



## Gene expression patterns of invertase gene families and modulation of the inhibitor gene in tomato sucrose metabolism

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**ABSTRACT.** Patterns of gene expression in the different types of sucrose metabolism in the tomato are highly variable and heritable. This genetic variation causes considerable functional differences. We examined the patterns of expression of invertase (Inv) gene families and an invertase inhibitor (*INH*) gene involved in elongating roots, hypocotyls, and fruit of the tomato (*Lycopersicon esculentum* cv. Micro-Tom and *L. chmielewskii*) through a real-time quantitative PCR analysis. We found that the *Lin6* gene plays an important role in the vegetative growth stage. *Lin5* and *Lin7* did not express in Micro-Tom, but did express in *L. chmielewskii*. Overall relative expression levels of sucrose Inv gene families were significantly lower in *L. chmielewskii* during the reproductive growth stage than in Micro-Tom, being up to hundreds of times lower. It was not expressed in the dissepiment in *L. chmielewskii*. We suggest that differences in sucrose accumulation in tomato fruit is mainly due to differentially expressed invertase gene families at the later fruit growth stages.

**Key words:** Tomato; Invertase gene families; INH; RT-PCR