

BEGONIA NOMENCLATURE NOTES. 4

The Lectotypification of *Begonia obliqua* Linnaeus
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The Species of the Begoniaceae, edition 2, 1974, by Fred A. Barkley and Jack Golding is a compendium of the published names and the published synonymy for the species and therefore continues the errors from the literature. I have been reviewing the literature to verify or correct the citations and their synonymy. My determinations will be published in this series, "*Begonia* Nomenclature Notes."

INTRODUCTION

The correct identity of *Begonia obliqua* Linnaeus has been very confused in the literature, but by following the principles of typification required by the International Code of Botanical Nomenclature, the name *Begonia obliqua* Linnaeus can be applied only to the Plumier species, *Begonia purpurea, nivea, et rosea, maxima, folio aurito*, the largest, red, white, and rose [flowered] *Begonia*, with eared leaf.

The lectotype for *Begonia obliqua* could be determined only after a thorough study and understanding of Linnaeus and his methods. Fortunately, as a guide, we have the excellent analysis of Linnaeus by William T. Stearn in his introductions to *Species Plantarum* ed. 1 (1753) 1957 reprint, and *Genera Plantarum* ed. 5 (1754) 1960 reprint.

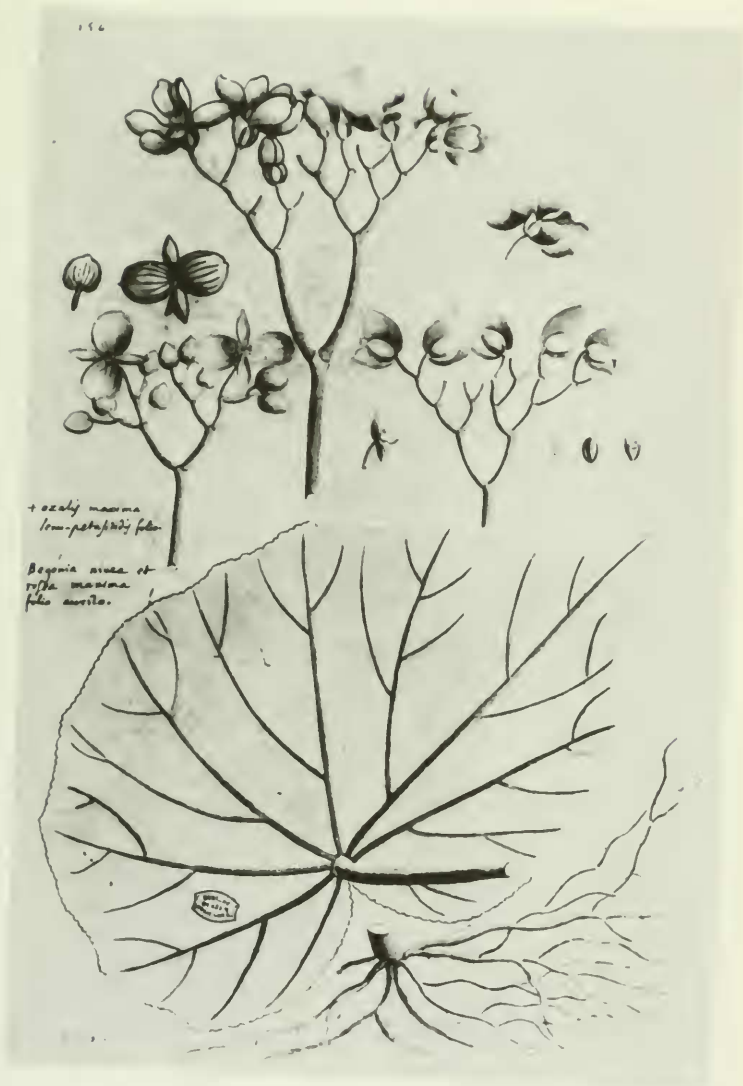
SPECIES PLANTARUM

The start of the search for the lectotype began with the initial citation for the *Begonia obliqua* Linnaeus in *Species Plantarum* ed. 1. 2: 1056. 1753.



Composite of the Plumier drawings *Begonia nivea et rosea maxima, folio aurito* and *Begonia purpurea maxima, folio aurito*.

Figure 1



Begonia nivea et rosea maxima, folio aurito Plumier
mss. "Botanicon Americanum" 3: pl. 6. 1689-97;
Haegeman, *Tuberous Begonia* 15. fig. 7. 1979.

Typotype of

Begonia obliqua Linnaeus, *Species Plantarum* 2: 1056.
1753.

Figure 2



Begonia purpurea maxima, folio aurito Plumier, mss.
 "Botanicon Americanum" 3: pl. 5 fig. 1. 1689-97;
 Haegeman, *Tuberous Begonias* 10. fig. 2. 1979.
 = *Begonia obliqua* Linnaeus, *Species Plantarum* 2: 1056.
 1753.

Figure 3



Begonia purpurea maxima, folio aurito Plumier, mss.
 "Botanicon Americanum" 3: pl. 5 fig. 2. 1689-97;
 Haegeman, *Tuberous Begonia* 15. fig. 8 1979.
 = *Begonia obliqua* Linnaeus, *Species Plantarum* 2: 1056.
 1753.

Figure 4

Linnaeus, *Species Plantarum* ed. 1. 2: 1056. 1753.

1056 POLYGAMIA DIOECIA.

BEGONIA.

- obliqua* 1. BEGONIA.
 Begonia nivea maxima, folio aurito. *Plum. spec.* 21.
 Aceris fructu herba anomala, flore tetrapetalo albo.
Sloan. jam. 83. *hist.* 1. p. 199. t. 127. f. 1. 2.
 Begonia purpurea maxima, folio aurito. *Plum. spec.* 20.
 β. Begonia, roseo flore, folio aurito, minor & glabra.
Plum. spec. 20.
 γ. Begonia, roseo flore, folio aurito, minor & hirsuta.
Plum. spec. 20.
 δ. Begonia roseo flore, folio orbiculari. *Plum. spec.* 20.
 ε. Begonia roseo flore, foliis acutioribus auritis & late crenatis. *Plum. spec.* 20.
 ζ. Begonia hirsuta, flore albo, folio aurito, fructu crenato. *Barr. æquiu.* 21.
Habitat in America meridionali.
 Folia cordata altero latere obliuato

Note: Linnaeus copies the phrase name of Barrere incorrectly---... *fructu crenato* should be *fructu coronato*.

Translation

1. *Begonia obliqua*

The largest, white [flowered] *Begonia*, with eared leaf. Plumier, *Catalogus Plantarum Americanarum* 21. 1703.

Irregular [leaved] herb with bitter fruit, with white four-petaled flowers. Sloane, *Catalogus Plantarum Quae in Insula Jamaica* 83. 1691; *Natural History of Jamaica* 1: 199, pl. 127 f. 1 & 2. 1707.

