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Genome-wide identification and phylogenetic analysis of the SBP-box gene family in melons

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ABSTRACT. The SBP-box gene family is specific to plants and encodes a class of zinc finger-containing transcription factors with a broad range of functions. Although SBP-box genes have been identified in numerous plants, including green algae, moss, silver birch, snapdragon, *Arabidopsis*, rice, and maize, there is little information concerning SBP-box genes, or the corresponding miR156/157, function in melon. Using the highly conserved sequence of the *Arabidopsis thaliana* SBP-box domain protein as a probe of information sequence, the genome-wide protein database of melon was explored to obtain 13 SBP-box protein sequences, which were further divided into 4 groups, based on phylogenetic analysis. A further analysis centered on the melon SBP-box genetic family's phylogenetic evolution, sequence similarities, gene structure, and miR156 target sequence was also conducted. Analysis of all the expression patterns of melon SBP-box family genes showed that the SBP-box genes were detected in 7 kinds of tissue, and fruit had the highest expression level. *CmSBP11* tends to present its specific expression in melon fruit and root. *CmSBP09* expression was the highest in flower. Overall, the molecular evolution and expression

pattern of the melon SBP-box gene family, revealed by these results, suggest its function differentiation that followed gene duplication.

Key words: Melon; SBP-box protein; Phylogenetic analysis; Gene family

