Epipremnum aureum ‘Green Genie’

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Epipremnum aureum Engler. is commonly referred to as Pothos or Golden Pothos. Pothos varieties are among the most popular tropical ornamental hanging basket crops and are durable interior foliage plants (Steinkamp et al., 1992). The genus *Epipremnum* and its 10 known species are tree-climbing vines native to the Solomon Islands. In natural tropical settings, pothos can grow to be large in size producing leaves up to 3 feet in length. Plants used for interiorscape purposes such as pedestal plants, totems, hanging baskets, dish gardens, and small desk plants usually have heart-shaped leaves that rarely exceed 6 inches in length. Common commercial cultivars include Golden Pothos (intricately mottled yellow variegation on a green field), Marble Queen (white variegation on a green field), Jade (uniform dark green leaves with no variegation), and Neon (uniform chartreuse colored leaves).

Origin

Pothos plants do not flower under greenhouse or interior environments and flowering is seldom reported even within native habitats. As a result, no pothos hybrids are known to exist. As a result of the difficulty in flowering and hybridization and because of the commercial importance of this ornamental crop, we initiated a program at the Mid-Florida Research and Education Center (MREC) in Apopka, FL, to induce mutations from available pothos cultivars. Pothos ‘Green Genie’ is a selection from that program. Pothos ‘Green Genie’ is a mutation selected from Pothos ‘Marble Queen’ plants that had been irradiated a single time with 6.5 gray of gamma rays from a Cesium 137 source that emitted 9.18 gray/minute. Nine months after irradiation, a single uniform stem mutation was discovered on one treated plant. The mutant was removed from the mother plant and asexually increased by tip and single-node cuttings for 1 year to produce sufficient numbers of stock plants. During this process, it was determined that the

unique growth habit and foliar characteristics of Pothos ‘Green Genie’ were stable and made this plant suitable for introduction as a new cultivar.

Description

Pothos ‘Green Genie’ has a smaller overall size compared with the original Marble Queen cultivar. Mature leaves from ‘Green Genie’ reach an average of 7 to 9 cm long and 4.8 to 5.8 cm wide compared with 10 to 12 cm × 8 to 10-cm leaves on ‘Marble Queen’. Pothos ‘Green Genie’ leaves are shiny and coloration is uniform deep green [RHS 139A; Royal Horticultural Society (RHS), 1995]. Undersides of the leaves are a lighter green (RHS 137C). The stem or vine color is dark green (RHS 139A) on the upper side (the side exposed to light) but gradually fades to a lighter green (RHS 137C) on the underside. Petiole color is also green (RHS 137C) in the center but the outer 1- to 2-mm edges are white (RHS 155A). The white coloration in the petiole wings is present on the four to five newest leaves on each vine tip. As leaves mature, the white outer colored wing bands turn brown (RHS 200C). The white edge is unique to this new cultivar. Internode length varies from 4 to 6 cm along the vine (Fig. 1). Overall, ‘Green Genie’ has a sturdier and thicker appearance compared with the parent plant, ‘Marble Queen’.

Performance

Two growth studies were conducted using cuttings that were harvested from Pothos ‘Green Genie’ stock plants maintained in a shaded greenhouse at MREC Apopka. In April 2006, tip cuttings (3 to 4 cm in length and displaying one to two expanded leaves) were taken and stuck 12 per 1.6-L pot containing Fafard #2 Mix (Conrad Fafard, Inc., Agawam, MA; 55% Canadian peat: 25% perlite:20% vermiculite). Thirty pots of tip cuttings were stuck. One month later, single eye cuttings (a stem section consisting of one eye with one expanded leaf attached) were harvested from the stock plants and stuck 12 per 1.6-L pots also containing Fafard #2 medium. Thirty pots of eye cuttings were stuck. All cuttings were rooted in a plastic tent without intermittent mist or fog to maintain high humidity (maximum irradiance of 80 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) in a shaded greenhouse (maximum irradiance

