**H. clausa var. normalis** (Koidzumi) Nakai 1930

*Botanical Magazine*, Tokyo, 44:27 1930

참비비추 = Cham-bi-bi-chu  ●  주걱비비추 = Ju-geok-bi-bi-chu

**H. clausa var. clausa** F. Maekawa 1937

ツボミギボウシ = Tsubomi Giboshi (Koidzumi 1916)

**H. clausa var. latifolia** T.B. Lee 1980


넓은옥잠화 = Neol-beun-ok-jam-hwa

**H. clausa var. stolonifera** W.G. Schmid 1991

**History and Nomenclature:** In 1930, the Japanese botanist T. Nakai described a new taxon from Korea found in the Province Kyonggi-do, on Keumgangsan (Diamond) Mountain. The type is No. 5255 in T. M.G. Chung (1989, 1990) study established that morphologically, palyono-logically and isozymically, *H. clausa* is distinct from all the other Korean species. It has a unique rugulate-baculate pollen type (Type RB), which confirms its current placement. Never-theless, infraspecific classification is complicated by the exis-tence of distinct morphs within the populations. Nakai describes what we now know as the triploid *H. clausa var. clausa*, as evidenced by his description, as follows: “… the lobes of the perianth sticks to each other till the flower decays. The closed perianth is preventing the exsertion of the anthers and the fertilization hence the fruits could not be brought forth though the ovaries in perfection. …” Found by Nakai in the wild, Chung (1990, 1994) determined that *H. clausa* grows only along rivers with several morphs.
present within the same populations, namely *H. clausa* var. *ensata* with narrow, lanceolate leaves growing on streamside rock outcrops, *H. clausa* var. *normalis* with ovate leaf blades growing on sandy soil in open areas and *H. clausa* var. *clausa*. The form with closed flower is apparently very rare in the wild. Chung (1990) stated that during his extensive field investigations in 1987 and 1988, he did not find any individuals with closed flowers. More common is another morph, which does not grow scapes at all and propagates solely by way of creeping rhizomes. This morph grows under the dense cover of native willows (*Salix*) so never develops scapes nor does it flower, which would be useless in these conditions. This form and has been called provisionally *H. clausa* var. *stolonifera* (nom. nud.). The most common form present and observed in the natural habitat are populations of what is now known as *H. clausa* var. *normalis*, i.e., diploid groups with a normal breeding system. The largest concentrations of natural populations are endemic in central and northern Korea (M. G. Chung, 1989, personal communication; and 1990). The northern components are sympatric with populations of *H. clausa* var. *ensata* and occur along and north of the Yalu River in Liaoning and Jilin Provinces of China (see distribution map on page 6). Lee (1973) and Y. H. Chung and Y. C. Chung (1982) determined that *H. clausa* var. *clausa* (closed flowers) and *H. clausa* var. *normalis* (open flowers) are the same taxon and that varietal rank not be recognized. Maekawa (1969) reported that *H. clausa* var. *clausa* is a form very rare in the natural habitat. According to Chung (1990) it and *H. clausa* var. *normalis* are biologically one and the same species, although the former is a sterile triploid and the later a fertile diploid (Kaneko 1968a). The taxonomy of *H. clausa* is further complicated by yet another morph published by T.B. Lee (1980). Cognizant of a wide-leaved form, Lee established the name *H. clausa* var. *latifolia* previously recommended by T. Nakai (1911). Wide-leaved morphs are frequently found among natural populations, particularly in the southern regions of the habitat. Particularly in the southern regions of the
Habitat. According to M. G. Chung (1990) and other authors mentioned earlier, all of these phenotypically different morphs are biologically one and the same species. This placement of the various forms of *H. clausa* is followed here, with the exception of *H. clausa* var. *ensata* = *H. ensata*. Chinese researchers the latter appears to have allopatric populations in China along and north of the Yalu River in Liaoning and Jilin Provinces of China (see distribution map on page 6). Lee (1973) and Y. H. Chung and Y. C. Chung (1982) determined that *H. clausa* var. *clausa* (closed flowers) and *H. clausa* var. *normalis* (open flowers) are the same taxon and that varietal rank not be recognized. Maekawa (1969) reported that *H. clausa* var. *clausa* is a form very rare in the natural habitat. According to M. Chung (1990) it and *H. clausa* var. *normalis* are biologically one and the same species, although the former is a sterile triploid and the later turns out to be a fertile diploid (Kaneko 1968a). The taxonomy of *H. clausa* is further complicated by yet another morph published by T.B. Lee (1980). Cognizant of a wide-leaved form, Lee established the name *H. clausa* var. *latifolia* previously suggested. Wide-leaved morphs are frequently found among natural populations, particularly in the southern regions of the habitat. According to Chung
(1990) and other authors mentioned earlier, all of these different morphs are biologically one and the same species. This placement of the various forms of *H. clausa* is followed here, with the exception of *H. clausa* var. *ensata* = *H. ensata*. According to Chinese researchers the latter appears to have allopatric populations in China along and north of the Yalu River in Liaoning and Jilin Provinces. For this reason, this taxon has received separate treatment under *H. clausa* var. *ensata* (*H. ensata*), which see. The development of closed flower buds could have been (initially at least) an environmental adaptation. Populations of the species growing along river banks were exposed to repeatedly periodic flooding due to frequent typhoons during the time of flowering and seed maturation. This severely disturbed normal sexual propagation resulting in evolutionary changes to more efficient vegetative, rhizomatous propagation.

