

Abstract:

Lysozyme has been of interest in pharmaceutical and food industries because of its anti-bactericidal effect. The most common commercial source of lysozyme is egg-white of chicken. However, egg is already a valuable product, which makes the production cost high to start with. Moreover, egg-white lysozyme may cause immunological problems in humans, and the antimicrobial activity of egg-white lysozyme is lower than human lysozyme. Therefore, several approaches for the production of human lysozyme have been reported. Human lysozyme gene was expressed in mice, plants and microorganisms. *Kluyveromyces lactis* is a microorganism that has effective secretory capacity and crab-tree negative effect in fully oxidative conditions. Therefore, there is a need to improve the fermentation process for the human lysozyme production by *K. lactis* to make the human lysozyme more affordable. Biofilm reactors with plastic composite support (PCS) can enhance the productivity of fermentation by providing high cell concentrations. Biofilm reactors with PCS have many advantages, such as low nutrition requirement of the medium, longevity and durability for long-run fermentation. Biofilm reactors with PCS will be used in this proposed research to enhance the production of human lysozyme by *K. lactis* K7.