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Production of mannitol by novel strain of *Lactobacillus hilgardii*

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Mannitol is a six-carbon compound, classified as sugar alcohol or polyol. It is similar to sorbitol or xylitol. It occurs naturally in fruits and vegetables. Mannitol is used in the pharmaceutical and food industries and can be only partially absorbed in the intestines and has zero glycemic index, also is half as sweet as sucrose. Therefore mannitol is used as a sweetener, most often due to its high cost in combination with other sweeteners. As a food additive it is considered a healthy ingredient. Mannitol is known as osmotic diuretic and has antioxidant properties and neutralizes hydroxyl radicals. Currently, it is industrially produced through catalytic hydrogenation of a 1:1 glucose and fructose mixture using high temperature and pressure. However, production of mannitol on industrial scale is not efficient due to the fact that, the final mixture contains only 25% mannitol and products of this reaction still require to be purified. Due to high production cost and low efficiency, new biotechnological production methods are highly desirable nowadays. This study focuses around the use of lactic acid bacteria, which are capable of converting D-fructose into D-mannitol through mannitol dehydrogenases. In this study we use *Lactobacillus hilgardii* to produce mannitol. This strain was isolated from mead, where its influence was unfavorable. However, properties of the environment such like mead adapted this strain to be a potential candidate to be an efficient mannitol producer.

Biography

Klaudia Gustaw is pursuing her PhD at the Faculty of Food Sciences and Biotechnology, Department of Biotechnology, Microbiology and Human Nutrition within the University of Life Sciences in Lublin. She has also been working as an Assistant Lecturer in University of Life Sciences in Lublin, Poland.

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