

Breeding of New Type Mum for Gardening (Ground-mum) and its Adoption for Pot-Mum Production by Plant Growth Regulator Treatment[®]

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One of our native mums, *Chrysanthemum ornatum*, is good as a border bedding plant with vigorous performance and silver-hairy leaves. It performs well in the flower border, however, it blooms very late in the autumn in Japan. To develop an earlier blooming *C. ornatum*, an interspecific cross with a florist mum, 'Say-Alps', was carried out. 'Say-Alps' is an easy to force cultivar (spray-mum type) adaptable for year-round production of cut flowers. After 2 years of trial cultivation, we selected two new mum cultivars for gardening with October flowering and multiflorous habit. We named them 'Crazy Cat' (No. 1) and 'Pink Cat' (No. 15), respectively. These names were derived from a cat, walking around our selection trial field. To adopt them for use in pot culture we tested chemical pinching.

MATERIAL AND METHOD

We grew several potted plants of 'Crazy Cat' and 'Pink Cat' with sister clones No.4 and No.6. Between May and August we conducted pruning and cutting propagation monthly to multiply the experimental clones for experimental purposes. In late August, we applied Uniconazole (Sumi-seven, Sumitomo Chemicals. Co., Ltd) as a 50 ml drench at 2.5, 5.0, and 10.0 ppm. After application of this plant growth regulator (PGR), we recorded plant height, leaf length, leaf width, flower diameter, floret number, and petal length.

RESULTS AND DISCUSSION

Our mum 'Pink Cat' has small single flowers of pale purple color. The mum 'Crazy Cat' has small single flowers of white color. The floret of 'Crazy Cat' is a long tube with a purple mouth of star like opening. Results show that a 2.5 ppm drench treatment is



Figure 1. Flower shapes of mums 'Crazy Cat', No.1, (left) and 'Pink Cat', No.15, (right).

Table 1. Measurements of 'Pink Cat' (No.15) plants at flowering stage after treatment with Uniconazole (Sumi-seven).

Treatment	Plant height (cm)	No. of leaves	Leaf length (cm)	Leaf width (cm)	No. tube flowers	No. ligular flowers	Total no. flowers
Control	27.0 ± 2.3	14.8 ± 2.6	6.04 ± 0.7	3.02 ± 0.5	112.2 ± 12.6	15.6 ± 1.8	127.8 ± 13.8
2.5 ppm	13.32 ± 2.6	14.4 ± 1.5	5.76 ± 0.1	2.68 ± 0.5	124.0 ± 4.2	15.8 ± 1.5	124.0 ± 4.2
5.0 ppm	5.7 ± 1.5	12.6 ± 1.1	5.94 ± 0.7	2.92 ± 0.5	107.6 ± 11.9	15.0 ± 1.6	122.8 ± 11.4
10.0 ppm	3.5 ± 0.4	11.0 ± 1.2	5.0 ± 0.8	2.68 ± 0.4	99.0 ± 12.6	15.6 ± 1.8	114.6 ± 12.7

enough for chemical pinching of these clones and the application of this PGR did not affect the morphology of flower organs, but affected the flowering time. The PGR-treated mums flowered several days later than the untreated (control) plants. We now intend to release these new mums for gardening and potted-mum production.

Production of Tubers in Cyclamen from Somatic Embryos[®]

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The Problem and Difficulties in Cyclamen Breeding. *Cyclamen persicum* is one of the most popular pot plants in Japan. Up to now many seed-propagated cultivars of cyclamen have been bred in Japan, but only a few cultivars are registered in Plant Breeders Right program in Japan. In general, there are three major reasons why the number of registered cultivars is small.



Figure 1. Cyclamen microtubers produced directly from somatic embryo.