



**Supplementary Figure 1 (Figure S1).** HPLC chromatograms obtained during long-term storage (12 months) at five different temperatures (-32, 6, 20, 37 and 50 °C) of durum wheat (Don Pedro) and tritordeum (HT621) whole-grain flours. Peak identities: 1, (all-*E*)-Zeaxanthin; 2, (all-*E*)-Lutein; 3, (9*Z*)-Lutein; 4, (13*Z*)-Lutein; 5, Lutein 3'-*O*-linoleate; 6, Lutein 3'-*O*-linoleate; 7, Lutein 3'-*O*-palmitate; 8, Lutein 3'-*O*-palmitate; 9, (all-*E*)- $\beta$ -Carotene; 10, Lutein dilinoleate; 11, Lutein 3'-*O*-linoleate-3'-*O*-palmitate and Lutein 3'-*O*-palmitate-3'-*O*-linoleate; 12, Lutein dipalmitate. Internal Standard (IS):  $\beta$ -Apo-8'-carotenal.