The largest, red [flowered] *Begonia*, with eared leaf. Plumier, *Cat. Pl. Amer.* 20. 1703.

beta - *Begonia* with rose flower, eared leaf, smaller and glabrous. Plumier, *Cat. Pl. Amer.* 20. 1703.

gamma - *Begonia* with rose flower, eared leaf, smaller and hirsute. Plumier, *Cat. Pl. Amer.* 20. 1703.

delta - *Begonia* with rose flower, round leaf. Plumier, *Cat. Pl. Amer.* 20. 1703.

epsilon - *Begonia* with rose flower, leaves more acute and broadly crenate. Plumier, *Cat. Pl. Amer.* 20. 1703.

zeta - *Begonia* with coarse stiff hairs, white flower, eared leaf, fruit crowned. Barrere, Essai sur l'Histoire Naturelle de la France Equiniale. 21. 1741.

It grows in Southern America

Leaf cordate with one of the sides weakly developed.

Following the methods of Linnaeus this format is examined:

Begonia-- the generic name, which is described in *Genera Plantarum* ed. 5. 495. 1754.

The generic name was usually followed by the *nomen specificum legitimum*; i.e., the specific differential character by which Linnaeus identified the individual species. But when he considered a genus to comprise a single species, as he did *Begonia*, it was omitted because he considered the generic character alone sufficient to define it.

The *nomen triviale, obliqua*, is inserted in the margin. This is the specific epithet of modern nomenclatural terminology.

The synonymy and literature citations were listed next. For the primary element, he listed two species of Plumier and one from Sloane. Additional synonymy was listed as varieties beta thru zeta; they were the other four species of Plumier and one from Barrere.

The habitat is listed.

Finally he completed the protologue with either a brief description or, as in this case, a diagnostic note which is essentially an amplification of the specific name: *Folia cordata altera latere oblitterato*-- in modern phraseology, obliquely cordate leaf.

Linnaeus made several additions to the *Begonia* citation in *Species Plantarum* ed. 2. 2: 1497-8. 1763. Edition 3 (1764) is merely a reprint.

Linnaeus, *Species Plantarum* ed. 2. 2: 1497-8. 1763.

POLYGAMIA MONOECIA. 1497

BEGONIA.

1. BEGONIA. obliqua.
Begonia nivea maxima, folio aurito. *Plum. spec.* 21.
ic. 45 f. 1.
Rumex sylvestris scandens, foliis cordato-angulatis ab
 altera parte majoribus. *Brown jum.* 203.
Aceris fructu herba anomala, flore tetrapetalo albo.
Sloan jum. 83. *hist.* 1. p. 199. t. 127. f. 1 2.
Begonia purpurea maxima, folio aurito. *Plum. spec.* 20.
 B b b b 5 Empe-

1498 POLYGAMIA MONOECIA.

- Empetrum acetosum*. *Rumph. amb.* 5. p. 457. t. 169
 f. 2.
 β. *Begonia*, roseo flore, folio aurito, minor & glabra:
Plum. spec. 20. *ic.* 45. f. 3.
 γ. *Begonia*, roseo flore, folio aurito, minor & hirsuta.
Plum. spec. 20. *ic.* 45. f. 2.
 δ. *Begonia* roseo flore, folio orbiculari. *Plum. spec.* 20:
ic. 45.
 ε. *Begonia* roseo flore, foliis acutioribus auritis & late
 crenatis. *Plum. spec.* 20. *ic.* 45. f. 3.
 ζ. *Begonia* hirsuta, flore albo, folio aurito, fructu cren-
 uato *Barr. equin.* 21.
 .. *Habitat in Indiis.* 21.
 * *Folia cordata altero latere oblitterata.*

References to Plumier in Burman, *Plantarum Americanarum* 2: 34. pl. 45 f. 1, 2 & 3 (1756) and the following synonyms were added:

Rumex sylvestris scandens, foliis cordato-angulatis ab altera parte, majoribus Brown, Civil and Natural History of Jamaica 203. 1756. (*Rumex* of the woods climbing, with the leaves cordately angled, with the second part larger.)

Empetrum acetosum Rumphius, *Herbarium Amboinense* 5: 457. pl. 169 f. 2. 1747.

GENERA PLANTARUM

The study of Linnaeus's methods for the compilation of *Genera Plantarum* has shown that many genera have descriptions that have clearly been drawn from a single species and this is true for *Begonia*.

Genera Plantarum ed. 5. 475. 1754.

POLYGAMIA MONOECIA. 475

102. ♀. BEGONIA. † *Tournef.* 442.

• *Masculus Flos.*

CAL. nullus: nisi Corollam d'cas.

COR. tetrapetala, patens, regularis: *Petala duo opposita* lanceolata; *duo reliqua* ovata, emarginata, latiora.

STAM. *Filamenta* numerosa, corolla breviora, capillaria. *Antherae* subrotundae.

PIST. caducum.

• *Hermaphroditus Flos* in eadem planta cum Masculis.

CAL. nullus, ejus vices gerit Germen.

COR. *Petala* quinque, obcordata, oblonga, patentia.

STAM. *Filamenta* numerosa, corolla breviora, capillaria. *Antherae* subrotundae.

PIST. *Germen* sub receptaculo, triangulare *angulis* membranaceis, tricuspidatum, erectum. *Styli* tres, bifidi, longitudine flammam. *Stigmata* globosa.

PER. triangulare, triloculare: tribus *alis* longitudinalibus.

SEM. numerosa, parva.

OBS. *De numero staminum, de pericarpii specie* (HM. *baccas* *connatas*.) *De pistillo masculi floris, nil certi scimus.*

Hermaphrodito petala quatuor *adscribit* Rumphius.

Translation

1024 *Begonia* (known from herbarium material) Tournefort,
Institutiones Rei Herbariae 1: 660, p^l. 442.
1700.

Male Flower

Calyx - none: only the corolla mentioned.
Corolla - four-petaled, spreading, regular.
two opposite petals lanceolate, the remaining
two ovate, emarginate, wider.
Stamens - filaments numerous, shorter than the
corolla, threadlike. Anthers - almost round.
Pistil - caducous.

Hermaphrodite Flowers, on the same plant with the male.

Calyx - none, instead of which it carries an ovary.
Corolla - petals five, obcordate, oblong, spreading.
Stamen - filaments numerous, shorter than the
corolla, threadlike. Anthers almost round.
Pistil - ovary below the receptacle, triangular,
the angles membranous, with three cusps, erect.
Styles, three, bifid, the same length as the
stamens. Stigma spherical.
Fruit - triangular, three-celled, with three
longitudinal wings.
Seeds - numerous, small.

Observations:

We know nothing with certainty concerning the
number of stamens, the kind of fruit (berries
illustrated in *Hortus Malabaricus*), and the
pistils of the male flowers.

The hermaphrodite flowers with four petals from
the writings of Rumphius.

