Enhancement of Kentucky bluegrass resistance to UV radiation stress with natural plant growth regulators. (C05-ervin145855-Poster)

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Abstract:

Ultraviolet radiation causes photo-oxidation and reduces turfgrass quality, especially when heat-damaged sod is field transplanted during the summer. Studies were conducted to examine influences of selected natural plant growth regulators (NPGRs) on Kentucky bluegrass resistance to UV radiation. Plugs were taken from the field and grown in PVC rings in the greenhouse. Selected NPGRs including ascorbic acid and alpha-tocopherol were applied and the plugs were grown under continuous artificial UV radiation (70 umol m-2 s-1) until major injury occurred. Photochemical efficiency (PE) was measured and visual injury rated during UV stress and during recovery. Antioxidant alpha-tocopherol contents were analyzed with HPLC connected to a fluorescence detector. Ultra-violet radiation caused significant reductions in PE and visual quality (bleaching). Foliar application of ascorbic acid (150 mg m-2) and alpha-tocopherol (50 mg m-2) alone, or in a combination, increased PE and alleviated visual injury of Kentucky bluegrass. Results indicate that foliar application of vitamins may improve UV radiation resistance and quality of turfgrass when grown or transplanted into high UV environments.

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