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MELATONIN REGULATES ANTIOXIDANT GENE EXPRESSION IN SOYBEAN Glycine max (L.) MERR

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Abstract

Melatonin has been described as a pleiotropic molecule modulating crucial intercellular signaling pathways, particularly under adverse stresses. The current study investigated the possible role of melatonin in regulating CAT and SOD genes expression in four soybean varieties. The data of morphologic assessment revealed significant differences between the studied varieties. Furthermore, the investigated melatonin concentrations had a positive effect on a certain level on all the studied traits. To some extent, this was found to be related to the up-regulation of CAT and SOD gene expression due to the melatonin application. As for morphological traits, Giza 111 was the superior and most responsive variety to change in melatonin concentration. However, the highest concentration of 300 µM has no significant difference against the lower concentration of 200 µM. Notably, the response pattern revealed by the two genes under melatonin concentrations seemed to be genotype-dependent attitude. Thus, further investigation involving antioxidant enzymes assay maybe necessary for accurate evaluation to the melatonin physiological role.