From this description, it is obvious that Linnaeus
did not understand the true nature of *Begonia* flowers
(monoecious and unisexual) but placed them in his class
Polygamia Monoecia (monoecious but with some herma-
phrodite flowers).

Begonia was not placed in his correct class *Monoecia Polyandria* until *Supplementum Plantarum* 419 (1781), which contains some of Linnaeus's last writings edited, published, and amended by his son.

Previous authors have shown that once Linnaeus drafted a generic description he often left it unchanged from edition to edition of *Genera Plantarum*. A study of all the editions showed this to be true for *Begonia*. The only changes from the original listing in ed. 1: 360 (1737) was the addition of the dagger symbol starting with ed. 2: 516 (1742), the elimination after edition 4 of the literature reference "*vide H.H. IX 86,*" and beginning in ed. 5: 475 (1754) the addition at the end of his observation the note, "*Hermaphrodito petala quatuor adscribit Rumphius.*"

In the preface to *Species Plantarum* Linnaeus implied he had studied various herbaria. But the records indicate that he did not have time for more than a superficial look at them. Listed among those he saw was the herbarium of Bernard de Jussieu, which had specimens collected by Joseph Surian, who accompanied Plumier to the West Indies.

At the United States National Herbarium, searching for herbarium material that might have been seen by Linnaeus, I studied photographs of various herbarium specimens at the Paris Museum.

In the *Begonia macrophylla* Lamarck files were the most interesting photographs, No. 305 (Fig. 5) and its companion No. 879 (Fig. 6). Unfortunately the handwriting on the specimen is very faint, but what I could read is as follows, with the dots representing unreadable words:

Handwriting to left of stem,
"*Begonia maxima folio aurito purpurea* Plumier S T.3."

Handwriting to right of stem,
"*Oxalis Sylvarum major, americana folio sylvestris... nato carnosio, floribus umbellatis, colore varias nivea aut... ..purpureo...aut coccino aut rubro pallientis(?)... Calayou oxicardia* Surian 196 Swelle Karke...
Begonia nivea maxima folio aurito Pl. Sp. 21... t3 5)...*folio...in Valle Mart.(?)...*

The number to right of stem is 196, (the Surian collection number) and at the bottom is "*vide n. 879.*"



Paris Museum Photograph No. 305
(Courtesy United States National Herbarium)

Figure 5



Paris Museum Photograph No. 879
(Courtesy United States National Herbarium)

Figure 6

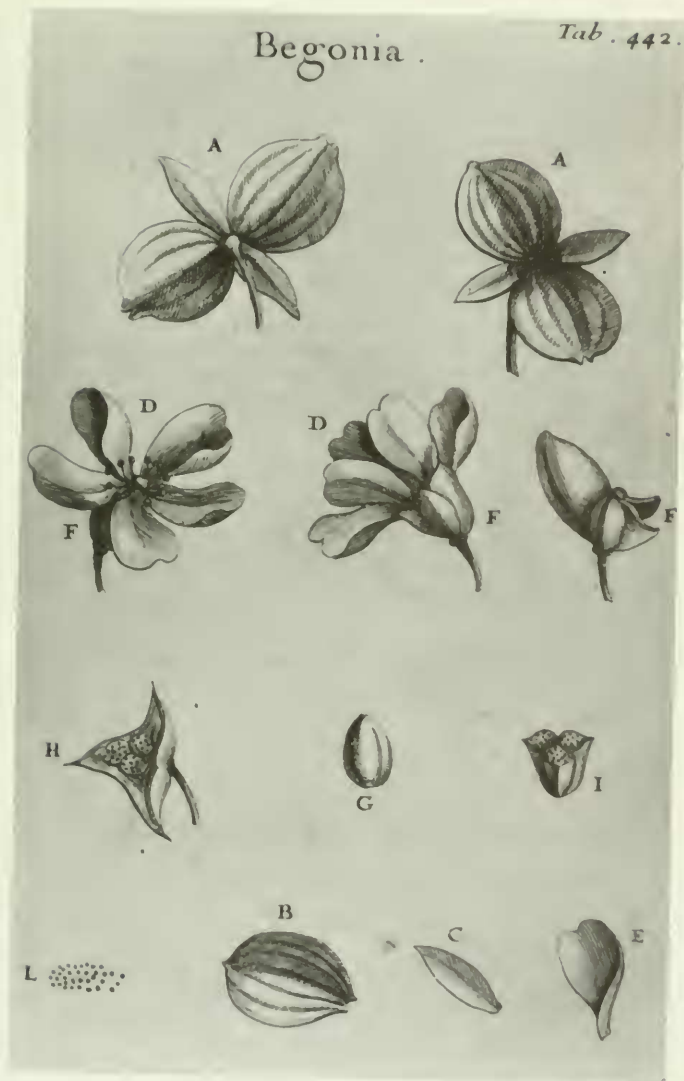
The specimen No. 879 is of the inflorescence and also has the Surian number 196.

In the lower right hand corner, it is labeled:

Begonia purpurea et nivea maxima folio aurito Plum.
Oxalis maxima Petasitides folio
apud
Begonia nivea flore, folio aurito minor et glabra
Plumier

It is possible that Linnaeus saw these or other specimens in the Jussieu Herbarium and then added the dagger symbol in edition 2 (1742). But since he made no other changes in the generic character of *Begonia*, it is not logical that he could have studied the herbarium specimens and still not correct his erroneous understanding of *Begonia* flowers.

I consider this convincing evidence that Linnaeus did not determine his generic character for *Begonia* from herbarium material, but only from the literature he cited in edition 1 (1737): Tournefort, *Institutiones Rei Herbariae* app. 660. pl. 442 (1700) and Rheede, *Hortus Malabaricus* 9: 167. pl. 86 (1689). The Rheede citation was eliminated in edition 5 (1754), possibly because it did not conform to his description of the genus *Begonia*, its "hermaphrodite" flowers has only three petals.



Tournefort, *Institutiones Rei Herbariae*
 app. 660: pl. 442. 1700.
 (Courtesy Hunt Institute for Botanical Documentation)

Figure 7

660 INSTITUTIONES REI HERBARIÆ.

Begonia.

Tab. 444.

BEGONIA est plantæ genus, auctore Clariss. Plumerio, flore gemino, alio scilicet sterili A, ex quatuor petalis amplioribus B & angustioribus C composito: alio verò rosaceo D ex plurimis petalis E in orbem positis constante & calyci foliato F insidentibus: is autem deinde abit in fructum G trigonum, alatum H, in tria loculamenta I divisum, feminibusque factum exiguis L.

Begoniæ species sunt.

Begonia purpurea, maxima, folio aurito Plum.

Begonia rosæ flore, folio aurito, minor & glabra Plum.

Begonia rosæ flore, folio aurito, minor & hirsuta Plum.

Begonia rosæ flore, foliis acutioribus, auritis & latius crenatis Plum.

