Myrtle As A Flowering Potted Plant

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Abstract

Myrtle, *Myrtus communis* is a foliage plant that is popular in Europe and has potential as a flowering pot plant once its culture is better understood. Myrtle can be propagated in a fog chamber or under mist from softwood cuttings up to 16 cm long if the cuttings are treated with 5,000 ppm IBA as a dip. Perlite mist is too frequent the cuttings may not root well. A moderate well-drained growing media like peat-perlite produced better plants than peat moss alone. In this experiment photoperiod did not affect flowering and the plants flowered in the spring as usual. Sumagic and A-Rest reduced shoot elongation and produced a better looking flowering plant than when no growth retardant was used.

Myrtus communis L. is a species that can be found growing in Europe, the Middle East, South America, and Australia as a hedge plant. These plants are popular because they are drought tolerant. and resistant or tolerant to insects and diseases. Some problems with scale and Phytophthora have been reported when plants are under water stress. Several cultivars of *Myrtus communis* L. have been developed, including 'Compacta'. 'Microphylla', 'Flore Pleno', and 'Variegata'. In Europe, especially in Germany, some of these cultivars are being used as potted plants for tile home.

Myrtle can be propagated from cuttings as well as seed. Riehl (1957) recommends taking myrtle cuttings in August. Kapeley and Kirmanova (1975) recommended semi-hardwood cuttings because they are easier to root than either softwood or hardwood cuttings. MacDonald (1990) suggests that the cuttings should be 7.5 to 15 cm and a rooting compound should be applied. Seeds can also be used for the propagation of myrtle but crop production will be longer than if cuttings had been used to start the crop. According to Lamont (1976),

TABLE 1. Effect of three types of medium and IBA quick dip concentrations on the mean root length (cm) of *Myrtus communis* 'Compacta' cuttings propagated under fog.

Medium	Concentration of IBA (ppm)				TOTAL
	0 ppm	1,000	5,000	10,000	
Peat/Perlite: (50/50)	0.41 cm	1.41 cm	1.84 cm	2.63 cm	6.29 cm
Perlite: (100%)	0.69 cm	0.24 cm	3.20 cm	1.29 cm	5.42 cm
Peat: (100%)	0.24 cm	0.00 cm	0.71 cm	0.60 cm	1.55 cm
Total	1.34 cm	1.65 cm	5.75 cm	4.51 cm	

seedling plants develop a special swollen root called a lignotuber. This structure permits the myrtle to survive drought conditions and disease and insect damage. When plants are propagated from cuttings, there is no lignotuber development; thus, cutting produced plants will not be as drought resistant as seed propagated plants.

To grow myrtle as a flowering potted plant, the factors that affect flowering should be clearly defined, currently, they are not. Some woody plants that belong to the same family as myrtle respond to a change in photoperiod. For example, *Lagerstroemia indica* and *Callistemon citrinus* will flower in response to long day conditions (Keever and Cobb. 1985). In its native environment, myrtle will flower in the spring and occasionally, if there is adequate moisture and fertilizer. it may flower again in the fall. It is possible that myrtle may be flowering in response to long days.

Growth retardants reduce the height of many plants, making the plant form or size more acceptable for the pot plant market Although myrtle does not grow too rapidly, we felt that growth retardants might create a more compact plant and produce a darker green leaf color. Some growth retardants have been reported to cause flower initiation in certain plants. It is possible that growth retardants would produce more compact plants and that they might cause earlier flowering in myrtle. The objectives of this work were to examine rooting of cuttings in different media and different concentrations of IBA, to determine if long days would affect flowering. and to determine if myrtle would respond to selected growth retardants

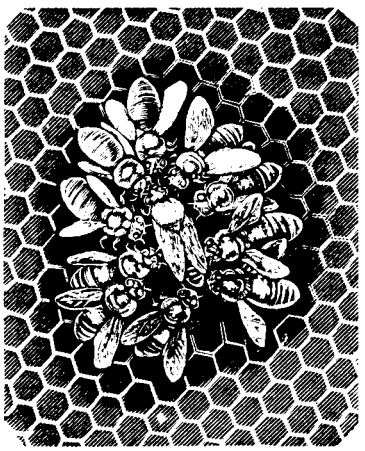
TABLE 2. Effect of three types of medium and IBA quick dip concentrations number of *Myrtus communis* 'Compacta' cuttings (out of total 7) that rooted under fog.

