

# International Rock Gardener

ISSN 2053-7557



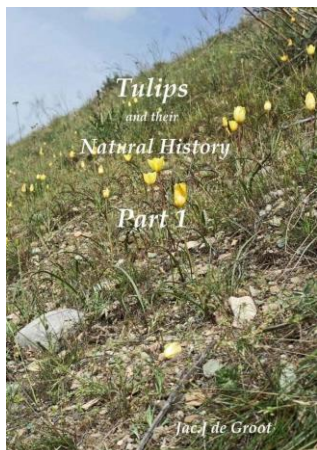
Number 168 The Scottish Rock Garden Club January 2024



A delight this month to begin the new year by having both new species and new cultivars introduced in the International Rock Gardener.

Three new tulips from central Asia are described by **Jac J. de Groot and B.J.M. Zonneveld**. Jac J. de Groot has a new book "Tulips and their Natural History" to be published in March 2024. He tells me that around 2005 Wim

Lemmers, his companion on several travels to Asia to see tulips in their natural habitat, suggested that they should ask Ben Zonneveld to make research into the DNA of



tulips. Ben agreed with it, which resulted in his publication of the genome size of "all" species of tulips in 2009. At that time Jac already had a large collection of tulip species, and with this research result and several additional studies he was able to make a family tree of all the species completed with all the later findings. In the tree there were zones without species or new species groups arose in a new evolution centre and so on. The reason for this must be climate or environmental changes in the past. He read, as a young man, an article by a German professor, where he suggested that the Tulip genus was between 10 and 20 million years old.

With this in mind he tried to connect the separable zones in the Tulip tree with the Geological time zones. Eventually he created the format of his book: the history of tulips to the present. The book, incorporating three parts, contains descriptions of all known species, complete with photos and will be obtainable after 27/3 via [www.boekenbestellen.nl](http://www.boekenbestellen.nl) with the ISBN no. 978-94-6481-758-4.

Saxifrages, in all their guises, are popular for their compact nature with fine foliage and flowers. **Adrian Young**, Saxifraga Registrar, and dedicated curator of the marvellous national collection of saxifrages at [Waterperry Gardens](http://WaterperryGardens) in Oxfordshire, sends IRG notes regarding some new *Saxifraga stolonifera* cultivars. As well as other [events at Waterperry](http://events at Waterperry), there is an annual Saxifrage Day, which in 2024 will be Saturday 25th May. In 2023, Adrian was the recipient of [the Brickell Award](http://the Brickell Award) given by Plant Heritage in recognition of his work.



In the picture from Plant Heritage, Adrian (in the hat) is joined by Roy Lancaster, Christopher Brickell, and David Haselgrove.

Cover image: Flower of *S. stolonifera* 'Bian Huan' – photo Dr Daike Tian.

## **Three new species of *Tulipa* from Central Asia**

**J.J. de Groot** (jacdegroot@casema.nl) Beeklaan 9, 2191AA De Zilk, Netherlands.

**B.J.M. Zonneveld** (ben.zonneveld@naturalis.nl) Naturalis Biodiversity Center, Darwinweg 2, 2333C Leiden, Netherlands. (PO box 9517, 2300RA Leiden).

**Abstract:** Three species are newly described here and provided with comparison tables, graphic material and DNA amount. Differences from related species have been discussed. *T. jansii* spec. nova is a tulip of the SE. Kazakhstan steppe and belongs to the *Kolpakowskianae*, *T. lazkovii* spec. nova is an *Eriostemone* tulip from the *Dasystemon* group and comes from the Alpine zone in the Talas Alatau, *T. kujukense* spec. nova is also an *Eriostemone* tulip but from the *Turkestanica* species group and comes from the S. Kazakhstan Karatau mountains. Determination of DNA quantity per nucleus by flow cytometry was done by B.J.M. Zonneveld.