Begonia rosæ flore, folio orbiculari Plum.

Begonia nivea, maxima, folio aurito Plum.

Begoniam appellavit Clariss. Plumerius tanquam perenne observantiæ suæ monumentum erga Illustriss. virum D D. *Bégon*, Regi ab intims consiliis & Rei nauticæ Præfectum in orâ Santonum.

Translation

Begonia

Begonia is a genus of plants from the most renowned author Plumier. With two flowers, one evidently sterile, Fig. A; composed of four petals, the larger as in Fig. B, the narrower as in Fig. C; the other, however, with the petals arranged like a rose, Fig. D; with most petals as in Fig. E; placed in a ring and situated on the calyx provided with leaves [bracts], Fig. F; but it is then gone in the three-cornered fruit, Fig. G; wings, Fig. H; divided into three cells, Fig. I; and the little fertile seed, Fig. L.

The species of *Begonia* are:

The largest, red [flowered], *Begonia*, with eared leaf Plumier.

Begonia with rose flower, eared leaf, smaller and glabrous Plumier.

Begonia with rose flower, eared leaf, smaller and hirsute Plumier.

Begonia with rose flower, leaves more acute, eared, and broadly crenate Plumier.

Begonia with rose flower, round leaf Plumier.

The largest, white [flowered] *Begonia*, with eared leaf Plumier.

The most renowned Plumier named *Begonia* as a memorial of his lasting respect toward the most celebrated gentleman Begon, royal official and superintendent of marine affairs on the coast of Saintoge (S.W. France).

Linnaeus used the work of Tournefort as a foundation for his generic descriptions. Tournefort based his classifications mainly on the form of the corolla, he neglected the stamens because he did not understand their sexual functions. Linnaeus, however, being very aware of the true nature of stamens and pistils, built his "sexual system" of classification on them.

From the study of Tournefort's plate 442 and the description, it is not possible to determine the details concerning the stamens and pistils of the flowers illustrated because they were drawn the same in both flowers, A and D. The other citation--Rheede, *Hortus Malabaricus* 9: 167. pl. 88 (1689)--is for the plant called *Tsjeria-narinampuli*. From the illustration it is difficult to determine any detail of the stamens and pistils. But in the text Rheede refers to both male and hermaphrodite flowers.

Linnaeus had also seen Sloane's *History of Jamaica* and recognized *Aceris fructu herba anomala, flore tetrapetalo albo* from *Natural History of Jamaica* 1: 199, pl. 127 f. 1 & 2 (1707), as a *Begonia*. It has a good description of the staminate flower, but no details concerning the other flower, just a description of the capsule. The illustration is of one leaf and the capsule.

Linnaeus, probably influenced by Rheede, placed *Begonia* in his class *Polygamia*. But his observation after the *Begonia* description in *Genera Plantarum* indicates he was not completely satisfied with the decision. He most likely planned to check this again, but probably never had the time

PLUMIER'S MANUSCRIPT

Tournefort's knowledge of the genus *Begonia* came from the unpublished drawings and manuscript of Plumier, "Botanicon Americanum Seu Historia Plantarum in Americanis Insulis Nascentium" 1689-1697. These original drawings and manuscripts are now in the Museum d'Histoire Naturelle in Paris (Stafleu, *Tax. Lit.* 360. 1967). Photographs of the *Begonia* drawings in Volume 3 were published in Haegeman, *Tuberous Begonias* 10-15. pl. 2-6. 1979.

I am grateful to J. Haegeman for sending me copies of these photos which he obtained from the Paris Museum. The figures numbers 2, 7 and 8 in his book *Tuberous Begonia* are reproduced here as figures 2, 3 and 4.

Figure 2 is *Begonia nivea et rosea maxima, folio aurito* Plumier, mss. "Botanicon Americanum" 3: pl. 6. 1689-97; Haegeman, *Tuberous Begonias* 15. fig. 7. 1979. The original is a color plate depicting the details of the leaf, roots and flowers. Originally, this drawing was labeled by Plumier "+ *oxalis maxima semipetasitidis folia*" [Largest Oxalis with leaf almost like the Petasites]. The + before the name indicates that the identity was uncertain. Below this, he wrote *Begonia nivea et rosea maxima folio aurito*. This drawing has the number 156 in the upper left corner.

Figure 3 is *Begonia purpurea maxima, folio aurito* Plumier, mss. "Botanicon Americanum" 3: pl. 5 fig. 1. 1689-97; Haegeman, *Tuberous Begonias* 10. fig. 2. 1979. This black and white plate shows the habit and general arrangement of the flowers and capsules. The numbers 257-266 are in the lower left corner. Some additional information under the phrase name has been blocked off.

Figure 4 is *Begonia purpurea maxima, folio aurito* Plumier, mss. "Botanicon Americanum" 3: pl. 5 fig. 2. 1689-97; Haegeman, *Tuberous Begonias* 15. fig. 8. 1979. The original plate is a colored rendition of the central portion of Fig. 3 showing the habit. There is a number 192 in the upper right hand corner. There was some writing in the lower right hand corner of the drawing that was blocked off.

PLUMIER'S MANUSCRIPT

A copy of Plumier's manuscript description of *Begonia purpurea et nivea, maxima, folio aurito*, with my transcription and translation follows:

Excerpt from Plumier manuscript "Botanicon Americanum
Seu Historia Plantarum in Americanis Insulis Nascentium"
prepared between 1689 and 1697.

Begonia purpurea et nova, Mexicana, folio cordato.

Petalidium nephitum faciem quam proxime emulatur
humida planta elegantissima aspectuque mundissima foret. cuius
sane aspectus mihi plerumque Coleriarum plantarum quas apud
insulas Americanas observaverim, semper arrisit, tum propter
foliorum nitorem splendorem et situm, tum propter ipsorum flo-
rum amarum ruborem aut candorem niveum, et ditiosionem.

planta est igitur aut rivulorum aut sylvarum montosarum ut
humidarum amans, cuius radices nullum fibrosas, ramosa, multumque
graminum infra repens et diffusa, unde cauliculi quidam prodeunt
semidigiti formae fere Crassi et folia multa petalidii formam
formam fere et amplitudinem obtinentia nisi unum ipsius Cassij
Latus in amplam auriculam extenderetur. Singula haec folia
cornosa sunt et aculearum respectum instar acida, subius albicantia
costisque multas eminentibus nervosa, desuper vero glabra, saltem sed
splendide virore polita, fuscaque exiguis ex oppositis Costarum nervis
insculpta