Medium	Concentration of IBA (ppm)				Total #	% Rooted
	0	1,000	5,000	10,000		
Peat/Perlite: (50/50)	4	7	7	7	25	89%
Perlite: (100%)	4	1	6	6	17	61%
Peat: (100%)	4	0	2	5	11	39%
Total #	12	8	15	18	53	
% Rooted	57	38%	71%	86%		63%

Material and Methods

Effect of Media Type and IBA Concentration on Rooting:

In August, 16 cm long cuttings of *Myrtus communis* 'Compacta were taken from stock plants that had been maintained in the greenhouse. The bottom 4 cm of each stem was stripped of leaves, and the bottom 2 cm of each stem was wounded. The cuttings were then dipped into one of 4 rooting solutions for 10 seconds. Solutions were made from potassium indole butyric acid (IBA), at 0, 1,000, 5,000 or 10,000 ppm. The cuttings were then placed into



one of three rooting media: peat moss, perlite, or a 1:1 mixture of peat and perlite. One-half of the cuttings were placed under an intermittent mist system with 10 sec of mist every 6 minutes and the other half were placed in a fog chamber. The temperature in the greenhouse and fog chamber was between 18° and 20° C. Seven weeks after the experiment was begun, the number and length of roots was recorded for each cutting.

TABLE 3. The effect of two growth regulators (Sumagic and A-Rest) on the increase in shoot length (cm) and elongation rates as a % of control of *Myrtus communis* 'Compacta' for a period of 8 weeks, under long day photoperiod.

Growth Regulator	Shoot Length (cm)	*Elongation Rate (%)
Control	2.1	100
Sumagic 25 ppm	2.7	108
Sumagic 35 ppm	1.7	84
Sumagic 45 ppm	1.9	94
A-Rest 30 ppm	2.6	158
A-Rest 60 ppm	2.4	120
A-Rest 90 ppm	4.2	163

*Elongation rate was calculated as final length (at 8 weeks) minus initial length divided by the control.

Effect of Photoperiod and Growth Retardants

This experiment was conducted November through February, and a total of 70 plants were evaluated. Thirty-five rooted cuttings were potted in 10 cm pots and moved to a long day treatment with 4 hours of incandescent lighting from 10:00 PM to 2:00 AM daily. The irradiance level was 3 milmol/m^{-2}/s^{-1}. The other 35 cuttings were potted and moved to a bench that had blackcloth drawn at 4:30 PM and removed at 8:00 AM, ensuring a short day.

Within this experiment, an additional 7 treatments were applied Five plants in the long day treatment and 5 plants in the short day treatment were treated with growth retardant. The treatments were control (no growth regulator), A-Rest (ancymidol) at 30,60 and 90 ppm, and Sumagic (uniconazole) at 25,35 and 45 ppm. The plants were sprayed with the growth retardants in mid-January. One stem was selected on each plant and that stem was measured for length every 2 weeks for 5 weeks.

Results and Discussion

Effect of Media Type and IBA Concentration on Rooting:

Cuttings in the fog chamber had slightly longer roots and a greater percentage rooted than those under the mist. The average percent rooting in the fog chamber was 63%, while the percent rooting under mist was 47%. The total root length in the fog chamber was 13.3 cm, while the total length was II . I cm under mist. The cuttings in the fog chamber were exposed to very high humidity, but did not have as much water fall on the foliage as the cuttings under the mist. These results agree with Reihl (1957), who reported that there was better rooting under drier conditions, possibly due to less nutrient leaching.

