

## THE EFFECT OF GELLAN GUM ON COOKED RICE DIGESTIBILITY

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**T**he effort to create low GI rice has increased among food technologists and plant breeders. Various genetically modified and selected breeding of rice varieties with low GI property have been released. Red rice, unpolished rice (brown rice), black rice also being believed has slower glucose release when they are consumed. However, one of the drawbacks of that kind of rice is regarding their organoleptic acceptance. The addition of hydrocolloids might be an alternative way to reducing GI of rice while keep maintaining rice physical properties. Gellan gum is a commercially viable food ingredient occurring hydrocolloid with useful properties. It has been previously reported that gellan gum alters food bolus structure in human gastric impacting the satiety and its nutritional released. The aim of this study was to investigate the effect of additional gellan gum on in vitro cooked rice digestibility. The amount of 1% (w/w) gellan gum was added onto rice grain before the cooking process. The formation of gel covered cooked rice were investigated using light microscope and scanning electron microscope. Under simulated human gastric environment, bolus disintegration of rice-gellan gum was slower than intact rice bolus. Further study on in vitro hydrolysis of starch by  $\alpha$ -amylase enzyme, addition of gellan gum significantly inhibits starch hydrolysis of cooked rice. The inhibitory effect of gellan gum on gelatinization of starch and gel formation with coating effect of gellan gum were hypothesised to be responsible for the reduced starch digestibility of cooked rice.

### Biography

Syahrizal Muttakin is a young Researcher at Indonesian Agency for Agricultural Research and Development having expertise in Food Engineering. He graduated from Bogor Agricultural University, Indonesia and hold Bachelor of Science in Agro-industrial Technology. After years of work helping farmers by increasing value added of their post-harvest product, he tried to improve his capability by studying abroad. He received Master of Science in Food Science and Technology from Chung-Ang University, Republic of Korea. Recently, he started pursuing PhD in Chemical Engineering from University of Birmingham. He also acts as Associate PhD student and conducts his PhD research project at Food Engineering Laboratory, University of Nottingham. His current research interest is on development of food digestion model (in vitro).

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