Cauliculi ipsi rotundi sunt unius, crassi subicundi fragiles
et gemulati, non nullum albi, ad singulos gemulos unius folio
instructi ram dicto, et in pedamentum descendentes paulo magis semi-
pedem altum, tuberosi unilium, et multoties in ramusculos bifurcos
divisum ita ut flores ipsi qui singulis ultimis ramusculis insident
umbellam consistere videantur elegantissimam. Flores autem aut
steriles sunt aut fertiles. hi ab sterilibus separantur in eadem
planta in pedamento peculiariter, rosaceique sunt quinque sulcat
petalis ovatis semi pollicem longis, aut roseis aut niveis, in orbem
prospici, stamina quaedam cum apicibus suis aureis, circumdantibus et
Calyce insidentibus virgati et anguloso. qui Calyx ab utroque deinde in
fructum membranaceum ^{sublongo} triangularem et bracteatum (una ex alijs
magis alijs extensa) in tria locamenta divisum, semibus facta
exiguis per fissuram quandam dilabentibus

Flores vero steriles, fere cruciformes insunt licet
rosacei, quatuor etenim conflant petalis motem equidem prospici
sed inaequalibus, duobus scilicet maioribus et oppositis, duobus alijs
minoribus etiam oppositis et ad angulos reclusos tum maioribus, long
filis). maiora ovata sunt et ungulam pollicis fere ampla,
minora angusta et acuminata utraque staminula quaedam aurea
et profusa.

plantam nullibi reperiri ^{mihi} apud insulam Martinicam
Caran, specus fluviolum Ardem Divi petri prolatabentem et
locus illum montem qui vulgo Le morne de la Calabasse
nuncupatur

Transcription

Begonia purpurea et nivea, maxima, folio aurito

Petasitidum nostratum faciem quam primun aemulatur Hujusce plantae elegantissimae aspectuque jucundissimae facies. Cuius sane aspectus mihi plusquam caeterarum plantarum quas apud insulas Americanas observai enim, semper ami sit, tum propter foliorum nitorem splendens et situm, tum propter ipsorum florum amoenum rubrum roseum aut candorem niveum dispositionem.

Planta est igitur aut rivulos aut sylvas montosas et humidam amans, cuius radices multum fibrosa, ramosae multumque graminum instar repentes et diffusae, unde cauliculi quidam prodeunt semidigitum fere crassi et folia multa petasitidum nostratum formam fere et amplitudinem obliuentia nisi unum ipsius basis latus in amplam auriculam extenderetur. Singula haec folia carnosae sunt et acetosarum nostratum instar acida, subtile albicantia costisque multum eminentibus nervoso desuper vero glabra, saturo sed splendens virere polita, subtileque exiguis ex opposito costarum insculpta.

Caulicului ipse rotundi sunt uniti, eviridi rubicundi fragiles et geniculati, non multum alti, ad singulos geniculos unico folio instructi jam dicto, et in pedamentum desinentes paulo magis semi-pedem altum, rubens centrum et multoties in ramusculos bisurculos divisum ita ut flores ipsi qui singulis ultimis ramusculis insident umbellam conspicuere videantur elegantissimam. flores autem aut steriles sunt aut fertiles. sui ab sterilibus separantur in eadem plantae in pedamento peculiari, rosaceique sunt, quinque scilicet petalis ovatis semipollicem amplis, aut roseis aut niveis, in orbem positis, stamina quaedam cum apicibus suis aureis circumdantibus et calyci insidentibus virenti, et anguloso. qui calyx abit deinde in fructum membranaceum fulvum triangulatum et trialatum. (una ex alis magis aliis extensa) in tria loculamenta divisum, seminibus foeta exiguis per fissuram quandam dilabentibus.

Flores vero steriles, fere cruciformes insunt licet rosacei, quatuor etenim constant petalis in orbem equidem positis sed inaequalibus, duobus scilicet majoribus et oppositis, duobus aliis minoribus etiam oppositis et ad angulos rectos cum majoribus,

constitutis, majora ovata sunt et unguulum pollicis fere ampla, minora angusta et acuminata circaque staminula quaedum aurea ad posita.

Plantam nullibi reperi mihi apud insulam martinicanum, secus fluviulum arcem divi petri praeterlabentem et versus illum montem qui vulgo Le morne dela Calebasse nuncupatur.

Translation

The largest, red, and white [flowered] *Begonia*, with eared leaf.

Although at first emulating the appearance of native Petasites this plant has a most elegant appearance and delightful form. The very appearance of it is more [attractive] than the rest of the plants which were observed in the writings of the American Islands, always lovely, not only because of the brilliance and arrangement of the glossy leaves but also because of the regular arrangement of the beautiful flowers themselves, red, rose, or pure snow white.

The plant is then either of streams or mountain woods and loving moisture, the roots of which are very fibrous and very branched, creeping and spread out like grass, whence grow small stems almost a half finger thick and laden with many leaves almost the form and size of the native Petasites, except one of the sides of the base extended like a large ear. The leaves are fleshy, of an acid flavor like the native sorrel, whitish below with many veins from the projecting midrib, but above glabrous, deeply yet shining polished green and with weak sunken markings below opposite the midrib.

Its small stems are round, united, reddish green, brittle and geniculate, not very tall, provided with one leaf to each node, leaves already described, and ending in peduncles a little more than 1/2 foot high, reddish at the center and many times divided into small branches with two shoots, in such a way that the flowers themselves, which are arranged one on each of the final branchlets in an umbel, appear most elegant to behold. The flowers are either sterile [male] or fertile [female], itself separated from the sterile in the same plant, on its own peduncle; like the flower of a rose, there are five ovate petals, large as half an inch, either rose or snow white, placed in a circle, some

cylindrical stamens with golden yellow tips, and situated on a green calyx with prominent angles, which calyx vanishes thereupon into membranous tawny fruit three-angled and three-winged (one more extended than the others) divided in three projecting chambers, the seeds fertile, little, fissured all over then falling asunder.

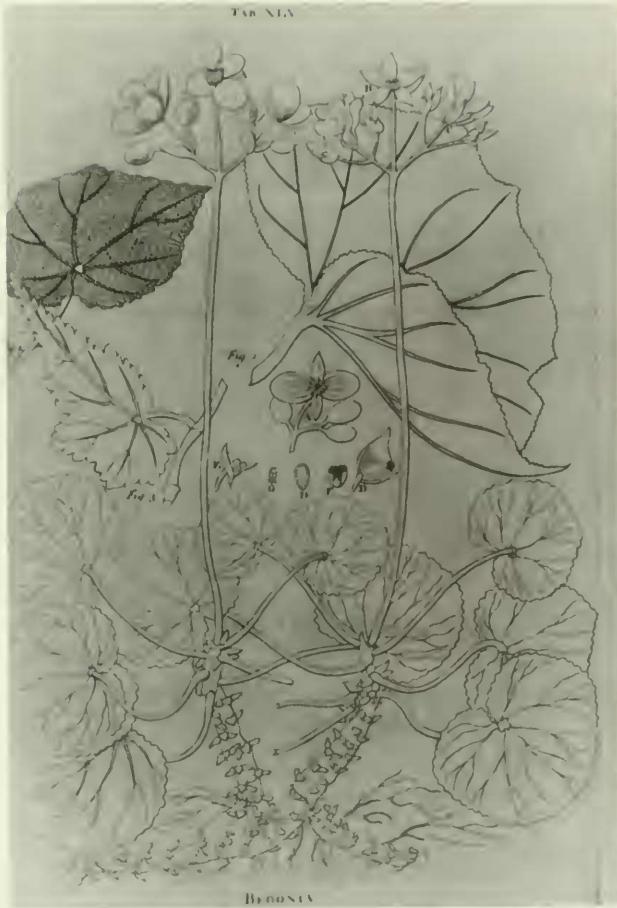
The truly sterile flowers are for the most part cross-shaped although some like the flower of a rose, since four uniform petals are placed equally in a circle, yet most are unequal with two evidently larger and opposite with two of the others certainly smaller opposite and arranged at an upright angle with the larger ones. The larger are ovate and about as large as a thumb ring, smaller ones narrower and acuminate, placed around some golden yellow stamens.