of 125 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) and under natural photoperiod within a temperature range of 15 to 34 °C. In each test, the cuttings were rooted and removed from the propagation chamber after 10 weeks. The original 1.6-L pots containing the 12 rooted cuttings were set on raised benches in the shaded greenhouse under natural photoperiod and temperature range as described previously. Treatments consisted of Peter’s liquid fertilizer 20N–8.8P–16.6K (Scotts-Sierra Horticultural Products Company, Marysville, OH) at 100, 200, or 300 ppm applied once per week. The fertilizer treatments were applied as a 200-mL liquid drench per pot once weekly throughout the duration of the experiments. Plants were placed in a completely randomized experimental design and hand-watered as needed. Data recorded after 12 weeks of growth included length of longest vine, number of leaves, length and width of largest leaf, and a visual quality rating in which 1 = dead, 2 = fair, 3 = acceptable (saleable quality), 4 = good, and 5 = excellent quality. Data were analyzed using the analysis of variance procedures of SAS (SAS Institute Inc., Cary, NC). Parameters with means showing significant differences were subjected to regression analysis.

Results and Discussion

Pothos ‘Green Genie’ was propagated by tip cuttings for the first growth study as a way to preserve limited stock for subsequent growth testing and for distribution for grower trials. After 3 months of growth, plants produced from tip cuttings showed no significant difference in vine length or in number of leaves at any of the three fertilizer levels (Table 1). There was a significant linear increase in leaf length and in leaf width as fertilizer levels increased. The quality of

Fig. 1. A 1-year-old plant of *Epipremnum aureum* ‘Green Genie’ grown on a totem pole in a 3.9-L pot.

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Table 1. Effect of three fertilizer levels on length of longest vine, number of expanded leaves on longest vine, largest leaf length and width and visual quality of Pothos 'Green Genie', propagated from tip cuttings, after 12 weeks growth (June to August) in 1.6-L pots.

Fertilizer ^z (mg/L)	Vine length (cm)	No. of leaves (cm)	Leaf length (cm)	Leaf width (cm)	Visual quality ^y
100	37.2	9.7	7.2	4.9	3.0
200	38.0	9.3	7.8	5.0	4.0
300	39.2	9.3	8.8	5.8	4.7
Significance ^x	NS	NS	Lin*	Lin*	Lin**

^z20N–20P₂O₅–20K₂O = Peters liquid 20N–8.8P–16.6K applied 200 mL/pot/week.

^yVisual quality in which 1 = poor, 2 = fair, 3 = salable, 4 = good, and 5 = excellent quality.

^xSignificance in which NS = nonsignificant difference and Lin* and Lin** = linear significance at 0.05 and 0.01% level, respectively.

Table 2. Effect of three fertilizer levels on length of longest vine, number of expanded leaves on longest vine, largest leaf length and width, and visual quality of Pothos 'Green Genie' propagated from single eye cuttings after 12 weeks growth (July to September) in 1.6-L pots.

Fertilizer ^z (mg/L)	Vine length (cm)	No. of leaves (cm)	Leaf length (cm)	Leaf width (cm)	Visual quality ^y
100	43.2	10.5	7.4	4.8	3.0
200	54.8	12.0	7.4	5.8	4.0
300	57.2	12.5	7.8	5.8	4.5
Significance ^x	NS	NS	Lin*	Lin*	Lin**

^z20N–20P₂O₅–20K₂O = Peters liquid 20N–8.8P–16.6K applied 200 mL/pot/week.

^yVisual quality in which 1 = poor, 2 = fair, 3 = salable, 4 = good, and 5 = excellent quality.

^xSignificance in which NS = nonsignificant difference and Lin* and Lin** = linear significance at 0.05 and 0.01% level, respectively.

plants developing from tip cuttings also increased linearly as fertilizer levels increased.

Results from the second growth study indicated that Pothos 'Green Genie' pro-

duced from eye cuttings showed no significant difference in vine length or number of leaves resulting from fertilizer treatment levels after 3 months (Table 2). However,

as was observed with tip cuttings, there was a significant linear increase in leaf length and width as fertilizer levels increased. Plant quality ratings also increased significantly linearly as fertilizer treatment rates increased.

Availability

Pothos 'Green Genie' is intended for commercial producers growing finished ornamental tropical foliage plants. Trademark and Plant Patent Rights issued through the U.S. Patent and Trademark Office will be assigned to the University of Florida, Board of Trustees. Stock plants will be released to licensed Florida growers for propagation and distribution. Inquiries regarding licensing may be sent to Florida Foundation Seed Producers, Inc., P.O. Box 110200, Gainesville, FL 32611. Plants for research purposes may be obtained directly from the author.

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