Aloe erensii, Aloe jucunda and a new cultivar

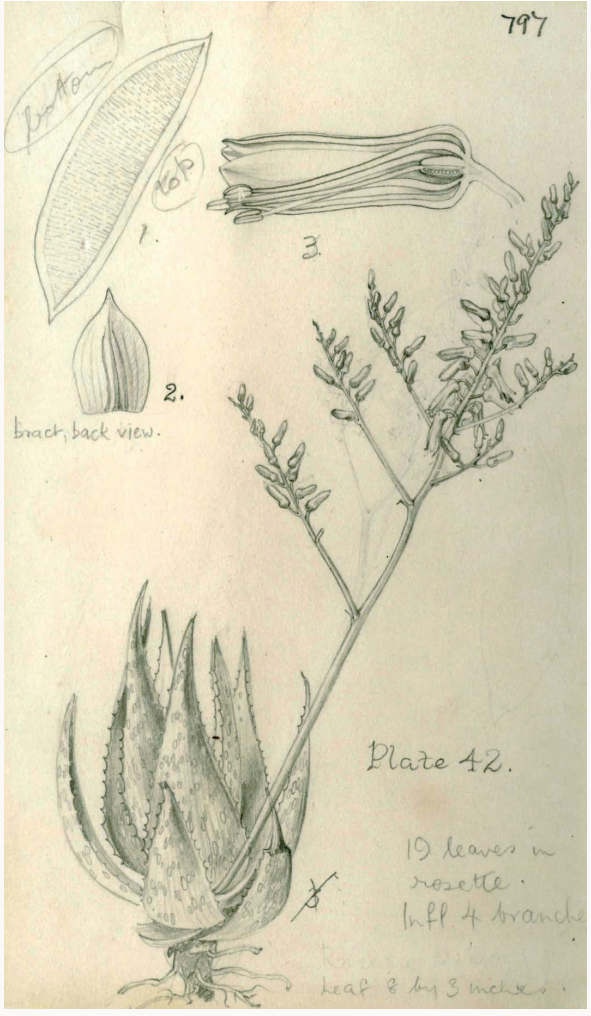
Aloe erensii, *Aloe jucunda* and a new cultivar

Colin C Walker & Suzanne Mace

Aloe erensii and *A. jucunda* are briefly described both in cultivation and in habitat. Their conservation status records based on IUCN criteria are emphasised since both species are endangered or critically endangered in the wild. An attractive hybrid between these two species has been in cultivation for a significant time and is here formally named *Aloe* 'Erensjuc'. Photography as indicated.

Introduction

Aloe breeding is now a significant activity, having got off to a slow start in the 1970s (Rowley, 2017). In parts of the world such as South Africa and California where these plants can be grown outdoors as garden plants, the focus is principally on producing showy and often bicoloured long-lasting flowers produced by large shrubby plants. Where wet and cold climates make greenhouse or indoor cultivation obligatory, especially in Europe and Asia, dwarf-growing species such as some of those from Madagascar are the preferred parents for hybridisation (Vachajitpan, 2014), or alternatively the small-growing South African species such as *Aloe humilis* (Kemble, 2014).



Figs. 1a & 1b Original drawings of *Aloe erensii* by Mary Connell. Type collection: Pole Evans & Erens 1587 (PRE 26354). Reproduced by courtesy of the South African National Biodiversity Institute (SANBI), Pretoria. Scan produced by Gillian Condy

Aloe jucunda is a very attractive, freely offsetting dwarf species that has become deservedly popular and hence is commonly encountered in cultivation although it is endangered in the wild. It has been used as the parent of several hybrids, notably *Aloe* 'Hanky Panky' (*A. jucunda* × *A. dhufarensis*; Jonkers, 2014). In contrast *A. erensii* is rare both in habitat and in cultivation. In the 1980s *A. jucunda* and *A. erensii* amongst others were used by Peter Brandham at the Royal Botanic Gardens, Kew as parents to produce hybrids for the study of chromosome behaviour. One such cross, *Aloe erensii* × *A. jucunda*, has been circulating in cultivation at least in the UK for several decades and is here, finally, provided with a cultivar name.

