

Effective Solvents for Proteins Recovery from Microalgae

Authors : Win Nee Phong, Tau Chuan Ling, Pau Loke Show

Abstract : From an industrial perspective, the exploitation of microalgae for protein source is of great economical and commercial interest due to numerous attractive characteristics. Nonetheless, the release of protein from microalgae is limited by the multiple layers of the rigid thick cell wall that generally contain a large proportion of cellulose. Thus an efficient cell disruption process is required to rupture the cell wall. The conventional downstream processing methods which typically involve several unit operational steps such as disruption, isolation, extraction, concentration and purification are energy-intensive and costly. To reduce the overall cost and establish a feasible technology for the success of the large-scale production, microalgal industry today demands a more cost-effective and eco-friendly technique in downstream processing. One of the main challenges to extract the proteins from microalgae is the presence of rigid cell wall. This study aims to provide some guidance on the selection of the efficient solvent to facilitate the proteins released during the cell disruption process. The effects of solvent types such as methanol, ethanol, 1-propanol and water in rupturing the microalgae cell wall were studied. It is interesting to know that water is the most effective solvent to recover proteins from microalgae and the cost is cheapest among all other solvents.

Keywords : green, microalgae, protein, solvents

Conference Title : ICABB 2017 : International Conference on Applied Bioscience and Biotechnology

Conference Location : London, United Kingdom

Conference Dates : December 18-19, 2017