Passiflora miniata 'Xishuangbanna Red'

Registration number: 258

Submission date: 2019-09-22

Submitted and originally grown by: Fuchuan Wu, China (PRC)

Parentage: *Passiflora miniata* × *Passiflora miniata*

(see Note at foot of opposite page)

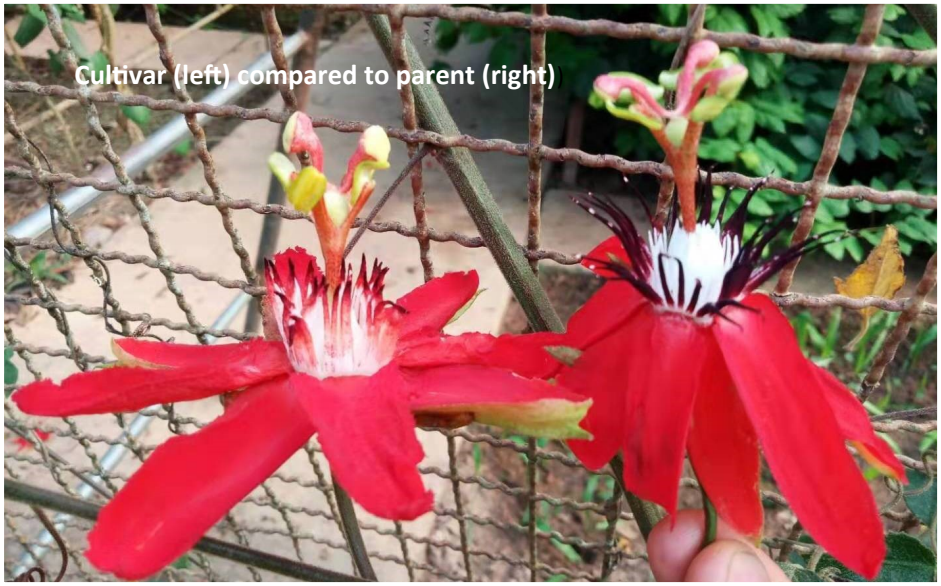
Confidence of pollen donor: 100%

Type: Tetraploid selection

GENERAL INFORMATION	
How is it distinctive ?	Similar or slightly larger dimensions than *P. miniata*, but more substantial - a typical flower weighs 6.8g versus 4.7g for *P. miniata*
Why this name ?	From its colour and the garden and prefecture where it was created.
Has it been published, patented or granted PBR ?	No
Propagation	About 100 clones, all at Xishuangbanna Tropical Garden. For how the original cultivar was created, see *Creation of the Cultivar* overleaf
Where was it grown ?	At Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. Tropical monsoon climate, altitude 580m
Culture requirements	Minimum temperature 5°C; full sun for optimal growth and flowering. A temperature over 15°C will keep it growing and flowering as the days get shorter, Prune when growth excessive; this will encourage further flowering for a while.

DESCRIPTION OF FLOWER

Diameter	12cm
Peduncle length	5cm
Colour of petals	Scarlet
Colour of sepals	Adaxial: scarlet; abaxial: yellow-green along central keel, shading to white or scarlet at margins. Awn short, green
Coronal series	2 outer series, both 2cm, thicker than on *P. miniata*, erect, purple at apex, white at base, reddish between; 1 inner series 1.5cm, white.
Flowering	Single. Main flowering period February-April.
Bracts	3.5cm, yellow-green at base, shading to reddish at apex. 12 small glands along apical margins, 2 larger glands at base



Cultivar (left) compared to parent (right)

LEAVES AND OTHER DETAILS

Leaf length	8.5cm
Leaf width	5cm
Lobes	1, broad
Further leaf details	Blade papery, margin irregularly serrate, surface densely tomentose
Petioles	1cm, 1-4 glands at base
Stipules	About 0.5cm, hook-shaped, soon deciduous
Vine	Green, terete
Fruit	Fruits subglobose; only produced when pollinated by *P. miniata*, and then seedless.

NOTE

The photograph above comparing cultivar and parent shows that the latter is indeed *P. miniata*, as stated on the original application form, despite a later suggestion that it might have been *P. coccinea*. For a discussion of the difference, see the article on p6.

