

Effect of sodium chloride on the appearance of food characterization of
"protein-saponin-fiber " as oil-substituted materials.

Kenji WATANABE and Makoto SHIMOYAMADA

(Department of Food Science, Faculty of Agriculture, Gifu University)

Summary

The aim of this study is to investigate the effect of sodium chloride on the preparation of the W/O/W type multiple-phase emulsions as the oil-substituted materials using the egg white protein-soybean saponin-ovomuchin (fiber-like protein in egg white). The operations used in this study were designed on the basis of a two-step procedure of emulsification. In the first operation for providing the W/O type emulsions, aqueous solutions of 0.5% soybean saponin were homogenized with a Polytron with the soybean oil at the ratios of 1, 2, 3, 4 and 5 of soybean oil to 1 of the saponin solution. The presence of sodium chloride at the concentrations of 0.5 ~3% in the systems resulted in a lowering of the emulsifying activity and emulsion stability. In the second operation for providing the W/O/W type emulsions, the obtained W/O type emulsions without sodium chloride were homogenized with egg white or ovomuchin-enriched egg white in the presence and absence of sodium chloride. In the presence of 3% of sodium chloride, the stable W/O/W type emulsions could be prepared successfully. On the preparations of the described multiple-phase emulsions as the oil-substituted materials, reduction at the rates of 20 ~25% or above in weight of the added oil could be attained especially in the presence of ovomuchin.