

FNGA Endowed Research Fund Report

Reclaimed Water for Irrigation of Container-grown Plants (continuation)

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Abstract: Container-grown *Catharanthus*, *Salvia*, Yaupon holly and Helleri holly plants have been grown and irrigated with reclaimed water applied to substrate only or applied to substrate and sprayed on foliage. Quality of reclaimed water was monitored to correlate irrigation water constituents with any plant damage, reduced growth or abnormal plant characteristics. However, abnormal plant growth has not been recorded.

Objective: The objective of this study was to evaluate plant growth response of several ornamentals to non-potable reclaimed water.

Methods and Results: Plugs of *Catharanthus roseus* and *Salvia splendens* were potted with Metro Mix® 500 in 2.8-liter containers and fertilized with 9 g/container of Osmocote (14N-6P-12K) applied to substrate surface. Plants were placed on a greenhouse bench in a randomized complete block arrangement with factorial combinations of reclaimed water (processed liquid from municipal sewage treatment facilities) and distilled water that comprised 0, 25, 50, 75, or 100 % reclaimed water applied as needed. Irrigation with the various percentages of reclaimed water was applied to the substrate surface (surface placement) or the same percentage of reclaimed water was applied to the substrate surface with an additional 50-70 ml of the irrigation water sprayed over foliage of plants (surface + overhead placement) for each respective percentage of reclaimed water applied to substrate surface. Shoot dry weights of *C. roseus* were not different after 7 weeks due to irrigation placement and increased slightly as the percentage of reclaimed water increased. Root dry weights were not different due to percentage of reclaimed water applied but were larger for the surface + overhead placement (3.3 g) compared to surface placement (3.1 g). *S. splendens* shoot dry weights were not different after 8 weeks due to percentage of reclaimed water applied or irrigation water placement. Root dry weights were generally smaller for the surface + overhead treatments and root dry weights decreased as the percentage of reclaimed water applied increased. Substrate electrical conductivity (EC) levels after 4 weeks ranged from 0.4 dS/m for plants that received 0% reclaimed to 1.6 dS/m for plants that received 100% reclaimed irrigation water. Data for holly is being summarized.

Conclusion: Reclaimed water (F. S. Part III) was successfully used to irrigate container plants evaluated in this study. Users of reclaimed water must monitor substrate EC and water constituents to prevent plant damage.

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