

Starch digestibility and predicted glycemic index of fried sweet potato cultivars

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ABSTRACT

Background: Sweet potato (*Ipomoea batatas L.*) is a very rich source of starch. There is increased interest in starch digestibility and the prevention and management of metabolic diseases.

Objective: The aim of this study was to evaluate the levels of starch fractions and predicted glycemic index of different cultivars of sweet potato.

Material and Method: French fries produced from five cultivars of sweet potato ('Ginseng Red', 'Beauregard', 'White Travis', 'Georgia Jet clone #2010' and 'Georgia Jet') were used. The level of total starch (TS), resistant starch (RS), digestible starch (DS), and starch digestion index starch digestion index in the samples were evaluated. *In vitro* starch hydrolysis at 30, 90, and 120 min were determined enzymatically for calculation of rapidly digestible starch (RDS), predicted glycemic index (pGI) and slowly digestible starch (SDS) respectively.

Results: The RS content in all samples had an inversely significant correlation with pGI (-0.52; P<0.05) while RDS had positive and significant influence on both pGI (r=0.55; P<0.05) and SDI (r= 0.94; P<0.01). 'White Travis' and 'Ginseng Red' had higher levels of beneficial starch fractions (RS and SDS) with low pGI and starch digestion Index (SDI), despite their higher TS content. Generally, all the cultivars had products with low to moderate GI values.

Conclusion: The glycemic index of these food products highlights the health promoting characteristics of sweet potato cultivars.

Keywords: Sweet potato, *Ipomoea batatas L.*, French fries, *in vitro* starch digestibility, glycemic index, resistant starch