**Keywords:** Karatau, Talas Alatau, Ili valley, Kazakhstan, Kyrgyzstan, Genome size 2C value.

These three new species are described to reduce somewhat the number of species mentioned as *T. spec.* in my forthcoming book on tulips. In the next few years, many more species of tulips will be newly described because areas that were difficult to access in the past are now becoming accessible and more and more people are interested in tulips. However, many species of tulips are difficult to name because they are pluriform and the characteristics of different species often overlap. Also, species belonging to the *Biflora* and *Turkestanica* species groups show chameleon behaviour when grown in culture. *Biflora* tulips in the natural growing sites seem to belong to one species, once in cultivation they show completely different forms. Moreover, the hairiness of the plants can vary from year to year in some species. Previously described species are also often difficult to name because the old descriptions are often brief and typical characteristics are not mentioned. Making a key to identify species is therefore difficult and only useful to distinguish groups of species. A good tool to distinguish species is still to measure the amount of DNA from the cell nuclei (flow cytometry) (Zonneveld 2009, 2011).



# ---International Rock Gardener---



Fig.1 Tulips in the Mujun-Kum desert

Fig.1 shows a picture of tulips in Kazakhstan's Mujun Kum desert, these are locally called *T. binutans* and are generally plants with 1 or 2 flowers that look about the same in nature. In culture, however, you get a very different picture of these tulips in morphology and DNA weight, for instance. The species in Fig.2 is a form of *T. orthopoda*; the tulip in Fig.3 is a form of *T. bifloriformis*; and in Fig.4 is a plant that comes close to *T. binutans*. All these species have a great variety of forms which makes determination extra difficult.



Left, Fig.2 *T. orthopoda* cf ex Mujun-Kum in cultivation.

Right, Fig.3 *T. bifloriformis* cf ex Mujun-Kum in cultivation.





Fig.4 *T. binutans* cf ex Mujun-Kum in cultivation.

#### Materials and methods:

Plant material was obtained from the collection of J.J. de Groot, De Zilk, The Netherlands. For flow-cytometric measurement of DNA 2C value, approximately 1 cm<sup>2</sup> of leaf was chopped with a piece of *Clivia miniata* (Lindl.) Regel as internal standard. The material was chopped with a new razor blade in a Petri dish in 0.25 ml nuclei-isolation buffer to which 0.25 mg RNase/ml was added (Zonneveld and van Iren 2001). After adding 1.75 ml propidium iodide solution (50 mg PI/l in isolation buffer) the suspension with nuclei was filtered through a 30- $\mu$ m nylon filter. The fluorescence of the nuclei was separately measured 30 min and 1 h after addition of propidium iodide, by use of a Partec CA-II flow cytometer. The optical path contained an HBO mercury lamp, filters KG1 and BG12, dichroic mirror TK500, filter OG570, and a Leitz 50 9 1 water-immersion objective. Results were analysed by means of DPAC software (Partec). The 2C DNA content per nucleus of the sample was calculated as the

## ---International Rock Gardener---

sample peak mean, divided by the *Clivia* peak mean, and multiplied with the amount of DNA of the *Clivia* standard. At least three different samples, each with at least 5000 nuclei, were measured twice. For most histograms the coefficient of variation was <5 %. Fresh male human leucocytes (2C = 7.0 pg; 1 picogram = 10<sup>-12</sup> g = 0.978 X 10<sup>9</sup> base pairs; Doležal et al. 2003) were chosen as primary standard (Tiersch et al. 1989). This yields 2C = 38.0 pg for nuclei of *Clivia miniata*. (Plant syst. Evol. 298 - 2012)

### ***Tulipa kujukense***, J.J. de Groot, Zonn. Spec. nova.

Description: The pear-shaped bulb (Fig.5) has a dark-brown leathery tunic, which is covered with short appressed, feltlike hairs with some wool on the inside near the nose.