From the standpoint of nomenclature, it is no surprise that *H. clausa* var. *clausa* has a number of Korean and Japanese names. In Korea it is known as *참비비추* = Cham-bi-bi-chu and *주걱비비추* is preferred for *H. clausa* var. *normalis*. Translated the names mean “lanceolate” hosta. Another Japanese name appeared in a Korean
publication as ヘラナギボウシ = Heru Giboshi, which means “spatulata hosta” (へら = 質 = spatula) and it stands for *H. clausa*. Yet another Korean name is 넓은옥잠화 = Neol-beun-ok-jam-hwa = *H. clausa* var. *latifolia* Nakai, referencing its wider leaves. The Japanese names are not as numerous, but several exist reflecting the various morphs of this species. The oldest name is ツボミギボウシ = Tsubomi Giboshi = *H. clausa* var. *clausa* coined by Koidzumi in 1916, meaning “closed flower ball (= bud) hosta.” This was followed by Maekawa (1937) with サクハナギボウシ = Sakuhana Giboshi = *H. clausa* var. *normalis* translates to “open flower hosta.”

*H. clausa* in Cultivation: The variant with closed flowers was first described in botany. It has been cultivated for many years in Asian and Western gardens and has proven to be stable and so the varietal name is maintained here. However, Chung (1990) and other authors suggest that all of the *H. clausa* forms are biologically one and the same species. Further, recent accessions by M. G. Chung (in 1988; reported 1989; personal communications 1989; and 1990) in the area of Nakai’s original collections in the provinces of (Kangwon-do, Hongchongun) indicate populations with scapes on which some flowers never open, but others open on the same scape, pointing to the existence of transitional forms, again resulting in additional name changes. Unfortunately, botanical nomenclature
is not as stable as gardeners would wish it to be. For the time being, the botanical names will serve. *H. clausa* var. *clausa* is the oldest known variant and is outstanding when the rigidly held, purple, closed flower buds develop. The species epithet is derived from *clausus* = closed (bud). It is available and cultivated worldwide and also excellent for groundcovers. *H. clausa* var. *stolonifera*, which never raises scapes nor flowers, is also a good cultivar for groundcover. The “normal” form, which has open flowers is called *H. clausa* var. *normalis* in gardens. In Korea, *H. clausa* is used in gardens in much the same way as *H. 'Lancifolia' is in North America and Europe. The leaves are rather plain, very similar to *H. ‘Lancifolia’*, but with more substance.

▲▲▲ *H. clausa* var. *clausa* (cultivated)
Hosta Hill R.G.
© W.G. Schmid 1986.08.15

◄◄◄ *H. clausa* var. *clausa* (cultivated)
© L. Defrenne/HL

2010-04-29 - 6 -
**Plant Morphology:** Plant size 25–30 cm dia., 25–30 cm high (10–12 by 10–12 in.). Rootstock stoloniferous, wide-ranging, arising sympodially to form new shoot, most morphs are spreading rather than clumping. Petiole 5–10 by 0.50 cm (2–4.0 by 0.20 in. wide), erect, ribbed on back, green, forming a vase-shaped plant. Leaf 8–16 long by 4–8 cm (3–6.5 long by 1.5–3 in.); some wide-leaved morphs have leaves to 10 cm (4 in.) wide; leaves erect and in line with petiole, lanceolate to oblanceolate, petiole transition very gradual, non-angular, acuminate tip, generally flat surface, no waves in margin, erect, rigid, leathery, shiny, dark green above, glossy lighter green below. Venation 4–5 (6), sunken above, very projected, smooth, below. Scape 35–60 cm (14–24 in.), terete, straight and erect, becoming ± perpendicular to the ground, green, slightly purplish red tinted at the base. Fertile bracts short, navicular, grooved, green or whitish green, imbricated, withering at anthesis, but not falling away. Raceme long, 20–25 cm (8–10 in.) densely imbricated at first, then evenly spaced, 15–30 flowers. Perianth open slightly bell-shaped in var. *normalis*; distended but remaining closed in var. *clausa*; very pointed bud, grooved, deep Bluish violet, carried horizontally on strong, very short, incurved pedicels. Anthers purple. August. Ovaries in closed flowers abort and the perianths drop off unopened without producing fruit.

