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Study of Anthocyanin Accumulation by Ozone Stress in Rice

Myoung-Goo Choi^{1*}, Hyen-Seok Lee¹, Seo-Yeong Yang¹, Woon-Ha Hwang¹, Chung-gun Lee¹

¹National Institute of Crop Science, Rural Development Administration

[Introduction]

Anthocyanins are water-soluble flavonoid compounds in plant vacuoles. Anthocyanins are involved in the coloring of the reproductive organs of plants, attract pollinators such as insects, promote pollination, and protect plants from environmental stress. The anthocyanin accumulation determined by the regulation of the expression of early biosynthetic genes (EBGs; CHS, CHI, F3H, F3'H) and late biosynthetic genes (LBGs; DFR, LDOX, UGT). Anthocyanins are induced during ROS production due to environmental stress. This study is directive is to determine the expression profile of anthocyanin biosynthesis genes in rice as a result of ROS production during ozone exposure.

[Materials and Methods]

15-day-old seedlings were treated with 150 ppb ozone in the chamber for 4 days. Anthocyanin was extracted with methanol acidified with 1% HCl (v/v). The anthocyanin yield was calculated by subtracting the A657 from the A530 as previously described. biosynthetic gene was selected by homology test between *Arabidopsis* and *Maize* genes. Gene expression was analyzed by Quantitation Real-Time PCR.

[Results and Discussion]

Ozone treatment increased the anthocyanin content in rice. Anthocyanin biosynthesis genes in rice were listed by selecting homologous genes from *Arabidopsis* and *Maize*. The expression of F3H2, FLS1 and LDOX3 was increased during ozone treatment. This result is expected to contribute to the study of the protection mechanism of plants from ozone damage.

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*Corresponding author: E-mail, cmg0305@korea.kr Tel. +82-063-238-5268