The female parent: *Aloe erensii*

Christian (1940) first described *A. erensii*. He said that "This pretty little species is named in honour of Mr. J. Erens, who is in charge of the gardens of the Division of Botany and Plant Pathology, Pretoria, and was a member of the Pole-Evans Central and East Tropical African Expedition of 1938, and collected it in July of that year near Lokitaung on the rocky mountain slopes, 4,000ft. [c. 1,200m] altitude above sea level. Mr. Erens reports that it occurs in situations partly sheltered by trees, was not seen in great numbers, usually suckers, forming clumps of 3–4 plants, and was the only species of the genus seen in the vicinity." (Figs. 1a & 1b.) Since that time this species has remained rare in cultivation and indeed we have never encountered living material in cultivation.

Fig. 2 *Aloe erensii* in habitat at the type locality, gorge between Lokitaung and Lake Turkana, NW Kenya (Photo: Peter Brandham)

Fig. 3 Peter Brandham (left) with Turkana tribespeople collecting *Aloe erensii* in Lokitaung Gorge, Kenya, 1977 (Photo: Susan Carter)

However, *A. erensii* has been recollected on a number of occasions. In 1977 a Kew expedition comprising Peter Brandham, Susan Carter and Brian Stannard revisited the easily-identified type locality, a rocky gorge between Lokitaung and Lake Turkana in north-west Kenya. We let Peter tell the story: "As you can see from my photo [here reproduced as Fig. 2] in *Aloes, the definitive guide* (Carter et al, 2011: 307) it grows in cracks in bare rock in the type locality, but what cannot be seen from the picture is that the plants are high on the vertical sides of the gorge. A good thing really, since the position prohibits grazing and collection except by the bravest. I clearly remember Sue and I paying a local [Turkana] tribesman 5 shillings to climb up and dislodge a couple of small plants for us (the illustrated one in your book being more accessible but too big to collect), all the time with his two wives standing with us and screeching with laughter at his

efforts to obtain a plant that could not be eaten by man or beast!" (See Figure 3; Carter, 2018.)

Aloe erensii is stemless, solitary or occasionally forming groups of several rosettes. The leaves are arranged in a dense rosette, ascending, slightly incurved, dull milky or bluish-green with many elongated pale spots. Its inflorescence is erect to 50cm tall, branched with up to seven racemes bearing laxly arranged flowers (Figs. 1a & 1b).

From a conservation perspective, *A. erensii* is listed in the IUCN Red List Category and Criteria (IUCN, 2018a) as Endangered B1ab(iii) where it is noted that "*Aloe erensii* has been collected a number of times from a river gorge near Lokitaung village. The human population in this area of Kenya has been growing and putting more and more pressure on natural resources. It is very likely that the habitat of this species is deteriorating as a result of this. Given the few collecting localities, the small extent of occurrence (<5,000 km^2), and the threats to the vegetation in the area this species is listed as Endangered."

Cytologically *A. erensii* is unremarkable and has the standard basic chromosome count for *Aloe* of 2n=14 (Brandham,1971).

The male parent: *Aloe jucunda*

In contrast to *A. erensii*, *A. jucunda* is very commonly encountered in cultivation and hence will be very familiar to many of our readers. Indeed at past National Shows some very hefty and multi-headed clumps have appeared on show benches. *Aloe jucunda* was first described by Reynolds (1953) who wrote: "This charming and very distinctive little *Aloe* was collected by Mr. P.R.O. Bally, botanist at the Coryndon Museum, Nairobi, on 2nd May 1949, at Gaan Libah, Somaliland Protectorate [now Somalia]. This locality is at the western end of the Golis Range about 5 miles east of Mandera (which is on the Berbera-Hargeisa road), and about 25 miles west of Upper Sheik (on the Berbera-Burau road). Mr. Bally found numbers of plants forming large clumps, 1–2ft. across, commonly hidden in bushes in open places on the upper edge of a dry, windswept escarpment, flowering on 2nd May 1949." Reynolds named his new species *jucunda* from the Latin 'jucundus' meaning pleasant or nice, for its attractive appearance.

