

Abstract

The growth in soy demand leads to an increase in soy whey waste, which has a severe environmental impact on the water ecosystem. Hence, soy whey valorization via fermentation serves as a better approach to process it due to the enhancement in benefits via the presence of secondary metabolites with antimicrobial and antifungal properties. *Aspergillus oryzae* (*A. oryzae*) is a robust and versatile cell factory widely utilized in the food industry. With the glucose supplementation in the soy whey in different concentrations, ranging from 0%, 1% 3%, and 5% (w/v), it is hypothesized that it can influence the metabolic pathway of *A. oryzae* to produce these secondary metabolites with antimicrobial and antifungal properties, tested via agar well diffusion. This study also evaluated the effect of the glucose concentration on the growth and metabolism of the cell factory. The results showed that different glucose concentrations significantly influence the biomass concentration and pH level after the fermentation process. Moreover, the agar well diffusion showed negative outcomes in every glucose concentration when being tested towards *Escherichia coli* (*E. coli*), *Staphylococcus aureus* (*S. aureus*), *Salmonella Typhimurium* (*S. typhimurium*), and *Candida albicans* (*C. albicans*). Based on these screening results, it is recommended to do metabolic profiling to know if the secondary metabolites were entirely absent or underproduced.

Keywords: Agar Well Diffusion, *Aspergillus oryzae*, Glucose, Secondary Metabolites, Soy Whey