This fine plant was found by me on the nearby Island of Martinique along the rich curves of the little river flowing past rocks and towards that mountain commonly called Le morne dela Calebasse.

Plumier identified his drawing Fig. 2 by the phrase name *Begonia nivea et rosea maxima folio aurito*; the drawing Fig. 3 by the phrase name *Begonia purpurea maxima, folio aurito*; and his manuscript with the title *Begonia purpurea et nivea, maxima, folio aurito*. In his *Catalogus Plantarum Americanarum* on page 20, he listed *Begonia purpurea, maxima, folio aurito* and on page 21, *Begonia nivea, maxima, folio aurito*.

Plumier described the flowers as reddish, rose and white. There is confusion concerning the exact color intended by the adjective *purpurea* as indicated by this definition in Lewis & Short, *Latin Dictionary*, "purple-colored, purple, including very different shades of color as red, reddish, violet, brownish, black...." We know *Begonia* does not have purple flowers, so from the manuscript, I deduce that Plumier used *purpurea* as a synonym for *ruber*, red.

It is clear that Plumier considered his three drawings, Figures 2, 3 and 4 to be the same species, which is best designated as *Begonia purpurea, nivea, et rosea, maxima, folio aurito*.



Plumier, *Plantarum americanarum* 2: Plate 45. 1756.

- MAIN FIG. *Begonia roseo flore, folio orbiculari*
Plumier. = *Begonia rotundifolia* Lamarck.
- FIG. 1. *Begonia purpurea et nivea maxima, folio aurito*
Plumier. = *Begonia obliqua* Linnaeus.
- FIG. 2. *Begonia roseo flore, folio aurito, minor et*
hirsuta Plumier. = *Begonia repens* Lamarck.
- FIG. 3. *Begonia roseo flore, foliis acutioribus*
auritis, et late crenatis Plumier. = *Begonia*
plumieri A. DC.

(Courtesy Hunt Institute for Botanical Documentation)

Figure 8

A study of the Tournefort Plate 442 (Fig. 7) shows that the details are an almost exact copy of the details of the Plumier drawing Plate 6 (Fig. 2).

Copies of the Plumier drawing were made by Claude Aubriet in 1733 for Herman Boerhaave and are known as "Codex Boerhaavianus." Included in this series was Plate 123, *Begonia purpurea maxima folio aurito* and Plate 124, *Begonia nivea maxima folio aurito*. I. Urban, "Plumiers Leben und Schriften" *Repert. Sp. Nov.* 5:45 (1920), noted that these plants differed only by the color of the flowers. I had wanted to include copies of these two plates here, but unfortunately, I was unable to procure them from the Library at Groningen. I assume Plate 123 is a copy of the original drawing in Plumier's manuscript "Botanicon Americanum" 3: *pl.* 5 (fig. 4) and that Plate 124 is a copy of the *mss. pl.* 6 (fig. 2).

The Boerhaave copies were used by Johannes Burman for the preparation of Plumier, *Plantarum Americanarum* 2: 33-34, *pl.* 45. 1756 (fig. 8). The flower details, A through D, in the central part of Plate 45 are exact copies of the details of the Plumier original drawing Plate 6 and the Tournefort Plate 442. The large leaf Fig. 1 of Plate 45 is a copy of the right leaf of the drawing, my Figures 3 and 4.

Linnaeus saw the Boerhaave drawings in 1737-38. At that time, he made notes and wrote specific diagnosis opposite the relevant genera in the "interleaved and annotated copy of the *Genera Plantarum* ed. 1, now in the Library of the Linnean Society of London" (Polhill & Stearn, *Taxon* 25: 325. 1976).

I wrote to the Library requesting they check to see if Linnaeus made any notations on page 360 concerning *Begonia*, but I received no reply. However, since Linnaeus considered *Begonia*, as only one species, I expect he did not make any notations there about *Begonia*.

DETERMINATIONS OF THE TYPE

From all this evidence, I conclude that Linnaeus based the generic description for *Begonia*, in *Genera Plantarum* ed. 5. 475. 1754, on the Tournefort Plate 442 (fig. 7) and the diagnostic note for his

trivial epithet *obliqua*, in *Species Plantarum* 2: 1056. 1753, was based on the copy of Plumier's drawing Plate 124 in the "Codex Boerhaavianus"

Therefore, I designate as lectotype of *Begonia obliqua* Linnaeus the Plate 124 *Begonia nivea maxima, folio aurito* "Codex Boerhaavianus" in the Library of the Rijksuniversiteit, Groningen.

Both the Boerhaave Plate 124 and the Tournefort Plate 442 were copied from the original Plumier drawing (Fig. 2) *Begonia nivea et rosea maxima, folio aurito* Plumier, mss. "Botanicon Americanum" 3: pl. 6. 1689-97, which I designate typotype of *Begonia obliqua* Linnaeus. I would have preferred to select this original Plumier drawing as the type, but unfortunately, it was not seen by Linnaeus.

The character of *Begonia obliqua* Linnaeus is illustrated by Figure 1, a composite drawing made by my daughter, Marilyn White, of the essential elements selected from the original Plumier drawings, Plate 5 *Begonia purpurea maxima, folio aurito* and Plate 6 *Begonia nivea et rosea maxima, folio aurito*.

THE CORRECT NAME AND SYNONYMY

Begonia obliqua Linnaeus, *Species Plantarum* 2: 1056. 1753. Lectotype: *Begonia nivea maxima, folio aurito* Plumier, "Codex Boerhaavianus" plate 124. 1733. Typotype: *Begonia nivea et rosea maxima, folio aurito* Plumier, mss. "Botanicon Americanum" 3: pl. 6. 1689-97.

Begonia purpurea, maxima, folio aurito Plumier, mss. "Botanicon Americanum" 3: pl. 5 f. 1 & 2. 1689-97; Plumier in Tournefort, *Inst. Rei Herb.* app. 660. pl. 442. 1700; Plumier, *Cat. Pl. Amer.* 20. 1703.

