Production of the Vine *Dioscorea bulbifera* ©

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Dioscorea bulbifera L., air potato, occurs naturally in tropical Asia and Africa (Griffiths, 1994) and was introduced into the United States sometime in the early part of the 20th Century (Anonymous, 2008). It is generally considered to be an invasive plant in Florida and surrounding Gulf States (Mississippi, Louisiana, and Texas) with a subtropical climate. There are reports of it being in Hawaii and Puerto Rico as well (Anonymous, 2007).

However in Pennsylvania *D. bulbifera* shows little signs of being an invasive plant and is a slow growing vine which can reach a stature of 8–10 ft and then dies back to the ground each year. It forms an underground tuber that has proven to be cold hardy and re-sprouts each year from that tuber.

It has heart-shaped leaves that are dark green and almost glossy. Upon exposure to short day conditions in the late summer and fall the plant will form bulbils in the leaf axils (Fig. 1). In Florida these bulbils can be quite large and around 14 cm. However in the much more Northern climate zone of 6, the bulbils rarely achieve 5–6 mm in length. This dioecious plant rarely flowers in Florida and most certainly will not flower in Zone 6.

Figure 1. Bulbils at a leaf node.

Bulbils are the main method of propagation of this plant and if collected in the fall they can be stored dry and in light for a number of weeks. Longer storage can also be achieved by storing in the dark at 0–4 °C for up to several months.

Once brought to room temperature and kept dark the bulbils will initiate buds and begin growing. They will not, however, sprout buds if exposed to light, hence the storage at room temperature must be in the light or else they will begin growing. In nursery practice the bulbils must be planted with at least 1 inch of soil completely covering them so that they do not receive light. Once shoots and leaves are prominent, regular watering and fertilization can begin. In a greenhouse the plants will quickly attain 3–4 ft on a trellis. However, if planted in the ground they will be much slower to grow to any significant height.

Plants grown under extended photoperiod will not set bulbils but if the extraneous light is removed after the onset of autumn, bulbils will form in as little as 48 h from the time of the termination of the extended photoperiod. This rather specific sensitivity to light could possibly make this plant an ideal candidate to study long-day vs. short-day conditions and where the distinction between the two might lie. Also, it is conceivable that specific wavelengths of light might be affecting the short/long day phenomenon and the bulbils could be an attractive easily produced plant guinea pig to see the interaction of red and blue light for triggering the sprouting response.

Fall color is a bright yellow and makes for another attractive characteristic. *Dioscorea bulbifera* is also the source of the steroid, diosgenin, which is used to make birth control pills and the plant also produces an antifungal compound, dihydrorodisocorine (Anonymous, 2007).

LITERATURE CITED

Anonymous. 2007. Smithsonian Marine Station Fort Pierce. *Disocorea bulbifera* L. <www.sms.si.edu/irlSpec/Dioscorea_bulbifera.htm>.

Anonymous. 2008. Air Potatoe-*Dioscorea bulbifera*, Center for Aquatic and Invasive Plants. University of Florida. IFAS. <http://aquat1.ifas.ufl.edu/>.

Griffiths, M. 1994, Index of garden plants, Timber Press. Portland, Oregon.