Individual rosettes of *A. jucunda* are only 8–9cm across, so this plant is significantly smaller than *A. erensii*. The leaves are densely rosulate, spreading to recurved, usually very glossy, dark green with numerous pale-green to dull-white spots throughout (Fig. 4). Its inflorescence is only up to 33cm tall and is slender and simple, again in contrast to that of *A. erensii.*

Both *A. jucunda* and *A. erensii* belong to a distinctive group of species from north-east Africa that includes *A. somaliensis* and *A. hemmingii*, categorised by Reynolds as Group 4: small plants with ± striped flowers, the type species of which is *A. peckii* (Reynolds, 1966). In a multidisciplinary study involving chromosomes, leaf surface anatomy, biochemistry together with the more traditional approach of gross morphology, Carter et al (1984) observed that the "anatomical and biochemical features of *A. jucunda* and *A. peckii* are so similar to those of *A. somaliensis* that there is no doubt that all three constitute a very closely related group of species". However, they also concluded that *A. erensii* (together with *A. jacksonii*, *A. mcloughlinii* and *A. pirottae*) is distinct from the *A. somaliensis* alliance based on leaf epidermal characters, leaf exudate components and overall gross morphological characters.

However, the most recent evolutionary tree of aloes produced by Grace et al (2015) presents a different picture of relationships. Of the eight species included

Fig. 4 ***Aloe jucunda*** **(from Verdoorn, 1962)**

by Reynolds (1966) in his Group 4, five were included in this study: *A. jacksonii*, *A. jucunda*, *A. mcloughlinii*, *A. peckii* and *A. somaliensis*. These species do not form a monophyletic group, showing that they do not have a common evolutionary origin. Reynolds's Group 4 is therefore not a natural group but artificially brings together species with only apparently close morphological but not genetic similarities. In this latest tree, *A. jucunda* is sister to *A. debrana*, an Ethiopian endemic, and it is also closely related to *A. retrospiciens* and *A. trichosantha* also from tropical north-east Africa. Meanwhile *Aloe erensii* was not included in this study so as yet we do not know what its closest relatives are from a genetic standpoint.

From a conservation perspective *A. jucunda* appears to be under threat in its natural environment. Carter et al (2011) report that "The extensive Gaan Libah forest [its type locality] has regressed spectacularly in recent years, principally because of intensive grazing by domestic animals, wood-cutting and charcoal burning. Its eventual disappearance will spell doom for *A. jucunda* and the many other small and sensitive plants that it shelters." To emphasise this, the IUCN Red List Category and Criteria (IUCN, 2018b) lists this species as Critically Endangered B1ab(iii) and notes that "*Aloe jucunda* is a narrow endemic from northern Somalia. Considering the low number of collections from only three localities and the deterioration of the forest habitat of *A. jucunda*, it seems appropriate to assess it as Critically Endangered." Furthermore the IUCN states that "this is a narrow endemic known from an area about 30km across" and reports that the "current population trend is decreasing". It is indeed fortunate that this species is very common in cultivation, but we suspect that the genetic diversity of cultivated material is very limited, originating from just a few collections. It is therefore important that material with data is propagated reliably and as extensively as possible.

Cytologically *A. jucunda* is interesting because two different chromosome counts have been recorded, an unusual feature in *Aloe*. The majority of aloes are diploid with counts of 2n = 14 (Brandham, 1971) and most clones of this species follow this general pattern, including the type collection Bally 11719 that was used to produce the hybrid here described as new. However, at least two collections of *A. jucunda* have the rare count of 2n = 21, making them triploid. Brandham & Johnson (1982) report that, "Triploids occur sporadically in populations of diploid species and are usually produced by the fusion of a non-reduced (ie diploid) gamete with a normal one (Brandham & Cutler, 1981). Such triploids are frequently larger and more vigorous than diploids of the same species and this was observed to a slight extent in the Mirsa Plateau plants."

Aloe erensii × *Aloe jucunda*: *Aloe* 'Erensjuc'

The hybrid *Aloe erensii* × *A. jucunda* produced by Peter Brandham at Kew has been in cultivation, at least in the UK, since the 1980s, but has never received a cultivar name. When

Fig. 5 *Aloe* 'Erensjuc' flowering in the collection of Colin C Walker (Photo: Brian McDonough)

contacted, Peter Brandham said, "I was especially pleased that you are considering publishing my *Aloe erensii* × *A. jucunda* hybrid as a new cultivar and even more pleased that it still exists. It was one of many that I produced experimentally in the seventies in a project to determine the closeness of *Aloe* species to each other by scoring the efficiency of meiosis in hybrids of known parentage. As it was part of my official work at Kew it was never my personal property and when I retired it was discarded (without my knowledge, I may add). The only survivors of this project are the few that I gave away to friends and contacts such as Brian Fearn, Gordon Rowley and Adele Whicher. They confirm the old adage that the best way to keep a plant is to give it away!"

