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Onion waste recycling to produce the value added by-products

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Onion wastes (OW) which is produced from industrially processed onions is one of major agriculture waste materials. We evaluated the use of OW to produce a value added by-products such as bio-sugars and quercetin. The carbohydrate content of OW was analyzed and the optimal conversion conditions were evaluated by enzymatic process using varying enzyme mixtures for bio-sugar production and quercetin extraction. The optimized enzymatic bioconversion rate of OW to bio-sugar was over 95% with cellulase, xylanase, Pectinase combined mixtures. Quercetin extraction was carried out after enzymatic hydrolysis. The newly developed nano-matrix (terpyridine immobilized silica-coated magnetic nanoparticles-zinc (TSMNP-Zn matrix) was utilized to separate quercetin from OSW extracts. The nano-matrix facilitated easy separation and purification of quercetin.

Biography

Hyeun-Jong Bae has completed his PhD in 2002 at Universite Laval in Canada. He is currently the Director of Bioenergy Research Center at Chonnam National University. His major research areas include lingo-cellulosic bio-energy and value added material production from biomass and agricultural waste by enzymatic bioprocess.

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