

Breeding Tomatoes for Increased Flavonoid Content

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One of the major goals of the tomato breeding program at Oregon State is the development of tomato cultivars with increased levels of polyphenolics (including flavonoids and anthocyanins) for their health benefits and novelty. Current projects related to this goal include: (1) development of a high anthocyanin cherry tomato cultivar, (2) screening a *S. lycopersicum* var. *cerasiforme* tomato core collection for high total phenolics, (3) combining the high pigment *hp2_{dg}* allele with the anthocyanin fruit genes *Aft* and *atv*, (4) combining the dihydroflavonol reductase null mutant *aw* with *Aft* and *atv* to create a high flavonoid tomato, and (5) sequencing of the *An2* locus (the putative tomato homolog of the maize transcription factor *C1*) in anthocyanin fruit mutants such as *Aft* and 'Purple Smudge'. Recent progress in these areas will be discussed using results from Folin-Ciocalteu assays, pH differential tests, HPLC, and DNA sequencing.