

### Supplementary data

**Table S1: Quantification and Validation of the carotenoids**

Carotenoid	Equation	Regression coefficient ( $R^2$ )	LOD	LOQ
B-carotene	$Y=140594x + 36337$	0,9979	6,32	19,16
Trans $\beta$ -carotene	$Y=30127x + 15$	0,9781	18,02	54,61
$\alpha$ -carotene	$Y=26242x-47686$	0,9987	4,39	13,29
Lutein	$Y=94894x + 834002$	0,9538	26,52	80,37
Zeaxanthin	$Y=68769x-740682$	0,9787	7,31	22,15