



Southern University and A&M College System
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Research Impact

Benefits from State & Federal Partnership

URBAN FORESTRY, NATURAL RESOURCES AND ENVIRONMENT

TOPIC

Assessing UV-B Radiation Tolerance of Urban Woody Species

ISSUE

Research has indicated that the ozone layer in the earth's stratosphere has decreased significantly in the last two decades. Such a reduction has led to an increase in solar ultraviolet-B radiation (290-320 nm) striking the earth's surface. Research has shown that approximately two-thirds of 300 plant species and cultivars are susceptible to damage from increased UV-B radiation. The majority of plants tested so far are annual agricultural species. Very few studies have been conducted on tree species which account for up to 80% of the global net primary production.

WHAT HAS BEEN DONE?

Scientists at Southern University Agricultural Research and Extension Center (SUAREC) have evaluated the UV-B radiation tolerance characteristics for 35 major southern tree species, established a large database including leaf optical, biochemical, anatomical and morphological properties, generated various presentations, and publications.

The study shows, despite the tremendous and significant differences in the amount of UV-B absorbing compounds among the species, that tree leaves absorb over 90% UV-B and the main absorption site is leaf epidermis. This underlines the fundamentals of UV-B tolerance in trees.

The scientists at SUAREC have established the strong collaborative partnerships with USDA Northeast Experiment Station, USDA UV-B monitoring network, University of Wyoming and Purdue University.

IMPACT

This study has generated comprehensive new knowledge and practical information on how tree species interact with UV-B radiation. This information is being utilized by the scientific community and urban forestry practitioners. The results contribute to better understanding of UV-B tolerance and protection mechanisms in trees. Since tree leaves strongly absorb UV-B, more tree planting in the populated areas will help prevent direct exposure of the harmful UV-B radiation to humans and improve the quality of life for mankind.

WHO TO CONTACT?:

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