The main stem is 38 mm long. The three flower-stems are 37 to 59 mm and unequally placed along the main stem. The whole stem is brownish and covered with short hairs or without hairs. The two, glaucous green leaves are tapered to a point and channelled. The margins are covered with short hairs. The basal leaf is 124 x 8 mm, and the second is at a distance of 10 mm and is 112 x 6 mm. Flower: (Fig.6) the outer tepals are 22 x 6 mm, oval and tapered to a point. The outside is pinkish-purple, near the base light brown, and the margins are white. The inside is white with a yellow basal spot over 30%. On the base is a yellow honey-mark, with a rim of short hairs above it. The inner tepals are spade shaped, 24 x 13 mm, and have a claw at the base. The outside one is white with a pale-yellow basal spot over 30% and a narrow pink mid-vein. The inside one is white with a yellow basal spot over 40%. Above the honey-mark is a rim of short white hairs, which are also on the margins (Fig.6). The yellow stamens are unequal in length. The outer tepal stamens are 10 mm long, including filaments of 6 mm. The narrow, triangular filaments have a white hairy rim near the base; above the rim there are no hairs.

The inner tepal stamens are 12 mm long. The yellow anthers have a dark tip. The green, bottle-shaped ovary is 8 mm long. The yellow stigma has slightly protruding lobes. The flowers are fragrant.

*T. kujukense* (Fig.8) is named after the mountain-pass where the east-west link crosses the Karatau mountains where this species grows in open scrub land. It is one of the tiniest tulips.

*T. kujukense* is a small species in the *Turkestanica* group of the subgenus *Eriostemone*.

Type form; vegetative progeny of wild collected material grown in the collection of J.J. de Groot, collection number G05-8, holotype, L4513067 This tulip grows in small populations and also occasionally in mixed populations with other *Biflora*-like tulips in the southern Karatau Mountains of southern Kazakhstan, where it is endemic. This area is particularly rich



## ---International Rock Gardener---

in plant species because the Karatau separates the eastern and western steppe and borders the Tianshan Mountains to the south.

In nature, these *Biflora/Turkestanica* species are difficult to distinguish from each other but in culture they are easily distinguishable when grown under the same conditions. For example, *T. kujukense* is much smaller than the *Biflora* tulips like *T. orthopoda* and *bifloriformis* they grow with in nature, and they have a bulb with a grey-brown bulb tunic which is typical of the *Turkestanica* species group. They are most similar to the desert species *T. sogdiana* but *T. kujukense* is a mountain tulip and has a higher DNA amount per nucleus.



Fig.5 Bulb of *T. kujukense*



Fig.6 Flower parts of *T. kujukense*

# ---International Rock Gardener---



Fig.7 Seedpods and seed of *T. kujukense*

Table 1. Comparison of *T. orthopoda*, *T. kujukense* and *T. bifloriformis*

	<i>T. orthopoda</i>	<i>T. kujukense</i>	<i>T. bifloriformis</i>
Bulb	light brown covered with woolly hairs inside	brown-grey, covered on the inside with felt-like short woolly hairs most at the top	reddish-brown, covered with woolly hairs inside
Plantform	short	elongated	variable
Leaves	broad	narrow	broad
Filaments	narrow triangular with hairs above the hairy rim	narrow triangular, above the hairy rim no hairs	narrow triangular with hairs above the hairy rim
DNA 2c value	58.3 pg per nucleus	60.7 pg per nucleus	54.4 pg per nucleus





Fig.8 *T. kujukense* in cultivation, with in the background a form of *T. bifloriformis*. Compare the flower with the bee in it for the size of the flowers.

***Tulipa lazkovii*, J.J. de Groot, Zonn. Spec. nova**

Description: The normal round bulb (Fig.10) has a light-brown leathery tunic, which is covered with a few short hairs on the inside near the top and bottom. The hairless stem is 75 mm long, including flower-stems of 57 and 34 mm. It is green with a brown haze below the flower. The four spear-shaped leaves lie as a rosette on soil level with the base underneath. They are keeled and glaucous green with reddish margins, which are covered with short hairs. The basal leaf is 121 x 22 mm, clasping the stem over 3 mm with the base below soil level. The second is 114 x 10 mm, the third is 107 x 7 mm and the fourth leaf is 89 x 5 mm. Flowers: two (Fig.11), the outer tepals 30 x 9 mm, are oval and tapered to a point. The outside is greenish-brown, to the margins pale reddish, and the margins are pale yellow. The inside is bright yellow, with a yellow-green honey-mark. The inner tepals are 30 x 11 mm, are ovate, and tapered to a point. The outside is pale yellow, near the median reddish, and to the base grey-green between yellow-reddish veins. The inside is bright yellow, to the base greenish, and there are short white hairs on the margins of the base. The yellow stamens have a white base and are unequal in length. The outer tepal stamens are 14 mm long,



