A Non-antibiotic Approach to Cotton Transformation Using GFP for Selectable Marker. (C07sakhanokho162349-Poster)

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Abstract:

Antibiotic and herbicide resistance genes are commonly used as selectable markers to generate genetically modified plants. However, concerns over the potential of antibiotic resistance development are leading to the search for alternative transformation methods that do not possess the drawbacks associated with the antibiotic or herbicide resistance genes. The objectives of this study were to optimize particle bombardment parameters and use the green fluorescent protein (GFP) as a visual selectable marker for the production of transgenic cotton. Bombardment parameters investigated included three gold particle sizes (0.6, 0.75, and 1.0 micrometer) and 1100, 1350, and 1550 psi rupture discs. The GFP construct p524EGFP.1 was delivered into embryogenic cotton callus through particle bombardment. GFPexpressing cell clusters were visually identified, isolated, and transferred onto embryo development media for further development. The best transient expression (an average of 94 spots per bombardment) was obtained using the 1100 psi rupture disc and the 0.6 micrometer gold particle. Further molecular analysis (Southern) will be necessary to confirm these preliminary results.

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