Fig. 6 ***Aloe*** **'Erensjuc' flowering in the collection of Brian McDonough (Photo: Brian McDonough)**

Peter went on to say "Yes, please go ahead with formally naming this plant. As a scientist, I avoided giving my hybrids names that lacked 'information' and always recorded them in my work under the names of their parents, abbreviated if pronounceable, hence *Gasteria lutzii* × *Aloe aristata* became ×*Gastrolea* 'Lutzar' and *Gasteria carinata* × *G. verrucosa* became *G.* 'Carver'. (Incidentally, the last was the subject of an article [Brandham, 1974] describing a very rarely-seen double-flowered form under the name *G.* 'Double Carver'.) A continuation of this practice would give the current plant the name *Aloe* 'Erjuc' or perhaps 'Erenjuc' and I strongly urge you to use this format." We decided to modify slightly Peter's suggestion and have chosen the more pleasing sounding name of 'Erensjuc'.

Peter continued, "To provide the additional information that you requested, the pollen parent of 'Erensjuc' was also Bally's type material of *A. jucunda* that has been in cultivation at Kew for many years and still exists here along with additional clones from Somalia collected by Susan Carter-Holmes and colleagues, including myself. The seed parent *Aloe erensii* was my collection from the easily-identified type locality, a rocky gorge between Lokitaung and Lake Turkana in NW Kenya." (Figs. 2 & 3)

The clone that we are formally naming here originated from Peter via Adele Whicher. Paul and Adele Whicher moved to Piddinghoe, East Sussex after living in Surrey for many years where they had been great friends with Peter and his wife Delia. This friendship continued after Adele's move and from time to time Peter, when visiting Adele, would bring a plant or two of interest to her. We do not know when Adele obtained her plant of *Aloe* 'Erensjuc' but we believe it was whilst living on the south coast. Suzanne, with her husband Tony, would visit Paul and Adele from time to time and quite naturally leave with something they had admired in Adele's greenhouse, one such plant being this *Aloe*.

Flowering time for 'Erensjuc' for one of us (SM) is around the autumn and only when the plant is happy with its conditions at which time it may also produce an offset. It does not offset prolifically and never makes a good clump, unlike *A. jucunda*, but produces enough offsets to be able to pass on this rather lovely plant to others. It hates being over-watered and will lose its roots and sulk if treated in this way, so particular care should be given to the drainage of the compost and the size of the container. Full sun is preferable and it really enjoyed our good summer of 2018. One of us (SM) has been growing this plant for about 25 years, whilst CCW only obtained the plant from SM four years ago.

So finally this clone of *A. erensii* × *A. jucunda* is here named *Aloe* 'Erensjuc' **cv. nova**, with the slightly modified composite name based on Peter's request as explained above. This clone has the accession number of PB 1039. We do not know if there is a preserved specimen in the Kew herbarium, but suspect that this is not the case.

Table 1. A comparison of selected characteristics of *A. erensii*, *A. jucunda* and *A.* 'Erensjuc'

