

Fermentation strategies for improving the production of bacteriocin-like inhibitory substances by *Lactobacillus brevis* C23 with nutrient supplementation, pH, and temperature variations

ABSTRACT

In this study, fermentation strategies were carried out for improving the production of bacteriocin-like inhibitory substances by *Lactobacillus brevis* C23 with nutrient supplementation, pH, and temperature variations, as well as fed-batch cultivation. The BLIS activity was highest (91.52%) in the MRS medium supplemented with 1.5% (w/v) lactose and 1% (w/v) meat extract. pH 5 augmented both the cell biomass and BLIS activity, but incubation temperature only affected growth at 37°C. Fed-batch cultivation strategy that utilized meat extract feeding would positively affect cell growth, whereas BLIS activity was enhanced by lactose feeding. The highest BLIS activity from *L. brevis* C23 was obtained at the 24 hr mark by feeding the culture medium with lactose (77.73%). The BLIS production of *L. brevis* C23 fed with meat extract followed a similar trend to lactose (74.20%). Increased BLIS activity in the final solution would reduce the downstream step such as concentrating the purified product.