



**Figure S1.** Schematic representation of the carotenoid pathway. Enzymes involved in each step are highlighted in bold. PSY1, phytoene synthase; PDS, phytoene desaturase; ZISO, 15-cis-z-carotene isomerase; ZDS, z-carotene desaturase; CRTISO, carotenoid cis-trans-isomerase; LCY-B, lycopene  $\beta$ -cyclase; CYC-B, lycopene  $\beta$ -cyclase; LCY-E, lycopene  $\epsilon$ -cyclase; CRTR-B1/B2,  $\beta$ -carotene hydroxylase; CYP97A29, Cyt P450-type monooxygenase 97A29; CYP97C11, Cyt P450-type monooxygenase 97C11; ZEP1, zeaxanthin de-epoxidase; VDE1, violaxanthin desaturase; NSY, neoxanthin synthase; XISO, xanthophyll 9-cis isomerase; NCED, 9-cis-epoxycarotenoid dioxygenase; SDR, short-chain dehydrogenase/reductase; AAO, abscisic aldehyde oxygenase.