Effect of Resveratrol and Ascorbic Acid on the Stability of Alfa-Tocopherol in Whey Protein Isolate Stabilized O/W Emulsions

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Abstract : Food proteins have been widely used as carrier materials because of their multiple functional properties. In this study, alfa-tocopherol was encapsulated in the oil phase of an oil-in-water emulsion stabilized with whey protein isolate (WPI). The influence of WPI concentration and resveratrol or ascorbic acid on the decomposition of alfa-tocopherol in the emulsion during storage is discussed. Decomposition decreased as WPI concentrations increased. Decomposition was delayed at ascorbic acid/WPI molar ratios lower than 5 but was promoted at higher ratios. Resveratrol partitioned into the oil-water interface by binding to WPI and its cis-isomer is believed to have contributed most of the protective effect of this polyphenol. These results suggest the possibility of using the emulsifying and ligand-binging properties of WPI to produce carriers for simultaneous encapsulation of alfa-tocopherol and resveratrol in a single emulsion system.

Keywords : stability, alfa-tocopherol, resveratrol, whey protein isolate
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