



Overexpression of the *CmACS-3* gene in melon causes abnormal pollen development

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ABSTRACT. Sexual diversity expressed by the Curcubitaceae family is a primary example of developmental plasticity in plants. Most melon genotypes are andromonoecious, where an initial phase of male flowers is followed by a mixture of bisexual and male flowers. Overexpression of the *CmACS-3* gene in melon plants showed an increased number of flower buds, and increased femaleness as demonstrated by a larger number bisexual buds. Transformation of *CmACS-3* in melons showed earlier development of and an increased number of bisexual buds that matured to anthesis but also increased the rate of development of the bisexual buds to maturity. Field studies showed that *CmACS-3*-overexpressing melons had earlier mature bisexual flowers, earlier fruit set, and an increased number of fruits set on closely spaced nodes on the main stem.

Key words: Adventitious shoots induction; *Agrobacterium tumefaciens*; *CmACS-3*; Melon; Pollen; Transformation method