Deep eutectic solvents enable the enhanced production of n-3 PUFA-enriched triacylglycerols

ABSTRACT

Efficient synthesis of n-3 PUFA-enriched triacylglycerol (TAG) by the esterification of glycerol with n-3 PUFA in deep eutectic solvents (DES) is reported. There was a 1.2-fold increase of TAG yield in DES compared with that in the solvent-free system. Adsorption of the produced water by DES during esterification contributed to enhance the conversion efficiency by changing the reaction equilibrium. DES also served as an effective solvent for enriching the n-3 PUFA of TAG in the upper layer of reaction media. A TAG yield of 55% was achieved under the optimal condition. Practical Applications: Enzymatic synthesis of n-3 PUFA-enriched triacylglycerol (TAG) is challenged by low yields. Here, deep eutectic solvents show great potential for enhancing the production of n-3 PUFA-enriched TAG.