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IMPACT OF SEAWEED EXTRACT-BASED CYTOKININS AND ZEATIN RIBOSIDE ON CREEPING BENTGRASS HEAT TOLERANCE

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Differing seaweed extraction procedures have been shown to provide varying concentrations of cytokinins. Previous research has demonstrated improved abiotic stress resistance of cool-season turfgrasses due to foliar seaweed extract (SWE) applications. Our objective was to compare the effects of two differentially-processed SWEs to synthetic zeatin riboside when applied at equivalent cytokinins concentration on the heat tolerance of creeping bentgrass. Each treatment was applied to the foliage in a solution to provide zeatin riboside at 3.5 mg L⁻¹ and compared to a water-control and an ashed SWE control. The plants were grown in a hydroponic solution culture system under constant heat stress (35°C) for 48 days. Natural and synthetic cytokinins treatments resulted in greater visual quality, photochemical efficiency, chlorophyll content, superoxide dismutase activity, and less lipid peroxidation when compared to the controls. Both SWE sources also increased endogenous zeatin riboside levels.