Under either fog or mist, the greatest number of cuttings rooted in the peat-perlite medium (Table 1). In an additional experiments a medium of 25% peat and 75% perlite seemed to give excellent rooting. There was also greater root length in the peat-perlite than the other media (Table 2) Rooting in perlite was good but rooting in peat was quite poor. The probable explanation is that the drier environment was better.

Rooting without IBA was fair, and 1,000 ppm IBA did not increase percent rooting. The percent rooting at 5,000 ppm was better than the control, and there was an additional increase in percent rooting with 10,000 ppm IBA. The best rooting was in peat-perlite where 1000 ppm IBA gave 100% rooting. With peat-perlite medium, increasing IBA above 1,000 ppm did not affect percent rooting but root

growth from cuttings, 'Betty Lou' attains a plant height of 25-30 cm (10-12") and plant spread of 50 cm (30"). The plant shape changes dramatically in the second year, with plant height of 75-90 cm (2.5-3 ft.) and plant spread of 90 cm (3 ft.) across. Since 'Betty Lou' represents a new plant form for garden chrysanthemums, its inclusion in the landscape must be consistent with its final plant size. Customers must be informed that Maxi-Mums™ are to be planted at twice the normal spacing for standard chrysanthemums. It is recommended that 'Betty Lou' cuttings be planted at least 120 cm (4 ft.) apart to ensure the attainment of full plant stature. Closer plantings of 60-90 cm (2-3 ft.) would provide a continuous hedge without the individual plants being distinguishable.

Extensive multi-site trials throughout Minnesota have proven Maxi-Mums™ to be the most winter-hardy releases to date from the University of Minnesota garden chrysanthemum breeding program and 'Betty Lou' is no exception. Winter survival is excellent (frequently >95%) without crown protection (mulch). Flowering is also consistent across the state and through the years.

'Betty Lou'™ may be propagated only by licensed parties. Firms or individuals desiring to propagate and merchandise cuttings of 'Betty Lou' must apply for a license. Contact Drs. Neil Anderson (612/624-3232; FAX: 612/624-4941; E-mail: ander044@maroon.tc.umn.edu) or Peter Ascher (612/624-9762; FAX: 612/624-4941; E-mail: asche001@maroon.tc.umn.edu), Department of Horticultural Science, University of Minnesota, 1970 Folwell Avenue, St. Paul, MN 55108. Individuals may also contact these licensed propagators: Dooley Gardens, 210 North High Drive N.E., Hutchinson, MN 55350 (612/587-3050) or Mums for Minnesota, 3135 227th Street East, Faribault, MN 55021 (507/334-6220).

Upcoming MCFGA Meetings!

<u>February 11, 1997-Gertens Greenhouses</u> (450-1501)- Speaker Topic - Use of Compost in Greenhouse Soil Mixes.

<u>March 1, 1997 - Bus Tour with North Central Florists Assoc.</u> (will leave from Radission (Downtown, St. Paul)(info - call Clair - 461-0416), Len Busch Roses, Busch Bros, Malmborg's (Roger's), Lunch - Natures Hideaway (428-3013), Dan and Jerry's, Hermes (Becker). Cost - $20.00 including lunch for members of either association.

April 8, 1997 - Tenatively Bailey's Nursery (St. Paul).

June 10, 1997 - Boat Trip down St. Croix leaving from Stillwater.

July ??, 1997 - Widmer Fund Annual Golf Tornament/ Fund Raiser hosted by Malmborg's.

August 12, 1997 - Widmer Fund/MCFGA Field Day at the University of Minnesota. Review of new research, trail gardens and tours of laboratories will be given. Buffet meal is included.

September, 1997- still organzing

October , tues, wed and thurs., 1997 - MCFGA Short Annual Course

Call Clair DaRe (MCFGA Exectutive Secretary) at 641-0416 for more information.