P. 'Xishuangbanna Red' (continued)

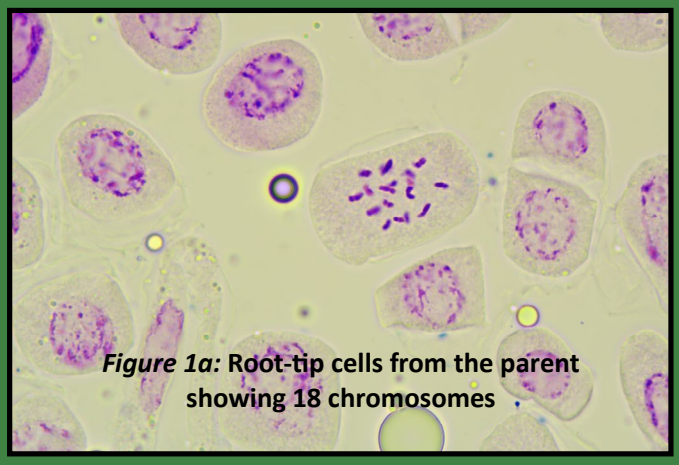


Figure 1a: **Root-tip cells from the parent showing 18 chromosomes**

Figure 1b: **Root-tip cells from the cultivar showing 36 chromosomes**

CREATION OF THE CULTIVAR

Notes based on information kindly supplied by the breeder

Seeds from the parent *Passiflora miniata* were planted in the matrix, and when the seedlings had just grown their first true leaf, cotton wool balls impregnated with colchicine were placed on the growing point. The characteristics of the treated seedlings were examined and compared with those of the original variety for the first selection.

Then to identify their ploidy, the selected seedlings were first subjected to root tip compression tablets and photomicrographed with results such as those shown in Figures 1a and 1b above. Figure 1a shows the parent, with just n=18 chromosomes, and Figure 1b the cultivar, with 2n=36 chromosomes, indicating that the cultivar is a tetraploid.

FLOW CYTOMETRY

The DNA of both parent and cultivar was then examined using flow cytometry, with similar results - see Figure 2 below.

Flow cytometry (FCM) is a tool for rapid detection and characterization of cells based on their light scatter and fluorescence properties. Information about cell number, size, macromolecular content, and genetic identity can be determined through use of various labels, stains, and probes, at a rate of hundreds or thousands of cells per second. The particles of the sample are brought to flow in a single file in a core of a narrow stream of liquid and pass individually through a beam of light, typically a laser. Optical signals from the interaction between particles and light are then steered by the optical system to spectrally separated detectors (photomultiplier tubes or photodiodes), and there transformed into electrical pulses which are then electronically processed. The results are displayed as histograms, scatter diagrams or the like, such as those shown.

FURTHER READING

King, Leslie A. and Myles S. Irvine 2010. Investigation of *Passiflora* hybrids using flow cytometry. *Passiflora* 20(1): 5-11

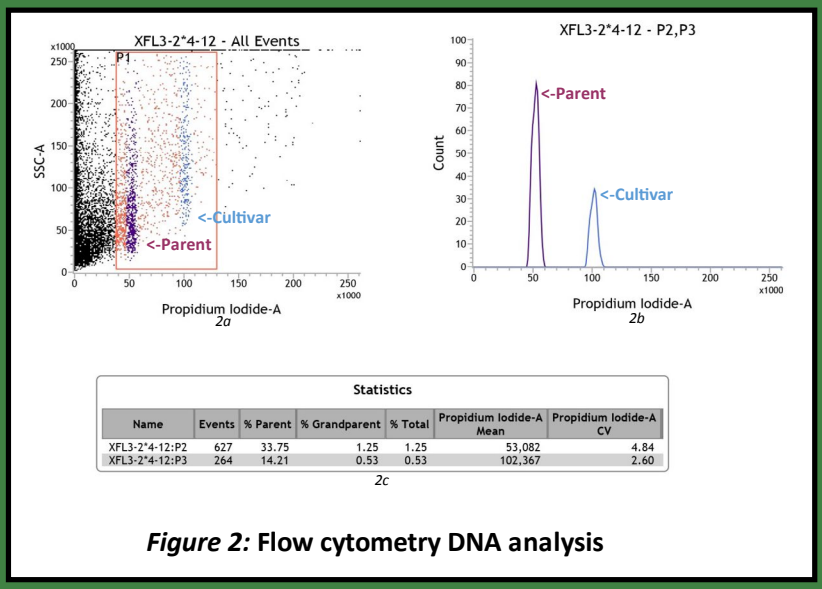


Figure 2: **Flow cytometry DNA analysis**