	Aloe erensii	*Aloe* 'Erensjuc'	*Aloe jucunda*
Plant	stemless (acaulescent), solitary or forming small groups	stemless (acaulescent) or with a short stem (caulescent), solitary or occasionally suckering; rosettes < 25cm ø	stemless (acaulescent) or with a short stem (caulescent), suckering often forming large clumps up to 50cm or more ø; rosettes up to 8–9cm ø
Leaves	16–20 in a dense rosette, ovate-lanceolate, ascending, slightly incurved to 21×5–9cm, dull milky- or bluish-green with many elongate, pale spots; margins with narrow translucent border armed with white deltoid teeth, 1.5mm long, 4–6mm apart	20–30 in a dense rosette, ovate-lanceolate spreading to 15×5cm, dull pale green with many elongate, pale spots on both surfaces; margins with narrow translucent border armed with pungent white deltoid teeth, brown tipped when mature, 1.0–1.5mm long, up to 5mm apart	about 12, broadly ovate-acute, spreading to recurved, 4×2–5cm, glossy dark green to brownish with numerous whitish spots, particularly so on the lower surface; margins with reddish or brown, sharp, deltoid teeth, 2mm long, 3–4mm apart
Inflorescence	erect to 50cm tall with up to 7 spreading branches from below the middle; racemes to 20cm long, rather laxly flowered, often with subsecund flowers	obliquely erect, branched, often two produced per season, to 44cm tall with up to 5 racemes to 18cm long; flowers laxly and somewhat untidily arranged with up to 40 flowers	simple, several produced in succession, 30–35cm tall, racemes laxly-flowered, 13cm long with 10–20 flowers
Flowers	perianth pale reddish with a greyish tinge, rather broadly cylindrical, 30mm long, 10mm across at the ovary	perianth tube with slight basal swelling, tepals dusky pink with dark pink central stripe gradating to grey-brown at tips with pale cream margin up to 25mm long; copious amounts of golden honey-coloured nectar produced	perianth tube coral-pink, cylindrical, 20–25mm long, 7mm across the ovary, lobes whitish to yellow with a distinct dark green keel, outer tepals free for 7mm
Data sources	Christian (1940); Carter et al (2011)	current observations	Reynolds (1953, 1966); Verdoorn (1962); Carter et al (2011); Jonkers (2014)
Cytology	2n=14 (Brandham, 1971)	apparently unrecorded but presumably 2n=14 since both its parents have this diploid count	2n=14, 21 (Brandham, 1971; Brandham & Johnson, 1982)

The principal features of the parental species and the hybrid are detailed in Table 1. *Aloe* 'Erensjuc' most closely resembles the male parent, *A. jucunda,* in terms of the rosette shape and colouring, but it is significantly larger and the surface is dull not glossy. It also offsets very modestly unlike the prolifically offsetting *A. jucunda* (Fig. 5). The inflorescence (Figs. 6 & 7) is also larger and usually branched with multiple racemes in contrast to the simple unbranched spike of *A. jucunda*, indicating that size and spike branching characteristics have been inherited from the female parent, *A. erensii*. The flowers are unremarkable and intermediate between the parents (Fig. 8 and Table 1). Overall *A.* 'Erensjuc' is a handsome cultivar, well worthy of further propagation and distribution. It is regrettable that it has taken several decades for this very desirable *Aloe* to receive formal recognition as a cultivar.

Unfortunately the cytology of *A.* 'Erensjuc' has not been recorded as far as we can ascertain. However, the parental clones are both diploid with counts of 2n = 14, so we speculate that this hybrid has a similar count but this has yet to be confirmed (Table 1).

Further data on the hybrid come from Carter et al (1984) who said that "Of the remaining species in Reynolds's Group 4 the only hybridisation with the *A. somaliensis* alliance that has been possible was *A. erensii* (Bally 10797) × *A. jucunda* (Bally 11719). This hybrid is vigorous and moderately fertile (pollen fertility 67%), scoring 7 on the above hybrid index [an 8-point index that indicates a range of increasing genetical and evolutionary affinity between pairs of species]. *A. erensii* is therefore sufficiently closely related to *A. jucunda* to warrant its inclusion in Group 4, but is more distant in its relationship than *A. jucunda* is to *A. somaliensis* and *A. peckii*."

ACKNOWLEDGEMENTS:
We thank a number of friends and colleagues for invaluable assistance with this article. We are deeply indebted to Peter Brandham for many aspects, without which neither this new cultivar nor this article would exist. Peter produced the hybrid and supplied Adele Whicher with a plant. He has provided information used in this

article, given permission for us to name the hybrid, and has suggested the name and finally he has given permission to reproduce his habitat photo of *Aloe erensii*. Susan Carter provided Fig. 3 and commented on an early draft of this article. Alicia Grobler of the South African National Biodiversity Institute (SANBI) Pretoria and current editor of *The Flowering Plants of Africa*, kindly provided permission to reproduce Mary Connell's original paintings of *Aloe erensii* and Gillian Condy provided the scans. To Brian McDonough we are indebted for the use of his photos of his plant but especially for his professional photography of Colin's flowering plant. Roy Mottram provided scans of literature. Finally, the late Adele Whicher provided one of us (SM) with a plant.

