

Puya mirabilis - New Crop Summary & Recommendations

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***Puya mirabilis* (Mez) L.B. Smith**

Puya mirabilis is a plant within the Bromeliaceae family. There are three main subfamilies in for bromeliads, and the genus *Puya* is within the Pitcairnioideae subfamily, which consists of terrestrial plants, while the other subfamilies contain epiphytes and lithophytes. The genus *Puya* is also separated into subgenera. *Puya mirabilis* is in the subgenus *Puyopsis*, which have plants with fertile apices, while the second subgenus, *Puya*, has non-fertile apices (Hornung-Leoni, 2005). Two other scientific names for *P. mirabilis* are *Molina mirabilis* and *Pitcairnia mirabilis*, and this species does not have a common name. There are currently no cultivars of this species, although there is a hybrid cultivar of *P. mirabilis* x *P. tuberosa*. This cultivar is named Puya 'Poseidon's Trident,' and has flowers that possess darker petals and lighter sepals than *P. mirabilis*, and this cultivar was bred by using pollen from *P. mirabilis* to fertilize *P. tuberosa* (FCBS, 2007).

This plant is native to the Andes Mountains (Hornung-Leoni, 2005) in Bolivia and Argentina. It can be found at elevations of 1400-2600m (Kromer, 1999), and between 65-80° W Longitude and 10° N to 50° S Latitude (C. Christian, 2002). It can be found from zones 9b-11 (Faucon, 2005), and would not be hardy in Minnesota winters, and therefore could not become invasive to the area.

P. mirabilis have linear leaves in a basal rosette with spiny trichomes. They flower early for many bromeliads (Seedhunt.com, 2011). The flowers are borne on spikes, and can have up to 15 flowers per stem (Gardens North, 2012). The flowers have 3 sepals and 3 petals each (Pertuit, 1995). The flowers are a yellow-green color, and the sepals are an attractive deep purple. They bloom mid-summer (Stupid Garden Plants, 2012). They have a shallow root system (Marie Shelby Botanical Garden). These plants do not have any commercial or medicinal uses, although bromeliads can be used as patio or potted houseplants.

Propagation of *P. mirabilis* can be done by seed. Seeds can be direct sowed and do not have a dormancy that needs to be broken. Seeds can germinate within two weeks, and in my experiment, there was a 21% germination rate when sowed in a 288 plug tray. Many bromeliads also reproduce by producing pups, and experimenting on whether *P. mirabilis* can be propagated vegetatively would be useful. *P. mirabilis* flowers early as compared to many bromeliads, but an experiment to see if flowering could be induced by ethylene could lead to easier production of the plant for sale. Florel could be used to try to initiate flowering, and if the use of ethylene worked, initiation of flowers could start 6-8 weeks after the application of Florel (Pertuit, 1995). While being grown, they should be kept between 70-80°F during the day, and 60-62°F during the night for optimal growth (Bromeliads.info, 2006). The plants will also need a 10-15° DIF to induce flowering, without it, plants will only continue to grow foliage (Bromeliads.info, 2006).

P. mirabilis could use improvements on time to flower, and to determine if uniformity of flowering time can be achieved. Most bromeliads only flower once, then die, so it would also be useful to try to breed a plant that can flower repeatedly.

This plant could be marketed as a cut flower because of the long spikes that the flowers emerge from, and the flowers have a unique form with the green petals surrounded by the purple sepals. It could also be produce for a holiday plant in greenhouse. The color of the flowers would lead to it being a good plant for Thanksgiving, as the neutral dark purple of the flower's sepals are a good fall color. It could be sold as a potted plant, or as a cut flower added to holiday arrangements.

Literature Cited

- Bromeliads.info. 2006. "Bromeliad Blooming Overview."
<<http://www.bromeliads.info/archives/bromeliad-blooming-overview>>
- C. Christian. 2002. "Climate of the Andes."
<http://www.blueplanetbiomes.org/andes_climate_page.htm>
- Faucon, Philippe. 2005. "*Puya mirabilis*." <http://www.desert-tropicals.com/Plants/Bromeliaceae/Puya_mirabilis.html>
- Florida Council of Bromeliad Societies. 2007. "*Puya* 'Poseidon's Trident.'" <http://fcbs.org/cgi-bin/dbman/db.cgi?db=photo&uid=default&photo=6153&ww=on&mh=5&view_records=View+Records>
- Gardens North. 2012. <<http://www.gardensnorth.com/site/>>
- Hornung-Leoni, C. and Sosa V. 2005. "Morphological Variation in *Puya* (Bromeliaceae): an Allometric Study." *Plant Systematics and Evolution*. 256: 35-53.
- Kromer, T. and Kessler, M. 1999. "Checklist of Bolivian Bromeliaceae with Notes on Species Distribution and Levels of Endemism." *Selbyana* 20(2): 201-223.
- Marie Shelby Botanical Gardens. "What is A Bromeliad?"
<<http://www.selby.org/learningandgrowing/articles/what-bromeliad>>
- Pertuit, A.J. Jr. 1995. "Understanding and Producing Bromeliads." *Clemson Extension*.
<<http://www.clemson.edu/psapublishing/pages/HORT/HORTLF64.PDF>>
- Seedhunt.com. 2011. "2012 List." <<http://www.seedhunt.com/LtoR.htm>>
- Stupid Garden Plants. 2012. <<http://www.stupidgardenplants.com/archives/tag/puya-mirabilis>>