World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:17, No:06, 2023

Typical Emulsions as Probiotic Food Carrier: Effect of Cells Position on Its Viability

Authors : Mengfan Li, Filip Van Bockstaele, Wenyong Lou, Frank Devlighere

Abstract : The development of probiotics-encapsulated emulsions that maintain the viability of probiotics during processing, storage and human gastrointestinal (GI) tract environment receives great scientific and commercial interest. In this study, typical W/O and O/W emulsions with and without oil gelation were used to encapsulate L. plantarum. The effects of emulsion types on the viability of L. plantarum during storage and GI tract were investigated. Besides, the position of L. plantarum in emulsion system and its number of viable cells when threating by adverse environment was correlated in order to figure out which type of emulsion is more suitable as food carrier for probiotics encapsulation and protection. As a result, probiotics tend to migrate from oil to water phase due to the natural hydrophilicity; however, it's harmful for cells viability when surrounding by water for a long time. Oil gelation in emulsions is one of the promising strategies for inhibiting the cells mobility and decreasing the contact with adverse factors (e.g., water, exogenous enzymes and gastric acid), thus enhancing the number of viable cells that enough to exert its beneficial effects in host.

Keywords : emulsion, gelation, encapsulation, probiotics
Conference Title : ICFSD 2023 : International Conference on Food Structure Design
Conference Location : Copenhagen, Denmark
Conference Dates : June 15-16, 2023