

Removal of lactose from highly goat's milk concentration through ultrafiltration membrane

ABSTRACT

Concentration of goat milk using cross-flow filtration unit with 10KDa molecular weight cut off (MCWO)-sized ultrafiltration membrane was examined under various operating conditions. The parameters to be optimized are trans-membrane pressure (TMP) and cross-flow velocity. Permeate flux is decreased with time due to fouling of the membrane. The localized membrane fouling may be reduced by increasing the feed flow rate and TMP to mitigate overall membrane fouling. By doing so, the transmission of lactose will also increase. The aim is to produce concentrated goat milk with minimal lactose content and thus high concentration of protein. Spray-drying method is used to convert the concentrated non-lactose milk obtained into milk powder. The milk powder then was characterized in terms of its surface particle, solubility, and nutritional content with the well-commercialized non-lactose milk. This project tackles understanding to minimize the deposition rates of particles on membrane by optimizing the involved parameters and be proved by comparing the yield obtained with well-commercialized non-lactose milk.

Keyword: Concentration; Goat's milk; Lactose intolerance; Membrane; Spray dry; Ultrafiltration