## ---International Rock Gardener---

including anthers of 5 mm. The filaments are narrow, ovate, and tapered to a point. Near the base is a hairy rim. The inner tepal stamens are 15 mm long. The bottle-shaped ovary is pale green with brownish- red corners and medians. The stigma is pale yellow with slightly protruding lobes on a short style. The flowers are slightly fragrant.

*T. lazkovii* (Fig.9) is a species from alpine zone of the Talas Alatau, where it grows in stony places on an altitude of about 3000 m. It belongs to the species group around *T. dasystemon* in the subgenus *Eriostemones*.

Type form: vegetative offspring of seed collected by S. Hoekstra in NW Kyrgyzstan grown in the collection of J.J. de Groot, collection number, Spec. Kyrg.15, holotype, L4513069

In 2007 the first author received from S. Hoekstra a number of pots of young plants which had been raised from seed collected in the alpine zone of NW Kyrgyzstan which was undetermined. Once these flowered, they showed characteristics of both *T. dasystemon* and *T. tarda* (Table 2) common in the NE of Kyrgyzstan.



Fig.9 *T. lazkovii* in cultivation

However, they differed from both species in a number of ways such as all-yellow anthers where *T. tarda* has grey edges in all forms, the plants are also considerably smaller, and this new species has hairless flower stems where those of *T. tarda* are hairy. *T. lazkovii* differs from *T. dasystemon* by having usually 3-4 (2-5) leaves that lie flat on the ground with the



## ---International Rock Gardener---

base under soil level, *T. dasystemon* usually has 2 semi-erect leaves and almost entirely hairy filaments where *T. lazkovii* has only a hairy ring at the base of the filaments.

Several years ago, the nursery [Nova Zahrada](#) (A. Naumenko) offered bulbs under the erroneous name *T. urumiensis*, from the Otmek Pass in the Talas Alatau in NW Kyrgyzstan, these tulips differ in no way from *T. lazkovii*.

*T. lazkovii* is named after [Professor Georgy Lazkov](#), a well-known Kyrgyz botanist from the National Academy of Sciences, Bishkek, Kyrgyzstan.



Fig.10 Bulbs of *T. lazkovii*



Fig.11 Flower parts of *T. lazkovii*

# ---International Rock Gardener---



Fig.12 Seedpods and seed of *T. lazkovii*

Table 2. Comparison of *T. dasystemon*, *T. lazkovii*, and *T. tarda*

	<i>T. dasystemon</i>	<i>T. lazkovii</i>	<i>T. tarda</i>
Bulb	pear-shaped without hairs	pear-shaped with few hairs on the nose	normal tulip bulb with few hairs on the nose
Flower stems	commonly one and hairless	commonly one, in cultivation up to three and hairless	one to five covered in hairs
Leaves	commonly two, half upright with few hairs on the margins	commonly three or four, sometimes two or five all as a rosette on the soil with short hairs on the margin	three to six with sparsely short hairs on the margins
Filaments	triangular with hairs almost over the full length	straight with a round top and a rim of short hairs at the base	narrowly triangular with a rim of short hairs at the base
Anthers	yellow	yellow	yellow with greyish rims
DNA 2c value	50.3 pg per nucleus	50.7 pg per nucleus	50.3 pg per nucleus



