

Evaluation of Chromium Fortified-Parboiled Rice Coated with Herbal Extracts: Resistant Starch, and Glycemic Index

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Abstract : Parboiled rice was developed to produce rice that has low glycemic index, especially for diabetics. Yet, parboiled rice is not enough because diabetics also lack of chromium. The sign of chromium (Cr) deficiency in diabetics is impaired glucose tolerance. Cr fortification was done for increasing Cr content in rice. Naturally-occurring compounds that have been proven to improve insulin sensitivity include Cr and polyphenol found in cinnamon, pandan and bay leaf. This research aimed to evaluate content of resistant starch and glycemic index of Cr - fortified - parboiled rice (Cr-PR) coated with herbal extracts. Variety of unhulled rice and forticant used in the experiment were Ciherang and CrCl₃, respectively. Three herbal extracts used were cinnamon, pandan and bay leaf. Each concentration of herbal extracts in the amount of 3%, 6%, and 9% were added in the coating substance to coat Cr-PR. Resistant starch (RS) content was determined by enzymatic process through glucooxydase method. Testing of the GI was conducted on 18 non-diabetic volunteers. RS content of Cr-PR coated with herbal extracts ranged between 8.27 - 8.84 % (dry weight). Cr-PR coated with all herbal extracts of 3% concentration had higher RS content than the ones with herbal extracts of 6% and 9% concentration (P <0.05). Value of the rice GI ranged 29 - 40. The lowest GI (29-30) was attained by the rice coated with enrichment of 6-9% cinnamon extract.

Keywords : coating, Cr-fortified-parboiled rice, glycemic index, herbal extracts, resistant starch

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