Begonia nivea maxima, folio aurito Plumier in Tournefort, *Inst. Rei Herb.* app. 660. pl. 442. 1700; Plumier, *Cat. Pl. Amer.* 21. 1703.

Begonia purpurea et nivea maxima, folio aurito Plumier in *Burman Pl. Amer.* 2: pl. 45 f. 1. 1756.

Begonia obliqua Jacquin, Observ. Bot. 2: 11. 1767.

Begonia macrophylla Lamarck, Encycl. 1: 394. 1785;
O. E. Schulz, Urban Symb. Antill. 7: 21. 1911.

Begonia grandifolia Jacquin, Collectanea 1: 128.
1787. excl. syn. Brown.

Begonia martinicensis A. DC. Ann. Sc. Nat. IV. 11:
123. 1859; O. E. Schulz, Urban Symb. Antill. 7:
21. 1911.

Begonia rotundifolia Grisebach, Fl. Brit. W. I.
304. 1860; O. E. Schulz, Urban Symb. Antill.
7:22. 1911. non Lamarck.

CONFUSION IN THE LITERATURE

Much of the confusion in the literature concerning the name *Begonia obliqua* is because Linnaeus considered all the *Begonia* known to him as one species and then listed them as its synonyms. Later authors have studied these plants and determined them to be separate species.

Lamarck, *Encyclopedie Methodique, Botanique* 1: 394. (1785) included the type of *Begonia obliqua* Linnaeus in his protologue of *Begonia macrophylla*, therefore, Lamarck's name is superfluous.

The species named for the other synonyms are as follows:

Aceris fructu herba anomala, flore tetrapetalo albo
Sloane, Cat. Pl. Jam. 83. 1691; Nat. Hist. Jam.
1: 199. pl. 127. 1707.

= *Begonia acutifolia* Jacquin, Collectanea 1: 128.
1787.

Rumex sylvestris scandens, foliis cordato-angulatis ab altera parte majoribus Browne, Jam. 203. 1756, excl. syn.; O. E. Schulz, Urban Symb. Antill. 7:6. 1911.

= *Begonia glabra* Aublet, Hist. Pl. Guiane 2:913.
pl. 348. 1775, pro parte.

Observation:

From the synonyms listed by Browne, this could be equal to either *Begonia acutifolia* Jacquin, or *Begonia malabarica* Lamarck, but it is not cited as the synonym of either of these by either author.

- Empetrum acetosum* Rumphius, Herb. Amb. 5: 457. pl. 169 f. 2. 1747.
= *Begonia tuberosa* Lamarck, Encycl. 1: 393. 1785.
- Begonia roseo flore, folio aurito, minor et glabra*
Plumier in Tournefort, Inst. Rei Herb. app. 660. 1700; Plumier, Cat. Pl. Amer. 20. 1703; Linnaeus, Sp. Pl. 2: 1056. 1753, as *Begonia obliqua* var. *beta*.
= *Begonia brachypoda* O. E. Schulz, Urban Symb. Antill. 7: 15. 1911.
- Observation:
Lamarck, Encycl. 1: 394 (1785) had considered this to be a variety of his *Begonia repens* Lamarck, but O. E. Schulz disagreed. Lamarck also cited Plumier in Burman, Pl. Amer. Plantarum 2: pl. 45 fig. 3. 1756, but this was an error as his description did not apply to this figure; Fig. 3 has been determined to be a different species, *Begonia plumieri* A. DC.
- Begonia roseo flore, folio aurito, minor & hirsuta*
Plumier in Tournefort, Inst. Rei Herb. app. 660. 1700; Plumier, Cat. Pl. Amer. 20. 1703; Linnaeus, Sp. Pl. 2: 1056. 1753, as *Begonia obliqua* var. *gamma*; Plumier in Burman, Pl. Amer. 2. pl. 45 f. 2. 1756; Golding, Phytologia 39: 115. 1978.
= *Begonia repens* Lamarck, Encycl. 1: 394. 1785.
- Begonia roseo flore, folio orbiculari* Plumier in Tournefort, Inst. Rei Herb. app. 660. 1700; Plumier, Cat. Pl. Amer. 20. 1703; Linnaeus, Sp. Pl. 2: 1056. 1753, as *Begonia obliqua* var. *delta*; Plumier in Burman, Pl. Amer. 2: pl. 45 main fig. 1756.
= *Begonia rotundifolia* Lamarck, Encycl. 1: 394. 1785.
- Begonia roseo flore, foliis acutioribus auritis et late crenatis* Plumier in Tournefort, Inst. Rei Herb. app. 660. 1700; Sp. Pl. 2: 1056. 1753, as *Begonia obliqua* var. *epsilon*; Plumier in Burman, Pl. Amer. 2. pl. 45 f. 3. 1756.
= *Begonia plumieri* A. DC. Prodromus 15(1): 295. 1864.
- Begonia hirsuta, flore albo, folio aurito, fructu crenato* Barrere, Hist. Fr. Equin. 21. 1741, as ..., *fructu coronato*; Linnaeus, Sp. Pl. 2: 1056. 1753, as *Begonia obliqua* var. *zeta*.
= *Begonia hirsuta* Aublet, Hist. Pl. Guiane 2: 913. pl. 348. 1775.

THE LAST LINNAEUS CITATION OF *BEGONIA OBLIQUA**Mantissa Plantarum Altera* 502. 1771

504

POLYGAMIA.

Begonia obliqua, Species forte plures. Capensis species sequent
structura est.

Radix tuberosa, crassa.

Scapi teretifusci, petiolis longiores, paniculati.

Folia radicalis, petiolata, oblique cordata, repanda, denticulata.

♂ *Petala* 2, obcordata, erecta; 2 cordata, pallide rosea.

Stamina multa, *Anthodis* linearibus, filamentis longioribus.

♀ *Corolla* maris. *Stamina* nulla.

Styli 3, ramosi, filiformes, *Stigmata* obtusa.

Capsula infera, trilatera lateribus inaequalibus.

Koenig.

Obf. *Tilia* narinam pulli. *Röed. mal. p. p.*

167. t. 86. est caulescens, Floribus Masculis

Andris; Hermaphroditis 3petalis secundum

Röede.

Translation

Begonia obliqua

Species perhaps more. The species from the Cape is with the following structure.

Root - swollen into a tuber, thick

Scape - somewhat cylindrical, longer than the petiole, with flowers borne in a panicle.

Leaves - arising from the root, petiolate, obliquely cordate with slightly uneven and waved margins, denticulate.

Male flowers

Petals - two reverse cordate, erect; two cordate, pale rose.

Stamens - many, *anthers* linear, longer than the filaments.

Female flowers

Corolla - like the male. *Stamens* - none.

Styles - 3, branched, threadlike. *Stigma* obtuse.

