Abstract

Jerusalem artichoke (*Helianthus tuberosus* L.) tubers were harvested 16, 18 and 20 weeks after planting at Kanchanaburi Research Station, Kasetsart University, Thailand. Tuber maturity contributed to changes in inulin characteristics. A decrease in the more polymerised fractions (degree of polymerisation, DP > 10) with an increase in fructose and sucrose composition was observed for late-harvested (20 weeks) tubers. The inulin DP distribution profile from tubers, stored at 2 and 5 °C, significantly changed with increased storage time and temperature. Sucrose and DP 3–10 fractions increased while DP > 10 decreased, particularly after 4–6 weeks of storage. Changes in inulin composition were reflected by formation of a second fructan series, as revealed by HPAEC-PAD chromatograms. These peaks corresponded to inulo-*n*-ose fructan where inulo-*tri*-ose (3′) and inulo-*tetra*-ose (4′) were predominantly found after 2 weeks of tuber storage at 2 and 5 °C. Inulo-*n*-ose (5′) up to DP 17′ increased as a percentage with longer storage time. Tubers in frozen storage of tubers at −18 °C maintained their DP distribution profiles.