## ---International Rock Gardener---

***Tulipa jansii***, J.J. de Groot, Zonn, Spec. Nova.

Description: The bulbs are pear-shaped (Fig.13) with a strong, reddish-brown tunic which inside is covered with short felted hair at the nose. The stem is 123 mm long, the whole stem is greenish with a brown haze, and is hairless. The three leaves are narrow spear-shaped, glaucous green, straight, and channelled. The narrow, translucent margins are covered with short hairs. The basal leaf is on soil level and 108 x 9 mm. The second leaf is 84 x 4 mm, and the third leaf is 76 x 3,5 mm. The pointed, yellow flower (Fig.14) has spear-shaped outer tepals, 30 x 10 mm, the tip and nearby margins are covered with short hairs. The inner tepals are obovate, 28 x 11 mm. The yellow stamens are equal in length and are 11 mm long, including narrow almost straight filaments of 5 mm. The straight, light-green ovary is 8 mm long. The stigma is yellow with protruding lobes.

Note: *T. jansii* is the only member of the *Kolpakovskianae* that forms stolons.

*T. jansii* is a member of the subgenus *Kolpakowskianae* and finds its habitat in sheltered places in the steppe area which lies between the western foot hills of the Dzungarian Alatau to the east and the Chu and Ily Mountains to the west in the Almaty Oblast of SE Kazakhstan. Type form; wild collected material from the Ily valley north of Kapchagay, holotype, L4513065

This species was first found in 2005 when visiting in Kazakhstan a growth site of *T. behmiana*, at the base of a rock a yellow patch was seen that appeared to consist of more than a hundred flowering tulips in a few square meters. At first it was mistaken for a long-stemmed form of the steppe species *T. kolpakowskiana* but later in the day at another place, again at the base of a rock a population of red flowering tulips was found, looking all exactly the same. Among the bushes nearby grew populations of yellow, orange and red forms all in groups of the same colour. Excavation of some bulbs revealed them to be particularly small and with stolons. Also, these bulbs lacked the long fibrous top of *T. kolpakowskiana*. This year 2023, when visited this site again there appeared to be only a few flowering plants and some non-flowering plants, half the size of the plants in earlier visits. In another year, further east, along the road to Taldygoran, we found this tulip growing in large quantities among the rows of trees planted there. They serve to keep the roads and railroad lines free from the steppe-derived drifting snow in winter.

This newly described species grows north and partly together with the steppe tulip *T. kolpakowskyana*, in the east its range borders that of *T. corynestemon*. In culture, it is a difficult to grow species that quickly dies out.

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*T. jansii* is named after [Harry Jans](#), a well-known world traveller in whose company we were able to collect this spring herbarium material of this tulip.



Fig.13 Bulbs and seedpod of *T. jansii*



Fig.14 Flower parts of *T. jansii*



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Fig.15 view on the Ili River valley with, in front, *T. talievii* Vved. (*buhseana*) and *Gagea* spec.

Table 3 Comparison of *T. jansii* with *T. kolpakovskiana* and *T. corynestemon*

	<i>T. kolpakovskiana</i>	<i>T. jansii</i>	<i>T. corynestemon</i>
Bulb	hard tunic with fibres above the bulb	hard tunic without fibres	tunic papery, elongated
Covering on the inside of the bulb tunic	short hairs at the top	short hairs at the top	short felty hairs, at the top sometimes at the bottom
Plantform	short, sometimes elongated	elongated	elongated
Leaves	commonly three with few hairs on the margins	commonly three with short hairs on the margins	four with minute short hairs on the margins
Filaments	broad elongated, obovate	narrow, almost straight	straight with a broad club-shaped top
Anthers	yellow	yellow	yellow
DNA 2c Value	39.9 pg per nucleus	41.3 pg per nucleus	39.6 pg per nucleus



Fig.16 On the left *T. jansii* and on the right *T. kolpakowskiana*



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Fig.17 *T. jansii*, yellow form, at the type location



Left, Fig.18 *T. jansii*, red form



Right, Fig.19 *T. jansii*, population with mixed colours

Distribution map,

1 *T. kujukense*,

2 *T. laskovii*,

3 *T. jansii*.





# ---International Rock Gardener---

Literature:

**Botschantzeva, Z.P.** 1982. *Tulips: taxonomy, morphology, cytology, phytogeography and physiology*. Translated and edited by H.Q. Varekamp. A.A. Balkema. Rotterdam.

