

Extraction and characterization of oligosaccharides from palm kernel cake as prebiotic

ABSTRACT

The main objective of the present study was to extract and characterize oligosaccharides from palm kernel cake (OligoPKC) to be used as a prebiotic. Up to 16.81% of oligosaccharides were extracted from PKC using neutral detergent solution with two to eight degrees of polymerization. Molecular weights of seven fractions of OligoPKC were estimated using a mass spectrophotometer procedure resembling those of mannobiose, mannotriose, mannotetraose, mannopentaose, and mannohexaose standards, while those of two unknown components resembled those of heptasaccharide and octasaccharide. Enzymatic hydrolysis of OligoPKC using 11 enzymes showed that β -mannosidase and β -mannanase had the highest effects. OligoPKC fractions were potential substrates for growth of four species of *Lactobacillus*. Supplementation of OligoPKC in the diet of broiler chickens increased the population of beneficial microbes. However, it reduced the populations of pathogenic bacteria in the cecum. Hence, OligoPKC can be considered a potential prebiotic supplement in the feed and food industry.

Keyword: Prebiotic; Oligosaccharide; Palm kernel cake