Development of visual selectable markers for plant transformation

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A selectable marker is a powerful tool in plant transformation to obtain transgenic plants. However, selectable agents sometimes have a detrimental effect on the growth of transformed plantlet and it is also difficult to check whether or not each step of transformation is going well. Thus, visual selectable markers can be used as alternative for antibiotic- or herbicide-resistance genes in identifying transformed cells and in checking the transformation process. One preferred visual selectable marker is the purple color induced by accumulation of anthocyanins. Previously, we produced successfully the purple-colored transgenic creeping bentgrass plants using maize flavonoid/anthocyanin biosynthetic pathway transcription factor genes, Lc (Leaf color) and Pl (Purple leaf) (Han et al., Plant Cell Rep. 28:397–406). The transgenic creeping bentgrass plants expressing both Lc and Pl genes were entirely purple, whereas those expressing Lc alone showed purple color in transformed calli but lacked the purple pigmentation in adult plants. In the presentation, we will present the development of visual selectable makers using Lc and Pl genes for plant transformation.

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