**Everett, D.** 2013. *The Genus Tulipa*. Royal Botanic Gardens Kew.

**Govaerts, R.** 2017. *World Checklist of Tulipa*. Facilitated by the Royal Botanic Gardens, Kew. Published on the internet; <http://apps.kew.org/wcsp/> Retrieved 05/10/2017.

**Hall A.D.** 1940 *The Genus Tulipa*.

**Ivaschenko A.** 2005 *Tulips and other bulbs plants of Kazakhstan*.

**Regel E.** *Acta Hort. petrop.* 5- 1877

**Veldkamp J.F., Zonneveld B.J.M.** The infrageneric nomenclature of *Tulipa* (Liliaceae). revised. *Plant Syst Evol.* 298-1:87-92

**Vvedensky A.I.** in Komarov V.L. (ed) 1935 (1968). *Flora of U.S.S.R. Vol. VI, 267p.* Israel Program for Scientific Translations. Jerusalem.

**Zonneveld, B.J.M.** 2009. *The systematic value of nuclear genome size for 'all' species of Tulipa L.* *Plant Systematics and Evolution* 281: 217- 245.

**Zonneveld, B.J.M.** 2012 *T. kolbintsevii.*, a new species from Eastern Kazakhstan. *Plant Systematics and Evolution* Vol 298, issue 7 – 2012



Left to right, flower parts of *T. kujukense*, *T. laskovii*, and *T. jansii*



# ---International Rock Gardener---

## --- Cultivar Descriptions ---

### Two new cultivars from China – Adrian Young: Registrar for Saxifraga.

#### Photos by Dr Daike Tian.

#### ***Saxifraga stolonifera* ‘Bian Huan’ (变幻)**

Registered by Dr Daike TIAN and Shimei TANG from Shanghai Chenshan Botanical Garden and Chenshan Plant Research Center



**Namer:** Dr Daike Tian from Shanghai Chenshan Botanical Garden of China.

‘Bian Huan’ (变幻 in Chinese characters), named because of its changeable and unstable interveinal black bands on adaxial leaf surface with growth age and light intensity.

**Origin:** Selected natural mutation of *Saxifraga stolonifera* from a previously unknown population at Deqing of Zhejiang province, China. Introduced by Dr Daike Tian to Shanghai Chenshan Botanical Garden in 2017.

**Diagnosis:** The cultivar is mostly similar to *S. stolonifera* ‘Xue Wen’ but differs easily by its weak and unstable interveinal light-black bands on adaxial surface

#### **Characteristics:**

Plants are evergreen, 12-17 cm tall (excluding inflorescence). Leaves 7-11, petiole 5-13 cm long, 2-4 mm thick, blade 4.5-8 cm long, 5-10 cm wide, oblate to nearly round, adaxially green with unstable interveinal light-black bands and sparse white hairs, abaxially white-gray, or light-purple spotted when young. Inflorescence 40-60 cm long, rachis 4-5.5 mm thick, hairy. Pedicel 12-25 mm long. Tepals five, upper three short, long triangular-ovate, 3-5 mm long, 2-3 mm wide, white, with several red-purple spots (usually two longer) nearly above middle position and one yellow dot at base, apex acute; lower two long, nearly lanceolate, 14-18 mm long, 3.5-6 mm wide, pure white. Sepals five, green, equal or nearly so, 3.5-5 mm long, 2-2.5 mm wide, abaxially hairy. Stolon's 7-15 per plant, 20-94 cm long, 0.8-3 mm thick, creeping, green to pink, hairy. Flowering May to June.



