D207 Isolation and Characterization of MADS-Box cDNA Clone Expressed in *Pimpinella brachycarpa*

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PibMADS1, a cDNA clone acting as a tentative transcription regulator was isolated by screening of shoot-tip cDNA library of *Pimpinella brachycarpa* (Kom.) Nakai. Nucleotide sequence analysis of *PibMADS1* revealed that it had full length of 843 bp harboring an open reading frame of 651 bp which encoded 217 amino acids. By hydropathy plot analysis, *PibMADS1* had a lot of hydrophilic regions. Like many MADS genes of plants, *PibMADS1* was constituted of well conserved MADS box, some variable K-box, very variable I region, and C-region. Genomic Southern hybridization results suggested that *PibMADS1* might exist in the form of small gene family. Amino acid sequence analysis revealed that *PibMADS1* showed high homology with *TobMADS1* of tobacco and *SaMADS_A* of *Sinapis alba*. It inferred that *PibMADS1* might be expressed in vegetative phases. RT-PCR and Southern hybridization analyses also indicated that *PibMADS1* was expressed in leaves, petioles, specially roots, shoot tips, and immature flowers. It implied that *PibMADS1* was associated with the regulation of vegetative development as well as flower morphogenesis. Accordingly, *PibMADS1* is the first reported MADS-box cDNA expressed in all organs of *P. brachycarpa*.

D208 Potential Target Gene and Protein Interaction of HD-Zip Protein, Phz4 from *Pimpinella brachycarpa*

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Homeodomain-leucine zipper (HD-Zip) proteins are thought to be a family of transcription factors that regulate higher plant development and can cause dimerization. To investigate dimerization between proteins of *Phz2* and *Phz4* clones which were obtained from screening a *Pimpinella brachycarpa* shoot-tip cDNA library, we used the yeast two-hybrid system. These assays showed that Phz4 formed a homodimer rather than a heterodimer with Phz2. Also, we isolated cDNA clones, *Phyb1*, *Phyb2*, and *Phyb3* which encoded proteins interacting with Phz4. Surprisingly, even though Phyb1 is not an HD-Zip protein, the activity of interaction between Phyb1 and Phz4 is stronger than that of the homodimerization of Phz4. The analysis of interacting parts indicated that from 1 bp to 466 bp of Phyb1 there was no interaction with Phz4, but from 467 bp to 593 bp there were interactions with the N-terminal and C-terminal regions except for HD-Zip of Phz4. Interestingly, this region of *Phyb1* contains a nuclear localization signal. DNA binding analysis showed that the Phz4 HD-Zip domain recognized the [T(C/G)ATTG] core sequence and the region containing the [TCATTG] motif which was in itself a promoter *in vitro*.