Capsule - inferior, three-sided, unequal, according to Koenig.

Observation:

Tsjernia-narinampuli Rheede, Hortus malabaricus 9: 167. (1689) pl. 86. It is stemmed, the male flowers male only: hermaphrodite with 3 petals, according to Rheede.

This final use of the name *Begonia obliqua* by Linnaeus is interesting for several reasons. It indicates his uncertainty about proper classification for *Begonia*. He still kept it in his class Polygamia, but showed it to have separate male and female flowers noting it did not have stamens as if he still thought it might or should have some.

He probably added his observation concerning *Tsjernia-narinampuli* to justify retaining *Begonia* in his class Polygamia.

SUPPLEMENTUM PLANTARUM

Supplementum Plantarum (1781) contained writings of Linnaeus that were edited and published by his son. On pages 419 and 420 there are several citations for *Begonia* as separate species that were given epithets. Included was the following citation:

420 MONOECIA. Polyandria.

Capensis. BEGONIA acaulis, foliis inæqualiter denticulatis.
Begonia obliqua. *Mant. plant.* p. 502.

Begonia capensis, stemless with leaves unequally denticulate.

Here, the son of Linnaeus renamed the *Begonia obliqua* Linnaeus in *Mantissa Plantarum Altera* 502, (1771) as *Begonia capensis* Linnaeus f. in *Supplementum Plantarum* 420 (1781).

Dryander (Trans. Linn. Soc. 1: 170. 1791) gave this species a new name, *Begonia diptera*. But under Article 62.1 ICBN (1978) a legitimate name must not be changed arbitrarily; therefore, *Begonia capensis* L. f. having priority is the correct name.

CITATIONS BY OTHER AUTHORS

Jacquin used the name *Begonia obliqua* for the plant he found growing in Martinique. The following description in his *Observationum Botanicarum* 2: 11. 1767.

BEGONIA OBLIQUA.

BEGONIA. *Linn. sp. pl. t. p. 1497.* Ubi vide synonymiam.

Occasione Acetosæ præcedentis etiam hujus Acetosæ fylvestris (ita enim Gallicum nomen *Ozeille des bois* sonat) mentionem facere volui. Est autem planta elegantissima, quæ in Martinicæ montibus umbrosis & udis passim crescit. Inveni quoque in ipsis humentibus faxis & rupibus ad torrentes loco aprico. Est bipedalis, succulenta, annua forte vel biennis, patula, adspectu decora. Habitu admodum variat, ita ut Plumerianæ diversæ species loco magis minusve udo vel aprico ortum debeant. Folia succulenta & acida a quibusdam acetosæ hortensis in modum in cibis adhibentur.

Translation

Begonia obliqua

Begonia Linnaeus, *Species Plantarum* 1: 1497. [ed. 2. 1763]. In which place see the synonymy.

At the same time as the above *Acetosa* I wish to mention also this *Acetosa* of the woods (thus indeed it is called the French name "ozeille des bois" [wood sorrel]). It is however a most elegant plant, which grows here and there in shady and damp mountains of Martinique. I have found each in groups by themselves on damp cliffs and rocks in sunny places near cataracts. It is 2 feet tall, succulent, an annual or perhaps biennial, spreading and beautiful to look at. It varies

much in appearance; thus, for example, the different species of Plumier might be a result of their growth in more or less damp or sunny places. The succulent, acid leaves of some *acetosas* of the gardens are used as food.

Observation:

Jacquin noted that the appearance of the *Begonia* he found growing in the mountains of Martinique were very varied because of their growth in different environments. He speculated that the species of Plumier may also differ only because of their origin from various places.

At that time (1767) Jacquin did not consider the plants he found and those of Plumier as separate species, so he followed Linnaeus and used his name *Begonia obliqua*.

It was 20 years later when Jacquin, (*Collectanea* 1: 127-8, 1787) wrote, "The *Begonia* once called *obliqua* by Linnaeus included several species." There he listed *Begonia obliqua* (*Observ. Bot.* 2: 11, 1767) as a synonym of *Begonia grandifolia* Jacquin 1787.

The correct citation for Jacquin's *obliqua* is:

Begonia obliqua Jacquin, *Observ. Bot.* 2: 11. 1767.

[= *Begonia grandifolia* Jacquin, *Collectanea* 1:

128. 1787; = *Begonia macrophylla* Lamarck,

Encycl. 1: 394. 1785; Dryander, *Trans. Linn. Soc.*

1: 164. 1791.]

= *Begonia obliqua* Linnaeus, *Sp. Pl.* 2: 1056. 1753.

The name *Begonia obliqua* was also used by other authors for various species of *Begonia*. These citations are listed with their correct name.

Begonia obliqua Thunberg, Fl. Jap. 231. 1784, non
Linnaeus 1753; Kaempfer, Amoen. Exot. Fasc. 5: 888.
1712; as *Sjukaido* Kaempfer, Icon. Select. Pl.
pl. 20. 1791.
= *Begonia grandis* Dryander, Trans. Linn. Soc. 1: 164.
1791.

Begonia obliqua l'Heritier, Stirp. Nov. 2: 46. 1788.
non Linnaeus 1753.
[= *Begonia nitida* (Dryander in) Aiton, Hort. Kew
3: 352. 1789.]
= *Begonia minor* Jacquin, Collectanea 1: 126. 1787;
Jacquin, Collectanea 3: 18. pl. 618. 1791.

Begonia obliqua Schneevogt, Icon. Pl. Rar. pl. 24.
1793. non Linnaeus [= *Begonia obliqua* l'Heritier]
O. E. Schulz in Urban, Sym. Antill. 7: 10. 1911.
= *Begonia minor* Jacquin, Collectanea 1: 126. 1787.

Begonia obliqua Vellozo, Fl. Flum. Icon. 10: pl. 48.
1831; Fl. Flum. Descr. ed. 2. in Arch. Mus. Nac.
Rio de Janeiro 5: 406. 1881. non Linnaeus 1753.
[= *Begonia patula* Haworth; Smith & Schubert
Journ. Wash. Acad. Sci. 40 (8): 245. 1950.]
= *Begonia fischeri* Schrank, Pl. Rar. Hort. Acad.
Monac. 2. pl. 59. 1820.

Begonia obliqua herb. Ruizii ex Klotzsch, Begonia-
ceen 101. 1855. pro syn. non Linnaeus 1753;
A. DC. Prodrum 15(1): 333. 1864.
= *Begonia cyathophora* Poeppig & Endlicher, Gen. et
Sp. 1: 7, pl. 14. 1835.

Note:

Begonia obliqua Linnaeus, Sp. Pl. 1056 (1753)
has been frequently listed as a synonym of *Begonia*
acuminata Dryander and *Begonia acutifolia* Jacquin.

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This listing does not imply concurrence with all the interpretations and conclusions, which are the responsibility and opinion of the author.

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