CARPATHIAN JOURNAL OF FOOD SCIENCE AND TECHNOLOGY

journal homepage: **http://chimie-biologie.ubm.ro/carpathian_journal/index.html**



# EFFECTS OF DIFFERENT LACTASES AND RATIOS ON THE PREPARATION OF LOW-LACTOSE PREBIOTIC LIQUID GOAT MILK

**Chaowei Yang[1], Guowei Shu[1]✉, Huan Lei[2], Qisheng Hu[3], Hongchang Wan[4], Zhanmin Wang[5]**

*[1] School of Food Science and Engineering, Shaanxi University of Science and Technology, Xi'an, 710021, China*

*[2] Xi'an Baiyue Gaot Milk Corp., Ltd., Xi'an,710089*

*[3] Xi'an Junyuan Animal Husbandry Co., Ltd., Xi'an, 710500, China*

*[4] Shaanxi Yatai Dairy Co., Ltd., Xianyang, 713701, China*

*[5] Fuping County Milkgoat Dairy Co., Ltd., Weinan, 711711, China*

*✉Corresponding author: E-mail: shuguowei@gmail.com*

*ORCID ID: 0000-0002-7086-7772*

https://doi.org/10.34302/crpjfst/2025.17.4.14

**Article history:**

**Received:**
January 7th, 2025

**Accepted:**
August 23rd, 2025

**Published**
December 30th, 2025

**Keywords:**
*Lactase;*
*goat milk;*
*oligosaccharide.*

**ABSTRACT**

Consumption of dairy products provides consumers with nutrients and is beneficial to human health, but lactose intolerance prevents some consumers from consuming dairy products. Using lactase to hydrolyze lactose and generate galactooligosaccharides (GOS) can not only avoid lactose intolerance but also increase the prebiotics of dairy products and improve the functionality of the product. This study investigated the effects of 14 lactases and their ratios on the generation of GOS and the hydrolysis of lactose using goat milk. It was found that there were significant differences in the effects of lactase on the synthesis of GOS and lactose hydrolysis. The rate of lactose hydrolysis (LHR) and GOS concentration are 4.70%-80.62%, and 0.82 g/L-12.60 g/L respectively. The best effect is achieved when lactase E10 and E5 are in a ratio of 4:1, The GOS concentration was 14.587±0.20 g/L and the LHR was 91.880±0.01%, respectively.