

Cultivars and Breeding of *Gloriosa*

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Gloriosa is a bulbous climber of the Liliaceae that grows wild in tropical regions and Africa. Recently, cut flowers and potted plant have become commercially available in Japan. Over 10 cultivars including one major cultivar, *G. superba* 'Rothschildiana', are grown. The following are cultivars that are grown in Japan. The characteristics of each cultivar are briefly described below.

CULTIVARS

Red Flower Types.

- 'Rothschildiana': the largest acreage in Japan, leading cultivar in Kochi pref.
- 'Rose Queen': the leading cultivar in Atsumi, Aichi pref., easy to grow, but many faults.
- 'Summer Red': selected in Atsumi for summer cropping, lower flowering rate in winter.
- 'Misato Red': selected in Misato, Kochi pref., excellent flower colour, expanding acreage in Misato.
- 'Royal': a brand name when shipped from Atsumi, originally introduced from Kochi.
- 'Rothschildiana Mini': the shortest cultivar, used for breeding purposes because of the poor keeping quality of the flower.

Orange Flower Types.

- 'Africana': in production over 5 years, three clones exist and are still under selection.
- 'Superba': mostly grown in the south of Thailand and India, only a summer crop in Japan.
- 'Carsonii': mainly grown in India, a less vivid colour but very popular. Seedling propagation has been tried to eliminate virus, but the flower colour varies, needs to be selected.

Yellow Flower Type.

- 'Lutea': a mid-sized flower with narrow petals, hard to grow, propagated from seed.
- Yellow Hybrid: a selection of the Sakata Seed Co., it has big flowers of excellent colour, flowering better in winter.
- 'Lutea Rie': selected in Atsumi, a short cultivar with small flowers, suitable for high temperatures.

Pink Flower Types. Current cultivars are not good. Having poor flower colour

through viral infection.

New hybrids.

- 'Jipang Sasayo': The outside and inside of the petals are gold and red respectively. It has short internodes and a compact habit.
- 'Mrs. Sasayo': The outside and inside of petals are white and pink respectively, brand new.
- Mini 95: high yielding and the shortest cultivar derived from 'Rothschildiana Mini'.

White Flower Type. Under micropropagation for release in 2 years time.

BREEDING

Plant breeding is a long-term project and a lot of work is required before any profits can be expected. Since gloriose's grow fast for bulbous plants, one might expect quick results from a breeding programme. However, even with modern technology it is only possible to obtain a four-fold increase per year with vegetative propagation. Since it takes many years to obtain 10,000 bulbs from the multiplication of one bulb, plants are often infected by virus during that time. Therefore, the mass propagation of healthy bulbs is difficult. Producing an F1 hybrid cultivars is one of the ways of solving this problem, but no wild species suitable for such a breeding programme are available. It would certainly take longer to repeat selfing, create atavism, and fix lines. Gloriosa is a gorgeous flower, but without a large quantity of cut flowers, a new cultivar will not make an impact in the markets, and will not be commercially successful. It is also important to be able to forecast new trends. The new variety 'Jipang Sasayo' has been micropropagated by Verde Co., Ltd. using tissue-culture technology, and shipped to markets in large quantities as cut flowers. This cultivar is now under field trial in Holland. In various production areas of Japan, the problem of virus infection has arisen. However, this can be overcome by establishing meristem culture.