

The glycemic index of rice-pulses noodles

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Abstract

Rice noodles is widely consumed by ethnic Chinese, the glycemic index of pure rice noodle is slightly lower than cooked rice with similar shortage of lower dietary fiber and protein content. Starchy food replaced by 50% of pulses has been shown to reduce glycemic responses and with more balanced nutrition in terms of higher dietary fiber and protein content. The purpose of this study is to test whether the addition of pulses such as lentil and chickpea can reduce the glycemic index of rice noodle or not. Rice was mixed with lentil or chickpea at a ratio of 10% or 20% to make rice-pulse noodle. Each rice-pulse noodle sample was subjected to equal cooked and grinded treatment. Different samples were in vitro digested in a GI analyzer (NutriScan/RS20) with digestion enzyme and buffer. Digested glucose was determined by a glucose analyzer (Analox GL6). Total starch content was measured by Total Starch Kit (Megazyme Co.). The determined value of available carbohydrate, glucose released, percentage starch digested, area under the curve, hydrolysis index (white toast as reference) were employed to calculate expected-predicted GI with both Grandfelt and Goni equation. The results show the predicted GI of all rice-pulse noodles compositions did not differ from the 100% rice noodle control. The percentage content of slowly digestible and resistant starch (SDS/RS) is average 4.2/0.3 and 6.0/6.2 in 10% and 20% inclusion of pulses, respectively. The content of SDS is similar in both rice-lentil and rice-chickpea noodles, but RS is higher in lentil-rice noodle sample. The results indication inclusion of 10-20% of pulses is not sufficient to reduce GI of rice-pulse noodle but can increase content of RS.

Keywords: rice noodle; pulse; glycemic index; slowly digestible starch; resistant starch

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