**Karyotype-Chromosomes:** Sporophytic Count = 60; 12 large, 48 small; (2n) for all variants, except *H. clausa* var. *clausa*, which is a triploid with an SC of 2n = 90.

**Genome Size:** DNA content (2C) in pg (one $10^{-12}$ gram) = 19.1 and 19.3 measured for *H. clausa* var. *normalis*; average given 19.2 ± 0.18. For *H. clausa* var. *clausa* (2n = 90) measured 28.5 and 28.6; average given 28.5 ± 0.08. (Zonneveld, B.J.M. and F. Van Iren (2001)).

---

**Habitat of H. clausa T. Nakai**

The border of Korea and China is indicated by the full circles shown north of this line are in Liaoning and Jilin provinces, China, and are considered *H. ensata* by Chinese taxonomists.
**Pollen:** (Pollen shape after Erdtman, 1966): *H. clausa* has unique rugulate-baculate pollen grains (Subtype RB). This taxon is the only one in the genus with this type of pollen grain and this supports placement in the separate section Stoloniferae (Maekawa 1940). Pollen shape is SO (sub-oblate-spheroidal); size in the range of $P \ 78.9 \pm 2.0 \times E \ 68.2 \pm 4.0$ (Sizes given in $\mu m$ - polar axis (P) × equatorial axis (E)).

**Taxonomic Type and Synonymy:**

**H. clausa var. clausa** Nakai (type).


Type: 5255 in TI; T. Nakai, in Kyonggi-do. Hab. in provinces Kyonggi-do also Kangwon-do (1988 accessions by M. G. Chung) as concerns the type. *H. clausa var. clausa* is found sporadically and rarely among *H. clausa var. normalis* populations in Hwanghae-do, Pyongannam-do, Pyonganbuk-do, and Hamgyongnam-do in central and northern Korea; and provinces Liaoning and Jilin in northeastern China. The Chinese populations are considered *H. clausa var. ensata* (*H. ensata*) and there are no records of the phase *H. clausa var. clausa* having been found among the northern populations in China.

**H. clausa var. normalis** Maekawa.


Type: In TI; coll. T. Nakai, Kangwon-do Province. Hab. in provinces Kyonggi-do, Kangwon-do (1988 accessions by M. G. Chung), Hwanghae-do, Pyongan nam-do, Hamgyongnam-do and Pyonganbuk-do, central and northern Korea. This is the diploid phase propagating by normal sexual means. Also in Liaoning and Jilin provinces of northeastern China. The Chinese populations are considered *H. clausa var. normalis*.

**H. clausa var. stolonifera** W.G. Schmid 1991: *The genus Hosta: Gibôshi Zoku* (ギボウシ属); P.:44. 316. (in obs. nn.)

Hab. in provinces Kyonggi-do and Kangwon-do, Hwanghae-do, Korea; observed growing with *Salix* as an evolved, non-flowering phase of *H. clausa var. normalis*. This morph does not raise scapes nor raceme/flower and propagates exclusively by creeping rhizomes.
**H. clausa var. latifolia** Lee, T. B., 1980.

Hab. As with the type: A wide-leaved morph in *H. clausa* var. *clausa* populations.

W.G. Schmid 1991

Hab. in provinces Kyonggi-do and Kangwon-do, Hwanghae-do, Korea; observed growing with *Salix* as an evolved, non-flowering phase of *H. clausa* var. *normalis*. This morph does not raise scapes nor flower and propagates exclusively by creeping rhizomes.

**Botanical Synonyms:**

For *H. clausa* var. *clausa*, *H. clausa* var. *normalis*, and *H. clausa* var. *latifolia*.


*Funkia lancifolia* Sprengel; Czerniakowska in Komarov: *Flora USSR*, 4:55, T. 5/2 1935 (in part only).

