

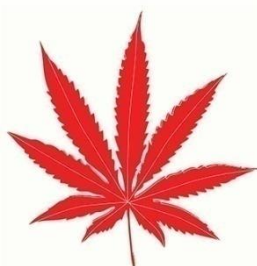


Conference Abstract
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Conference Abstract

PRODUCTION OF PURE GALACTOOLIGOSACCHARIDES (GOS) FROM LACTOSE

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ABSTRACT

Background: Intake of prebiotics has been associated with the prevention of the colon cancer, assistance in the absorption of minerals such as magnesium, calcium, and iron, reduction of cholesterol levels (thereby reducing the risk of cardiovascular diseases), reduction of the severity of IBD (Inflammatory Bowel Disease) and weight loss. Galactooligosaccharides (GOS) are composed of β -linked galactose moieties having either glucose or galactose at their reducing end.

Methodology: In order to synthesize GOS, lactose, galactose or glucose could be transgalactosylated whereby lactose acts as a galactosyl donor. When Galactooligosaccharides are synthesized using the process of transgalactosylation, there are a few mixtures of monosaccharides and non-reacted lactose. It is therefore highly advised to efficiently remove such impurities before commercialization of GOS. The objective of the instant research was to produce highly pure Galactooligosaccharides from Lactose. The enzyme β -galactosidase was purchased and transgalactosylation of lactose (600 mM) prepared in 50 mM NaPP buffer, pH 6.5 at 37 °C using 300 rpm was done. The reaction was ceased by heating the mixture at a temperature of 90°C for 5 minutes and samples were stored at -20°C for subsequent analysis to be performed later on. Megazyme assay kits from Ireland were utilized to analyze glucose, galactose and lactose as per the standard procedure. The calculation of GOS was performed making use of the formula; $GOS = \text{Initial concentration of lactose} - (\text{Glucose} + \text{Galactose} + \text{Untransgalactosylated})$

Lactose). The final mixture of GOS was subjected to TLC (Thin Layer Chromatography) to ensure that the resultant GOS will have high purity.

Results: The resultant GOS obtained after this process was of 88% purity.

Conclusions: The study concluded that highly pure Galactooligosaccharides could be produced from Lactose and used for various health benefits.

Key words: Prebiotics; Galactooligosaccharides (GOS); Lactose; Thin Layer Chromatography; Health Benefits.