

BABY BOOM-mediated Sweet Pepper Transformation and Regeneration

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Abstract

Pepper (*Capsicum L.*) is a nutritionally and economically important crop that is cultivated throughout the world as a vegetable, condiment and food additive. Genetic transformation using *Agrobacterium tumefaciens* (*agrobacterium*) is a powerful biotechnology tool that could be used in pepper to develop community-based functional genomics resources and to introduce important agronomic traits. However, pepper is considered to be highly recalcitrant for *agrobacterium*-mediated transformation, and current transformation protocols are either inefficient, cumbersome or highly genotype dependent. The main bottleneck in pepper transformation is the inability to generate cells that are competent for both regeneration and transformation. Here we report that ectopic expression of the *Brassica napus* BABY BOOM AP2/ERF transcription factor overcomes this bottleneck and can be used to efficiently regenerate transgenic plants from otherwise recalcitrant sweet pepper (*C. annuum*) varieties. Transient activation of BABY BOOM in the progeny plants induced prolific cell regeneration and was used to produce a large number of somatic embryos that could be converted readily to seedlings. The data highlight the utility of combining biotechnology and classical plant