

Title Determination of the fruit content of cherry fruit preparations by gravimetric quantification of hemicellulose

Author Ralf Fügel, Andreas Schieber and Reinhold Carle

Citation Food Chemistry Volume 95, Issue 1, March 2006, Pages 163-168

Keyword Alcohol-insoluble residue; Cherry; Fractionation; Fruit content; Fruit preparations; Hemicellulose; Hydrocolloids

Abstract

A method recently developed for the determination of the fruit content of strawberry fruit preparations by gravimetric quantification of hemicellulose was extended to cherry fruit preparations. Isolation of the alcohol-insoluble residue (AIR) and sequential fractionation of the cell wall compounds from cherries (*Prunus cerasus* L. cv. 'Oblacinska') was performed yielding the amount of fresh cherries per gram hemicellulose. Cherry fruit preparations with varying fruit contents (30–40%) were produced using different hydrocolloid systems (pectin, starch, guar gum, xanthan gum, carrageenan, and combinations thereof). After separation of the hydrocolloids by enzymatical digestion and successive extraction, the fruit preparations were subjected to AIR isolation. The AIR was fractionated to yield the hemicellulose fraction, which was quantified gravimetrically for the calculation of the fruit content. Compared to strawberries, modifications including additional extraction steps for the sequential fractionation were required to separate the pectin of the cherries exhaustively. Calculated and initial fruit contents were in good agreement for the single hydrocolloid components pectin and starch as well as for the combinations pectin/xanthan gum and pectin/carrageenan (26.8% vs. 30%, 38.6% vs. 40%, 42.5% vs. 40%, 37.6% vs. 40%, and 41.2% vs. 40%), whereas the preparations produced with more complex hydrocolloid systems (pectin/xanthan gum/guar gum and starch/xanthan/guar gum) showed larger deviations in their contents (46.2% vs. 40%, 49.6% vs. 40%). It is concluded that the novel method is generally suitable for the determination of the fruit content of fruit preparations, but steps of sample preparation need to be individually adapted to the different fruit matrices.