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Transformation of the *CmACS-7* gene into melon (*Cucumis melo* L.) using the pollen-tube pathway

H.J. Zhang[1] and F.S. Luan[2]

[1]Key Laboratory of Biology and Genetic Improvement of Horticultural Crops (Northeast Region), School of Life Science, Huaibei Normal University, Ministry of Agriculture/Northeast Agricultural University, Huaibei, Anhui, China
[2]College of Horticulture, Northeast Agricultural University, Harbin, Heilongjiang, China

Corresponding author: F.S. Luan
E-mail: zhhuijun@126.com

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ABSTRACT. The aim of the present study was to develop a transformation system that may be useful for introducing agronomically and biotechnologically relevant traits into melon. The production of transplanted melon with maternal inheritance of the transgene could solve problems related to outcrossing between genetically modified crops and conventional crops or their wild relatives. By analyzing the main influencing factors systematically, the pollination time was ascertained and the pollen-tube pathway genetic transformation system was optimized. A screening system for resistant seeds from the T_1 generation was established. The transformed seedlings were grown under standard field conditions and selected using a polymerase chain reaction-based analysis. The resistant plants were detected at a rate of 5%. These results indicate that enhanced production hastens the initiation of bisexual flowers, development of mature bisexual flowers,

and fruit set in melon. We have established a melon transformation system based on the pollen-tube method.

Key words: Melon; Pollen-tube pathway; *CmACS-7*