



Figure S1. Carotenoid biosynthetic pathway. Abbreviations of enzymes: DXR, deoxy-D-xylulose 5-phosphate reductoisomerase; DXS, deoxy-D-xylulose 5-phosphate synthase; PSY, phytoene synthase; PDS, phytoene desaturase; ZDS, z-carotene desaturase; CRTISO, carotenoid isomerase; β-LCY, lycopene β-cyclase; lycopene ε-LCY, ε-cyclase; CHY, carotene hydroxylase; VDE, violaxanthin de-epoxidase; ZEP, zeaxanthin epoxidase; NSY, neoxanthin synthase; NCEDs, 9-*cis*-epoxy-carotenoid dioxygenases.