*S. stolonifera* 'Bian Huan'



---International Rock Gardener---



*S. stolonifera* 'Bian Huan'





*S. stolonifera* 'Bian Huan' - young leaf above, older leaf, below







*S. stolonifera* 'Bian Huan' leaf-blade showing hairs



*S. stolonifera* 'Bian Huan' flower

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## ***Saxifraga stolonifera* 'Yin Yuanbao' (银元宝)**

Registered by Dr Daike TIAN from Shanghai Chenshan Botanical Garden, and, Dr Zhilin CHEN from Horticultural Research Institute, Guizhou Academy of Agricultural Sciences  
The mutant plants of *Saxifraga stolonifera* were originally bought by Dr. Zhilin Chen in 2021 from an online store and introduced by Dr Daike Tian to Shanghai Chenshan Botanical Garden. At the request of Dr Tian a wild material collection by Ms. Shujuan LI from Xi'an Botanical collected living plants of *S. stolonifera* from Chang'an district of Xi'an city on Oct. 20, 2022.



**Namer:** Dr Daike Tian from Shanghai Chenshan Botanical Garden of China

**Origin:** Selected natural mutation of *Saxifraga stolonifera*, from the population of suburb Xi'an of Shaanxi province of China.

This cultivar is very rare, and its leaf is white on upper surface.

The plants were identified by Dr Tian as the same as those bought online. For further identification, Dr Tian, Ms. Shujuan LI and her husband made a field survey on diversity of *S. stolonifera* at the collection site in Xi'an on May 30, 2023 and then confirmed its identity.

After three-year's observation on the cultivated plants, the ornamental traits remained stable and uniform. The cultivar is mostly similar to *S. stolonifera* 'Xue Wen' but different by its white adaxial surface of leaf and three shorter tepals without purple or red spots.



# ---International Rock Gardener---

## Characteristics:

Plants are evergreen, 8-13 cm tall (excluding inflorescence). Leaves 7-12, petiole 5-14 cm long, 2-6 mm thick, blade 3-10.5 cm long, 4-13 cm wide, oblate to nearly round, adaxially white and abaxially purple spotted. Inflorescence 30-57 cm long, rachis 2-5 mm thick, hairy. Tepals five, upper three short, long triangular-ovate, 2-4 mm long, 1-2 mm wide, white, with one large yellow dot at base; lower two long, nearly lanceolate, 7-13 mm long, 2-3.5 mm wide, pure white but light-pinkish at early stage. Sepals five, green, equal, 2.5 mm long, 1.5 mm wide, abaxially hairy. Stolones 4-12 per plant, 9-62 cm long, 1.2-3.5 mm thick, creeping, pink, hairy. The young leaf of plantlets produced from stolons is white in adaxial surface and densely red-dotted in abaxial surface. Flowering May to June.

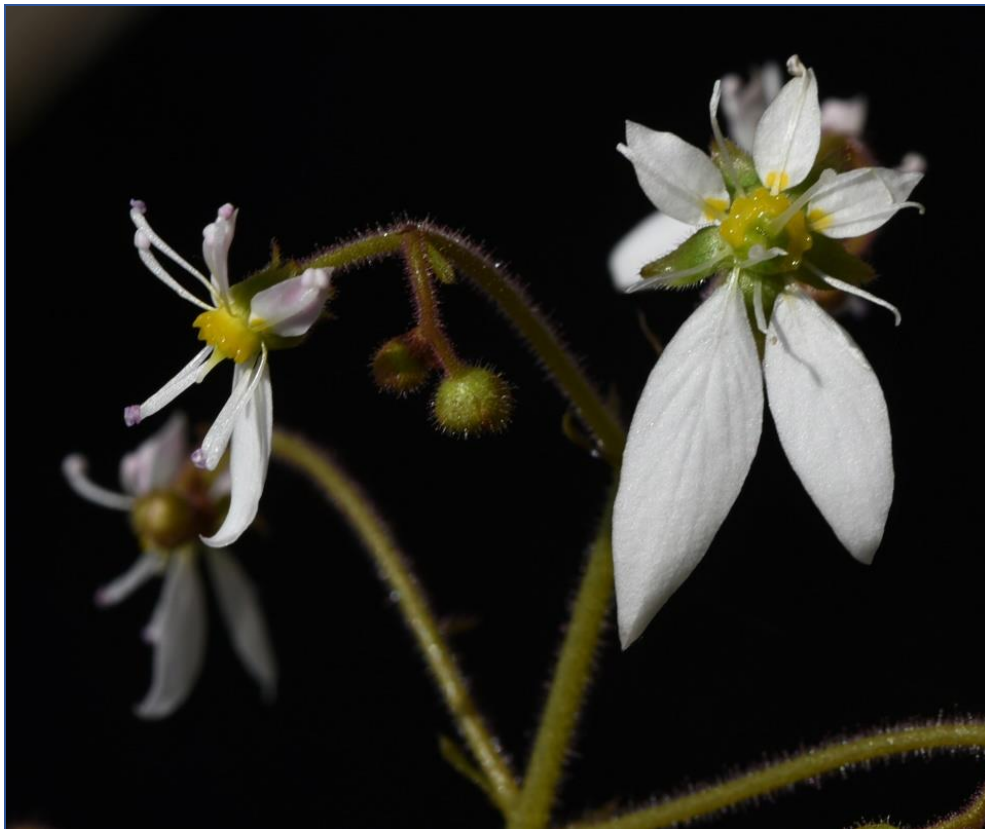
"Yin Yuanbao" (银元宝 in Chinese characters), a silver ingot used as currency in ancient China.



