

PB-109

Expression Patterns of SQS in Different Tissues in Amaranth Grains (*Amaranthus cruentus* L.)

Young-Jun Park^{1*}

¹Korea Rural Research Institute, Kores Rural Community Corporation, Asansi, Korea

[Abstract]

To date, there have been no reports on the cloning and characterization of a gene encoding SQS from *Amaranthus*, although there have been some reports on methods of extracting and purifying squalene from *Amaranthus* seeds. In this study, we monitored the expression pattern of the amaranth SQS gene in seeds at different developmental stages and in different tissues. The transcript expression pattern of the SQS gene was investigated using total RNA isolated from seeds at different stages of development. There were low levels of SQS transcripts at the early stage of seed development, and the levels remained low until the middle developmental stage. The expression of SQS increased rapidly to reach a peak at the mid-late developmental stage, and then declined dramatically. This pattern of expression was consistent with the results of RT-PCR analyses. All RNA samples generated a fragment of the expected size (183-bp). The amaranth SQS was expressed at low levels during the initial to middle stages of seed development, and its expression level increased at the mid-late development stage. Also The tissue-specific expression of amaranth SQS was determined by quantifying its mRNA in total RNA isolated from the leaves, petioles, stems, and roots of seedlings at the four- and six-leaf stages. Using qRT-PCR and RT-PCR analysis, we detected amaranth SQS transcripts in some of the tissues at the six-leaf stage, but in none of the tissues from plants at the four-leaf stage. SQS transcripts accumulated in almost equal amounts in stems and roots, while a lower level accumulated in leaves and petioles during seedling development at the four- to six-leaf stages. This study provides useful information about the molecular characterization of the SQS clone isolated from grain amaranth. A basic understanding of these characteristics will contribute to further studies on the amaranth SQS.

*Corresponding author: E-mail, ramses11@ekr.or.kr Tel. +82-31-400-1888