FORMULATING LOW GLYCEMIC INDEX RICE FLOUR TO BE USED AS A FUNCTIONAL INGREDIENT

Khongsak Srikaeo. Faculty of Food and Agricultural Technology, Pibulsongkram Rajabhat University, Muang, Phitsanulok 65000 Thailand

Recent studies have found that higher consumption of white rice is associated with a significantly increased risk of type 2 diabetes. Many varieties of rice are classified as high glycemic index (GI) foods. Amylose plays an important role in lowering the GI of rice. This study aims to investigate the effects of amylose and resistant starch (RS) on glycemic response of rice flour. The experiment was conducted using three-level full factorial design. Rice flour with average amylose content of 20% (d.b.) and RS content of 0.5% was fortified with high amylose corn starch and chemically modified high RS starch to reach the final amylose content of 30, 40 and 50% and RS content of 2, 4 and 6%. The fortified samples were determined for their melting enthalpy, in-vitro enzymatic digestibility and mixed gels textural properties. All fortified rice flours showed increased melting enthalpies and high gelatinization temperatures as compared to the control sample, indicating lower starch digestion rate. The GI values of the samples decreased with the increase of amylose and RS contents. Amylose had more pronounced effect on starch digestion rate and consequently GI values than that of RS. Mixed gels had higher hardness, cohesiveness and chewiness as amylose and RS content increased. In this study, the fortified rice flour with minimum 30% amylose content was used to produce rice noodles with firm texture and low GI (<55).