*S. stolonifera* 'Yin Yuanbao' flower front view



*S. stolonifera* 'Yin Yuanbao' flower back view



*S. stolonifera* 'Yin Yuanbao' flower stem



---International Rock Gardener---



*S. stolonifera* 'Yin Yuanbao' leaf back]



*S. stolonifera* 'Yin Yuanbao' plant with elongated stolons



*S. stolonifera* 'Yin Yuanbao' stolon plantlet



*S. stolonifera* 'Yin Yuanbao' back view of leaf-blade of plantlet



---International Rock Gardener---



*S. stolonifera* 'Yin Yuanbao' plant at early stage before flowering



*S. stolonifera* 'Yin Yuanbao' leaf-blade showing hairs

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*S. stolonifera* 'Yin Yuanbao' leaf-blade

*Saxifraga stolonifera* is a member of *Saxifraga* section IRREGULARES

Below is the latest classification of this section.

*Saxifraga* section IRREGULARES species list

*cortusifolia* **Siebold & Zucc** = *madida* **Makino**

*fortunei* **Hook**

var. *crassifolia* **Engl. & Irmsch.**

var. *incislobata* **Engl. & Irmsch.** = *zhejiangensis* **Z.Wei & Y.B Chang**

var. *obtusocuneata* **Makino**

*geifolia* **Balf.f.**

*henryi* **Balf.f.**

*imparilis* **Balf.f.**

*kwangsiensis* **Chun & How**

*lancangensis* **Y.Y.Qian**

*mengtzeana* **Engl. & Irmsch.**

var *cordatifolia* = *aculeata* **Balf.f.**



# ---International Rock Gardener---

*var peltifolia*

*rufescens* **Balf.f.**

*var flabellifolia* **C.Y.Wu & J.T.Pan**

*var uninervata* **J.T.Pan**

*sendaica* **Maxim.**

*forma lacinata* **Nakai**

*serotina* **Sipliv.**

*sichotensis* **Gorovoj & N.S.Pavlova**

*stolonifera* **Meerb.**

= *sarmentosa* **L**

*veitchiana* **Balf.f.**

## Note:

*cuscutiformis* **Lodd**

= *stolonifera* 'Cuscutiformis'

Dr Taike Tian has previously published two other *S. stolonifera* cultivars in the Saxifrage Magazine 2022.

*Saxifraga stolonifera* 'Xue Wen and 'Tianmu Enci'



S. 'Tianmu Enci'



S. 'Xue Wen'



Most of the section Irregulares species are woodland species, and can be found in Japan, Eastern Russia, Korea and China. By far the most popular species for the garden is *S. fortunei* and its cultivars, most of these originated from Japanese nurseries.

If you are interested in *S. fortunei* cultivars I would recommend having a look at Jurgen Peters website:

<https://shop.alpine-peters.de/produkt-kategorie/saxifraga-steinbrech/herbststeinbrech-cortusifolia/>

The RHS plant finder lists 22 cultivars available from UK nurseries.