**Korean Language Synonyms:**

*H. clausa* var. *clausa* = 참비비추 = Cham-bi-bi-chu (recommended)

*H. clausa* var. *clausa* = 주걱비비추 = Ju-geok-bi-bi-chu

*H. clausa* var. *normalis* = 주걱비비추 = Ju-geok-bi-bi-chu (recommended)

*H. clausa* var. *normalis* = 참비비추 = Cham-bi-bi-chu

*H. clausa* var. *normalis* = 꽃비비추 = Kkot-bi-bi-chu

*H. clausa* var. *latifolia* = 넓은옥잠화 = Neol-beun-ok-jam-hwa

**Japanese Language Synonyms:**

*H. clausa* var. *clausa* = ツボミギボウシ = Tsubomi Giboshi

*H. clausa* var. *normalis* = ヘラギボウシ = Heru Giboshi

**Horticultural Names:**

*H. `Krossa No. B-7'/H. `Krossa No. B-6'.

*H. `Krossa No. K-4' PI 318545.

Summers No. 46 1966

Summers No. 51 1967

Summers No. 149 1967.

Sword-leaved Plantain Lily Maekawa 1969.

2010-04-29
Herbarium Specimen

*H. clausa* var. *clausa*

Herbarium of Seoul National University
SNU Voucher 1307
Collected before Complete Scape Elongation
Narrow leaf phenotype
H. clausa var. clausa
(cultivated)
Photo ©T. Avent
Plant Delights Nursery

TOP LEFT
H. clausa
var. clausa
Both Narrow and Wide Leaved Forms Shown

H. clausa var. clausa
Detail of seed capsule

Photo © Bob Axmear
*H. clausa* var. *normalis* ▲▲▲
(TOP RIGHT AND LEFT)
(cultivated)
Representative plants in the garden
Hosta Hill R.G. 1987
Photos © W.G. Schmid

*H. clausa* var. *normalis* ►►►
(TOP RIGHT AND LEFT)
(cultivated)
Representative plants in the garden
Hosta Hill R.G. 1987
Photos © W.G. Schmid

Note: This species has wide leaf and narrow leaf phenotypes, however leaf width is not used to segregate the differentiation as varietas or forma.
**H. clausa var. normalis** ★★★
Perianth Close-Up
Chung No. 875; Konjugun, Chung-chongnam-do;
280m (920 ft) AMSL Natural Habitat
Notice Bell-shaped Perianth

(See Page 3 for Illustration of Entire Plant in situ in Korea)

**H. clausa var. normalis**
(cultivated)
Representative Plants
In the Garden
Hosta Hill R.G. 1987
Photos W.G. Schmid

Wide Leaf Form ★★★

Narrow Leaf Form ▼▼▼
**H. clausa var. stolonifera** (cultivated)
Hosta Hill R.G.
Photos by W.G. Schmid 1987

Note the spreading nodes from a single plant

---

**Herbarium Specimen**

*H. clausa var. Normalis*

Wide leaf phenotype

Herbarium
Universitatis Imperialis Tokiensis (TI)
TI Voucher

2010-04-29
**Horticultural Progeny:**

*Hosta clausa* in all of its forms was rarely used to produce hybrids and no direct sports have been reported: H. ‘Golden Arrow’ = sport of a *H. clausa* var. *normalis* seedling by R. Herman 1996. Another cultivar connected with *H. clausa* is H. ‘Livonia’ P. Ruh for G. Krossa 1997. No parentage is given so this connection is speculation. One cultivar is directly connected:

![Photo by ©Bob Axmear](image1)

*H. ‘Purple Lady Finger’* R. Savory 1982 (shown here) is a hybrid ♀ *H. longissima* × ♂ *H. clausa*. This cultivar has leaves like the pollen parent but the flowers remain closed.

![Photo by © V. Serafin](image2)

**References:**


Léveillé, A. A. H., 1911. *Funkia subcordata* var. *taquetii*; in Fedde: Repertorium specierum novarum regni vegetabilis, Beih., 9:322


Maekawa, F. 1940. The genus *Hosta*. J. of the Faculty of Science, Imperial University Tokyo, Section 3 Botany, Vol. 5:317–425.


© W.George Schmid 2010: The text and illustrations are copyrighted and are available for personal reference only. Other contributors retain their copyright of featured photographs as noted in captions. The content may not be published in printed form without the author’s written permission. Web quote reference:

W. George Schmid, HostaLibrary.org/species/.