

Xylitol; A review on Bio-production, Application, Health Benefits and Related Safety Issues.

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Abstract

Xylitol is a pentahydroxy sugar-alcohol which exists in a very low quantity in fruits and vegetables (plums, strawberries cauliflower pumpkin). On commercial scale xylitol can be produced by chemical and biotechnological processes. Chemical production is costly and extensive in purification steps. However, biotechnological method utilizes agricultural and forestry wastes which offer the possibilities of economic production of xylitol by reducing required energy. The precursor xylose is produced from agricultural biomass by chemical and enzymatic hydrolysis and can be converted to xylitol primarily by yeast strain. Hydrolysis under acidic condition is the more commonly used practice influenced by various process parameters. Various fermentation process inhibitors are produced during chemical hydrolysis that reduce xylitol production, a detoxification step is therefore necessary. Biotechnological xylitol production is an integral process of microbial species belonging to *Candida* genus which is influenced by various process parameters such as pH, temperature, time, nitrogen source and yeast extract level. Xylitol has application and potential for food and pharmaceutical industries. It is a functional sweetener as it has prebiotic effects which can reduce blood glucose, triglyceride and cholesterol level. This review describes recent research developments related to bio-production of xylitol from agricultural wastes, application, health and safety issues.