Polygala myrtifolia ‘Chapman Field’, an Everblooming Subtropical Flowering Shrub

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Polygala myrtifolia L. (cape milkwort) is a showy evergreen shrub that ranges throughout South Africa in both winter and summer rainfall areas, occurring in diverse vegetation types and on many different soils (van der Walt, 2003). Flowers are usually various shades of purple, but can also range from pink to white. It has escaped from cultivation in the west Mediterranean region (Krüssmann, 1977), though one might conclude that adventive populations in the Mediterranean were derived from material of western cape (winter rainfall) provenance. It reaches a height of 1.25 to 2 m, and maintains a tight, spherical canopy. It is hardy to 5 °C (Akoumianaki-Ioannidou et al., 2000). The plant produces an abundance of 2 to 3 cm long purple flowers from spring to autumn in most areas where it is grown, and year-round in southern Florida. In this paper we document the release of *P. myrtifolia* ‘Chapman Field’, a seedling selection that is superior in form and ease of propagation.

Origin

Seed of *Polygala myrtifolia* originating from Natal Province, South Africa (a summer rainfall region), was purchased in 2000 from Silverhill Seeds, Capetown, South Africa. Two dozen seedlings were planted in an evaluation shrub block at the USDA Subtropical Horticulture Research Station in August 2001. Two clones were identified in 2002 with superior growth characteristics (densely foliated, shortest internodes, heavy flowering) and were selected for propagation as PM1 and PM2.

In September 2002, PM1 and PM2 were propagated by tip cuttings in a randomized block design with four blocks of six cuttings of each clone with two hormone treatments, 1,000 ppm and 2,500 ppm indolebutyric acid (IBA), applied as five sec basal end dip in a 50% EtOH solution, and a control with no treatment. The cuttings were placed in 3-cm² cells of 1:1 (v:v) coir dust and perlite on a mist bench with mist frequency of 16 s every 8 min from 6:30 AM until 7:00 PM. Cuttings received max PPf = 1,050 µmol·m⁻²·s⁻¹,

and temperatures ranged from 29 to 35 °C (day) and 21 to 24 °C (night). Data (number of roots, rooting percentage) were collected after 42 d (Table 1). There was no significant difference between rooting percentages of either clone with any treatment, though the highest average rooting percentage was for PM2 with 2,500 ppm IBA (75%). However, number of roots differed significantly between the treatments ($P < 0.0008$), with 2,500 ppm IBA yielding the highest number of roots in both clones. Akoumianaki-Ioannidou et al. (2000) reported better results without exogenous hormone application. In November 2002, 20 cuttings of each clone without any hormone treatment were placed in 3 cm² cells of 1:1 (v:v) coir dust and perlite on a mist bench with mist frequency of 16 s every 16 min (reduced 34 d later to 8 s every 16 min) from 6:30 AM until 6:30 PM. Cuttings received max PPf = 900 µmol·m⁻²·s⁻¹, and temperatures ranged from 25 to 30 °C (day) and 18 to 20 °C (night). These cuttings were examined after 68 d. Ninety percent of PM2 cuttings were rooted; rooting percentage of PM1 was 55%.

Eighteen plants of PM1 and ten of PM2 were planted out in a completely randomized evaluation block in March 2003. After 15 months of growth, overall plant height measurements were taken. Height difference between the two clones was highly significant (Table 2). We concluded that PM2 was both a more compact clone and somewhat easier to propagate. It is this clone, given the cultivar name ‘Chapman Field’ after the historical vernacular name of our USDA location, that has been released through the National Plant Germplasm System as PI 636305.

Description

Polygala myrtifolia ‘Chapman Field’ (Figs. 1 to 3) is a moderately fast-growing, densely branched and foliated evergreen shrub, reaching to 1.2 m in height and 1.7 m spread in 18 months. The shortly petiolate (about 2 mm), glabrous, and ascending leaves are narrowly oval-shaped, 25 to 40 mm long, 10 to 12 mm wide, entire margined, and emarginate at the apex. The adaxial surface is RHS (Royal Horticultural Society, 1998) green 137A and slightly glossy; the abaxial is green 137C. Flowers are produced in indeterminate terminal racemes of 10 to 12 on 10 to 13 mm long pedicels; the lower ones reaching anthesis first. The flower buds are flattened, marked with dark

