World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:11, No:06, 2017

Recovery of Value-Added Whey Proteins from Dairy Effluent Using Aqueous Two-Phase System

Authors : Perumalsamy Muthiah, Murugesan Thanapalan

Abstract : The remains of cheese production contain nutritional value added proteins viz., α-Lactalbumin, β-Lactoglobulin representing 80- 90% of the total volume of milk entering the process. Although several possibilities for cheese-whey exploitation have been assayed, approximately half of world cheese-whey production is not treated but is discarded as effluent. It is necessary to develop an effective and environmentally benign extraction process for the recovery of value added cheese whey proteins. Recently aqueous two phase system (ATPS) have emerged as potential separation process, particularly in the field of biotechnology due to the mild conditions of the process, short processing time, and ease of scale-up. In order to design an ATPS process for the recovery of cheese whey proteins, development of phase diagram and the effect of system parameters such as pH, types and the concentrations of the phase forming components, temperature, etc., on the partitioning of proteins were addressed in order to maximize the recovery of proteins. Some of the practical problems encountered in the application of aqueous two-phase systems for the recovery of Cheese whey proteins were also discussed.

Keywords : aqueous two-phase system, phase diagram, extraction, cheese whey
Conference Title : ICCEPS 2017 : International Conference on Chemical Engineering and Physical Sciences
Conference Location : Venice, Italy
Conference Dates : June 21-22, 2017