *Hibiscus vitifolius*, and another at BM (ex herb. Lambert ex Pavón ex Sessé & Mociño) labelled "*Hibiscus vitifolius* de Mexico." Both of these are *Kosteletzkya tubiflora*. Probably the specimen at MA should be regarded as the typotype. Sessé & Mociño, as far as we know, did not attempt to secure herbarium material of every species from different localities, instead concentrating upon the search for species never before described, painted, and collected. We suppose the herbarium material of "*Hibiscus vitifolius*" may have been collected at the same time the painting was made, but in the absence of locality-data on the specimens themselves we cannot prove this. In the *Plantae Novae Hispaniae*, Sessé & Mociño cited no definite locality for *Hibiscus vitifolius*.

On the few occasions when *H. tubiflorus* was dealt with by subsequent authors it was placed among, or in synonymy with species in *Hibiscus* sect. *Bombicella*, near *H. pilosus* (Swartz) Fawc. & Rendle (Gray, 1897; Hochreutiner, 1900; Standley, 1923); or it was identified with *H. clypeatus* L. (Millspaugh, 1895; cf. Blanchard, 1976). In identifying this plant with *H. vitifolius* L., Sessé and Mociño reflected the often noted similarity of *Kosteletzkya* to species in *Hibiscus* sect. *Pterocarpus* Garcke. Indeed Mattei (1917) described a new genus *Fioria* to accommodate *H. vitifolius* and a few related Old-World *Hibiscus* species, stating that *Fioria* was intermediate between *Hibiscus* and *Kosteletzkya*. Recent evidence has shown that the genus *Kosteletzkya* is cytologically distinct from *Fioria* (Blanchard, 1974).

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