

عنوان مقاله:

Characterization of Structure and Cellular Immunity Bioactivity of Milk-Derived Galactooligosacchrides Prepared by Lactobacillus delbrueckii subsp. bulgaricus Fermentation

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خلاصه مقاله:

In this study, the milk-derived GalactoOligoSaccharides (GOS) were produced by Lactobacillus delbrueckii subsp. bulgaricus and refined by an ultrafiltration-nanofiltration continuous membrane. By further investigation, we found that the GOS product purified by gel permeation chromatography mainly contained low molecular weight disaccharide and trisaccharide, that is, ۴-β-galactobiose and tri-galacto-oligosaccharides. The cellular immune activity of the purified GOS was evaluated by using Intestinal Epithelial Cells (IECs). Results showed that GOS could significantly ($P < 0.05$) promote IECs proliferation in a dose and time dependent manner, and the relative proliferation rate after ۲۴ hours culture was high up to ۱۵۸% at the concentration of ۱۰۰ μg mL⁻¹, which was three time the value after ۴ hours culture without GOS. Moreover, the production of IL-۶ was observably increased and up to ۱۳۳.۵۴ ng L⁻¹ with addition of ۱۰۰ μg mL⁻¹ GOS. These data implied that the purified GOS might have a role in promoting the immune adjustment, which could be utilized as a novel and natural immunoregulatory agent in the field of medicine and functional food. This work also revealed that the employment of transgalactosylation activity of β-galactosidase derived from the fermentation of probiotics such as Lactobacillus delbrueckii subsp. bulgaricus would enhance the value of the milk product due to the .form of GOS

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