S2 Table: Calibrations for additional carotenoids from mashed (a) and intact (b) root samples using common samples (n=66)

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| Cal. set | Traits | No. | Range | Mean | SD | SEC | R2c | SECV | R2cv | RPD |
| 1. Calibration of carotenoids on mashed samples | | | | | | | | | | |
| C16M66 | VIO | 62 | 0.22-0.84 | 0.52 | 0.14 | 0.02 | 0.98 | 0.10 | 0.47 | 1.40 |
| LUT | 51 | 0.04-2.36 | 0.65 | 0.54 | 0.20 | 0.87 | 0.44 | 0.33 | 1.23 |
| 15CBC | 64 | 0.18-0.44 | 0.29 | 0.06 | 0.02 | 0.91 | 0.04 | 0.60 | 1.50 |
| 13CBC | 63 | 0.72-2.42 | 1.57 | 0.40 | 0.08 | 0.96 | 0.22 | 0.68 | 1.82 |
| AC | 35 | 0.04-0.10 | 0.07 | 0.02 | 0.008 | 0.73 | 0.01 | 0.47 | 2.00 |
| 9CBC | 63 | 0.44-2.04 | 1.22 | 0.36 | 0.07 | 0.96 | 0.21 | 0.65 | 1.71 |
| PHY | 63 | 0.96-13.79 | 5.86 | 3.01 | 0.77 | 0.93 | 2.39 | 0.36 | 1.26 |
| 1. Calibration of carotenoids on intact root samples | | | | | | | | | | |
| C16M66 | VIO | 60 | 0.22-0.84 | 0.52 | 0.14 | 0.07 | 0.71 | 0.11 | 0.38 | 1.27 |
| LUT | 46 | 0.04-1.32 | 0.51 | 0.34 | 0.30 | 0.22 | 0.32 | 0.10 | 1.06 |
| 15CBC | 62 | 0.18-0.44 | 0.29 | 0.06 | 0.02 | 0.88 | 0.04 | 0.44 | 1.50 |
| 13CBC | 64 | 0.72-3.05 | 1.59 | 0.43 | 0.22 | 0.73 | 0.37 | 0.27 | 1.16 |
| AC | 34 | 0.04-0.10 | 0.08 | 0.01 | 0.01 | 0.67 | 0.01 | 0.46 | 1.00 |
| 9CBC | 64 | 0.44-2.04 | 1.22 | 0.36 | 0.15 | 0.82 | 0.29 | 0.34 | 1.24 |
| PHY | 61 | 0.96-13.79 | 5.69 | 2.91 | 0.40 | 0.98 | 1.97 | 0.53 | 1.48 |