

Study on Transformation of Cotton Pollen Using *Agrobacterium Tumefaciens*

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Abstract: The pollen-mediated transformation approach could not only circumvent the tedious tissue culture procedures like in *Agrobacterium* infection, but also circumvent the incertitude of the pollen tube path-way. So, its transformants combined from the transformed pollen and eggs would not be chimera. At last this approach is simple, easy to operate, and could be widely used in practice. For the transformation happened in the pollen culture medium, the solution with a suitable solute has to be selected. This study showed the medium consisting of 0.1%

H₃BO₃, 0.3% Ca(NO₃)₂, 0.2% MgSO₄ · 7H₂O, 0.1% KNO₃ and 45% sucrose could maintain normal turgidity of the pollens and facilitate them to be germinated. There are more than 95% pollens don't dispose in this medium and the germinating rate was up to 58.5%. A transient GUS expression assay and the exploded pollen rate proved that the transformation method with 1% Tween-20 in the medium using vacuum-infiltration was a better method. Finally, four transformed seedlings were confirmed by Kanamycin selection, GUS expression and Northern blot. Therefore this transformation approach is available.

Key words: vacuum infiltration; cotton; pollen; transformation