

Conference Abstracts

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Identification and quantification of carotenoids in Saskatchewan grown pea and chickpea

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Traditionally, pulse crops have been used for human consumption around the world. Pulse crops are known to be important dietary sources of carotenoids. The present study was carried out to evaluate the effects of genotype, environment, and their interaction on carotenoid accumulation in pea and chickpea whole seeds. In field pea 12 cultivars grown at 4 locations in Saskatchewan in 2009 and 2010 were evaluated, and analyzed by HPLC. Pea cultivars were highest in lutein followed by zeaxanthin, violaxanthin and β -carotene. Green cotyledon pea cultivars (14-24 $\mu\text{g/g}$) had approximately 2X more total carotenoids than yellow cotyledon pea cultivars (7-12 $\mu\text{g/g}$). In chickpea, 5 kabuli and 3 desi cultivars grown at 3 locations in Saskatchewan 2009 and 2 locations in 2011 were evaluated. Chickpea cultivars were highest in lutein followed by zeaxanthin, β -carotene and violaxanthin. Desi cultivars (16-20 $\mu\text{g/g}$) had greater concentration of total carotenoids than kabuli cultivars (11-13 $\mu\text{g/g}$). In another study, a limited set of pea and chickpea varieties were evaluated for carotenoid profile in individual tissues, i.e., whole seed, seed coats, cotyledons and embryo axes. Cotyledons had a greater concentration of individual and total carotenoids than other tissues in both pea (10-24 $\mu\text{g/g}$) and chickpea (14-32 $\mu\text{g/g}$).