Fig. 7 A raceme of *Aloe* 'Erensjuc' (Photo: Brian McDonough)

Fig. 8 Close up of the flowers of *Aloe* 'Erensjuc' (Photo: Brian McDonough)

LITERATURE:

Brandham, P E (1971) The chromosomes of the Liliaceae II. Polyploidy and karyotype variation in the *Aloineae*. *Kew Bull.* **25**: 381–399.

- (1974) A double *Gasteria*. *Nat. Cact. Succ. J.* **29**: 81–82.

Brandham, P E & Cutler, D F (1981) Polyploidy, chromosome interchange and leaf surface anatomy as indicators of relationships within *Haworthia* sect. *Coarctatae* Bak. (Liliaceae–Aloineae). *J. S. Afr. Bot.* **47**: 507–546.

Brandham, P E & Johnson, M A T (1982) Polyploidy and chromosome interchange in *Aloe* (Liliaceae) from Somalia. *Kew Bull.* **37**: 389–395, pl. 25.

Carter, S (2018) Plant hunting adventures in eastern Tropical Africa. Part 4: Turkana, northwest Kenya. *Euphorbia World* **14**(2): 22–30.

Carter, S, Cutler, D F, Reynolds, T & Brandham, P E (1984) A multidisciplinary approach to a revision of the *Aloe somaliensis* complex (Liliaceae). *Kew Bull.* **39**: 611–633.

Carter, S, Lavranos, J J, Newton, L E & Walker, C C (2011) *Aloes. The definitive guide*. Kew Publishing, Royal Botanic Gardens, Kew/British Cactus & Succulent Society.

Christian, H B (1940) *Aloe erensii*. *Flow. Pl. S. Afr.* **20**: t.797.

De Wet, A (2014) Breeding with aloes. *Cact. Succ. J. (US)* **86**: 197–199.

Grace, O M, Buerkl, S, Symonds, M R E, Forest, F, van Wyk, A E, Smith, G F, Klopper, R R, Bjorå, C S, Neale, S, Sebsebe Demissew, Simmonds, M S J & Rønsted, N (2015) Evolutionary history and leaf succulence as explanations for medicinal use in aloes and the global popularity of *Aloe vera*. *BMC Evolutionary Biology* **15**: 29 DOI 10.1186/s12862-015-0291-7.

IUCN (2018a) *Aloe erensii*. The IUCN Red List of Threatened Species. http://www.iucnredlist.org/details/201374/0 (accessed 6 September 2018)

IUCN (2018b) *Aloe jucunda*. The IUCN Red List of Threatened Species. http://www.iucnredlist.org/details/201368/0 (accessed 6 September 2018)

Jonkers, B (2014) Hybridising with *Aloe jucunda*. *CactusWorld* **32**: 109–110.

Kemble, B (2014) *Aloe humilis* hybrids: the spiny dwarf series. *Cact. Succ. J. (US)* **86**: 229–231.

Reynolds, G W (1953) A new *Aloe* from Somaliland Protectorate. *J. S. Afr. Bot.* **19**: 21–23, pl. XI.

- (1966) *The Aloes of Tropical Africa and Madagascar*. Aloes Book Fund, Mbabane.

Rowley, G D (2017) *Succulents in cultivation – breeding new cultivars*. The British Cactus & Succulent Society, Hornchurch, Essex.

Vachajitpan, P (2014) *Aloe* hybrid improvements in Thailand: history and results. *Cact. Succ. J. (US)* **86**: 216–217.

Verdoorn, I C (1962) *Aloe jucunda*. *Flow. Pl. Afr.* **35**: t.1390.

Dr Colin C Walker, School of Environment, Earth & Ecosystem Sciences, The Open University, Milton Keynes, MK7 6AA, England.

Email: c.walker702@btinternet.com

Suzanne Mace, Brenfield, Bolney Rd, Ansty, W Sussex, RH17 5AW, England.

Email: suzanne@paperweight-mall.com

Layout by Alice Vanden Bon