SOLARIZATION OF RECYCLED POTTING MEDIA FOR ORNAMENTAL PRODUCTION

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Soil solarization has become a worldwide cost-effective technique among vegetable, fruit and nursery crop growers for controlling soil borne pests. This technique reduces or eliminates the need for fumigation, leaves no toxic residues, increases levels of available mineral nutrients in soils, changes the soil microflora density to favor beneficial organisms. Population increase of the beneficial microbial communities has been reported and studies showed that these microorganisms are known to be biocontrol agents and enhance plant growth responses. Hence, soil solarization may become an economically effective component in the integrated pest management program as methyl bromide phases out.

Production of high quality bedding plants is expensive and requires low soluble salts, clean, pest-free potting media and plant materials. However, large-scale nurseries receive back non-salable containerized plants as part of their contracts with large-scale plant supply businesses (Home Depot, Kmart, Wal-Mart and etc.). This lead to stock pilling of disease infected potting media and plants that may contain high soluble salts as the mound height increases. The infected media would cause disease and soluble salt problems with susceptible plant species. Thus, this media would be a candidate for the landfill unless it is treated by fumigation, composting or solarization to eliminate disease organisms and by adding bulking agents and leaching to reduce soluble salts.

Solarization of the infested media can be an effective technique to recycle the potting media mixed with plant material, to reduce soil pests; to increase microflora population; and to reduce pH, soluble salts and environmental contamination. To test this hypothesis, we designed an experiment to determine the effects of solarization period of the recycled media and the addition of organic amendments on media pH, soluble salts, media-borne pathogens, growth and health of impatience, petunia and periwinkle.

Fresh nonsalable potting mix was collected from Lovell Farms Inc. in Miami, Florida and used for this research project. Plastic film 0.10 mm thick was used to make plastic bags of 61cm x 41cm which were filled with mixed media and sealed. However, small openings were made on the sides of the bags to insure aerobic conditions and to prevent rain leakage into the bags. These bags were placed under direct sunlight in a 5 x 4 factorial (with solarization period and organic amendments as variables) arranged in a randomized complete block design with 4 replications. The period of solarization was 0,

2, 4 and 8 weeks. Two additional treatments, a non-amended recycled material and a non-amended standard grower media from Lovell farms Inc. were also included. The recycled treated media will be amended with organic amendments such as mycorrhizae, humic acid and combination. Plugs of impatience, periwinkle and petunia supplied by Lovell Farms Inc. will be planted in potted treated media. Data on height, canopy, internode length, flower number, days to flowering and biomass per plant will be collected and analyzed. In addition, potting media pH and soluble salts will be measured at planting and end of experiment. Samples from treated media will be observed for major pathogens. Results of this study will be discussed.