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EFFECT OF TRINEXAPAC-ETHYL ON PHYTOCHEMICAL CONTENT OF BERMUDAGRASS (*CYNODON DACTYLON* (L.) Pers.)

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Cynodon dactylon (L.) Pers. (Family: Poaceae), is a perennial grass distributed all over Iran. It has been extensively used in traditional medicines to treat varied ailments such as, hysteria, cough, headache, diarrhea, cramps, edema, dysentery, hemorrhage, hypertension and stones urogenital disorders [1]. Bermudagrass is a rich source of metabolites such as proteins, carbohydrates, mineral constituents, β-sitosterol, flavonoids, alkaloids, glycosides and triterpenoides [2]. Trinexapac-ethyl (TE) is a popular plant growth regulator in the turfgrass industry that inhibits gibberellic acid (GA) biosynthesis and effectively reduces leaf elongation [3]. The objective of this pot greenhouse experiment was to investigate if applications of foliar TE would result in beneficial phytochemical changes in Bermuda grass. TE treatments (0, 0.25, 0.5, 0.75 and 1 g a.i. /100 m^2) were applied biweekly over 8 weeks period. Data on leaves total non-structural carbohydrates (TNC), chlorophyll, flavonoids, soluble protein and shoot growth were determined at the end of experiment. The results indicate that leaf TNC, chlorophyll, flavonoids and protein content increased with increasing TE application rate; however, no remarkable difference existed in levels of leaf flavonoids between $TE_{0.75}$ and TE_1 treatments. Trinexapac-ethyl consistently reduced shoot growth. Greater suppression occurred in TE_1, where clipping production was approximately 50% less than $TE_{0.75}$ treatment. Considering the sharp decline in shoot growth at high TE rate application, We concluded that moderate TE application is more efficient in improving phytochemical concentration of bermudagrass.

References

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