BIOCHEMICAL CHARACTERIZATION OF MORE AXILLARY GROWTH1 IN STRIGOLACTONE BIOSYNTHESIS

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Strigolactones (SLs) function as host recognition signals for root parasitic plants and symbiotic arbuscular mycorrhizal fungi in the rhizosphere and as plant hormones regulating shoot and root architecture inplants.CarotenoidisomeraseD27,carotenoidcleavagedioxygenasesCCD7 and CCD8, and cytochrome P450 monooxygenase MORE AXILLARY GROWTH1 (MAX1) were identified as SL biosynthesis enzymes by genetic screening of shoot branching mutants. D27, CCD7 and CCD8 convert β-carotene to carlactone (CL), an SL precursor having no canonical four-ring structure of SLs, by their sequential reactions. We have reported that *Arabidopsis* MAX1 catalyzes oxidation of the C-19 methyl group of CL to carboxylic acid, affording carlactonoic acid (CLA), while one of rice MAX1 homologs was reported to catalyze the conversion of CL to 4-deoxyorobanchol having the four-ring structure. In order to know which is the common reaction in MAX1 homologs is, we examined the enzymatic functions of MAX1 homologs in Arabidopsis, rice, maize and tomato using a yeast expression system. As a result, the conversion of CL to CLA was found to be a common function in MAX1 homologs but not that of CL to 4DO.