veins and oval to broadly crescent-shaped. Each flower is 2 to 2.5 cm long, and ca. 3 cm wide. The calyx consists of three green sepals, 4 to 5 mm long, two oriented along the keel, and one between the wings. The corolla is zygomorphic, superficially resembling that of a legume (pea or bean), but lacks the banner (or standard). There are two purple-violet (81A) ovate wing petals, 14 to 16 mm long × 10 to 12 mm wide. The keel petal that encloses the reproductive parts is 20 to 22 mm long, white proximally, and then darkens apically through purple-violet (81A) to violet (83A). It has a branched, brush-like appendage on its lower edge. The two remaining petals are smaller than the other three, lanceolate, imbricate, abruptly long-acuminate, ca. 1 cm long, and superposed above the keel. There are eight monadelphous stamens fused to the style. The fruit of the species is a small, winged capsule, which has not been produced in cultivation in our area.

Cultural Notes

Polygala myrtifolia ‘Chapman Field’ appears adaptable to a range of soils and a pH range of 6.0 to 8.0. Cuttings root in one to two months, and 2.7 l container size plants are finished in 3 to 4 months after being lined out. Plants should be placed in full sun for heaviest flowering and most compact vegetative growth. We have maintained our mulched planting on an alternate day, 2-h irrigation schedule using low volume spray emitters providing 16 L·h⁻¹ except during rainy periods. The plants are fertilized quarterly with a slow release, complete landscape fertilizer. The species is reportedly drought tolerant, but given ecological breadth of the species, there is likely to be significant variation in this characteristic.

Polygala myrtifolia ‘Chapman Field’ can be massed as an informal border or hedge, or used as a specimen plant. The plant branches quickly as it grow and flowers when small, thus it is also attractive in containers. Though remaining densely foliated for several years, the plant responds well to pruning with abundant new growth. No pest or disease problems have been encountered. It is in flower throughout the year in Miami, Fla.

Neither ‘Chapman Field’ nor any of the other *P. myrtifolia* seedlings that we have grown have ever set fruit in Miami, probably due to lack of adapted pollinators. This is fortunate, as there is always concern for potential invasiveness when introducing a new landscape ornamental. Nonetheless, plants should be observed for at least one flowering season in any area of introduction, given the species’ history in the Mediterranean. It should be trialed through USDA Hardiness Zones 10 to 11 (USDA, 1990), and in protected areas in 9B.

Cuttings are best taken in spring and summer (Akoumianaki-Ioannidou et al., 2000; Beckett, 1984; Upward, 1988), though we have had success in autumn with *P. myrtifolia* ‘Chapman Field’. While hormone application has little significant effect on rooting percentage of cuttings (Table 1) (Akoumianaki-Ioannidou et al., 2000), it does influence the number of roots formed (Table 1) and may also speed rooting. The species has been characterized as difficult

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Fig. 1. *Polygala myrtifolia* 'Chapman Field' after 15 months of field growth.

Fig. 2. *Polygala myrtifolia* 'Chapman Field', close-up of foliage and flowers.

Table 1. Propagation by cuttings of *Polygala myrtifolia*.

Clone	Treatment (ppm IBA)	Avg rooting % ^z	Avg roots/ rooted cutting ^y
PM1	0	42 (16) ^x	4.6 (1.0)
	1,000	46 (22)	9.3 (3.3)
	2,500	46 (14)	15.7 (3.49)
Chapman Field (PM2)	0	56 (4)	4.2 (0.9)
	1,000	50 (12)	6.3 (1.4)
	2,500	75 (14)	15.2 (3.9)

^xNonsignificant.

^yHighly significant (ANOVA, $P \leq 0.0008$).

^zStandard error.

Table 2. Height differences between *P. myrtifolia* 'Chapman Field' and clone PM1 after 15 months of field growth.

Clone	<i>n</i>	Avg ht (cm) ^z
PM1	18	125.7 (3.7) ^y
Chapman Field	10	100.6 (3.8)

^yHighly significant (ANOVA, $p \leq 0.0002$).

^zStandard error.

to propagate by cuttings (Iapichino and Airò, 2002), and micropropagation has been recommended (Iapichino, 2004). Clearly, the species is variable for this characteristic, and populations adapted to Mediterranean climates (i.e., from winter rainfall regions of South Africa) appear to be more difficult in this regard (Iapichino and Airò, 2002).

Availability

Small quantities of the cultivar are available

for research purposes only by request through the USDA-ARS National Plant Germplasm System (<http://www.ars-grin.gov/npgs/>) as accessions PI 636305.

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