

Comparison of *in vitro* hydrolysis rates and amylose contents of fifteen commonly available starch sources in Sri Lanka

Liyanage R.T.P²., Sewwandi K¹., Deen A¹., Rathnayake I¹., Jayawardana B.C.^{2*} and Liyanage R.¹

¹Laboratory of Nutritional Biochemistry, National Institute of Fundamental Studies, Hanthana Road, Kandy, Sri Lanka

²Department of Animal Science, Faculty of Agriculture, University of Peradeniya, Peradeniya

Physicochemical properties may vary in starches from different botanical sources. Glucose and maltose releasing speed of food during digestion in the body, depends on their physicochemical properties. In this study, fifteen different starch sources; corn, wheat flour, atta flour, palmyrah, blackgram, soybean, white basmathi, red basmathi, white raw rice (Bg 360), red raw rice (at 353), chickpea, kurakkan, oats, kithul and olu were evaluated for their *in vitro* hydrolysis rates and amylose contents. Amylose contents and *in vitro* hydrolysis rates of fifteen starches were determined using Amylose Amylopectin Assay Kit and GOD method respectively. Current study revealed that there were significant differences ($p < 0.05$) in amylose contents and *in vitro* hydrolysis rates among starches. In terms of amylose content palmyrah ($36.12 \pm 0.91\%$) showed the highest ($p < 0.05$) while soybean ($7.22 \pm 0.92\%$) showed the lowest ($p < 0.05$). However, kithul showed the highest α -amylase enzyme hydrolysis rate ($1596.39 \mu\text{M}$ maltose/min) while white basmathi showed the highest amyloglucosidase enzyme hydrolysis rate ($217.54 \mu\text{M}$ glucose/min) and in both occasions soybean was the least. According to the findings of the present study, considering the two properties together, blackgram, olu, red raw basmathi and soybean with comparatively lower hydrolysis rates and higher amylose contents could be used as better substitutes instead of wheat and white raw rice. Further, the results of this study also would be useful in the developing novel food products to manage and control hyperglycaemia in diabetic subjects.

Keywords: amylose, hydrolysis, *in vitro*, physicochemical and starch

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*Corresponding author: baranaj2000@yahoo.com