



***In silico* identification and characterization of the WRKY gene superfamily in pepper (*Capsicum annuum* L.)**

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ABSTRACT. The WRKY family is one of the most important transcription factor families in plants, involved in the regulation of a broad range of biological roles. The recent releases of whole-genome sequences of pepper (*Capsicum annuum* L.) allow us to perform a genome-wide identification and characterization of the WRKY family. In this study, 61 CaWRKY proteins were identified in the pepper genome. Based on protein structural and phylogenetic analyses, these proteins were classified into four main groups (I, II, III, and NG), and Group II was further divided into five subgroups (IIa to IIe). Chromosome mapping analysis indicated that *CaWRKY* genes are distributed across all 12 chromosomes, although the location of four

CaWRKYs (*CaWRKY58-CaWRKY61*) could not be identified. Two pairs of *CaWRKYs* located on chromosome 01 appear to be tandem duplications. Furthermore, the phylogenetic tree showed a close evolutionary relationship of WRKYs in three species from Solanaceae. In conclusion, this comprehensive analysis of *CaWRKYs* will provide rich resources for further functional studies in pepper.

Key words: WRKY; Transcription factors; Phylogenetic analysis; Pepper