Journal of Dairy Science Vol. 76 No. 10 2878-2885

Microencapsulating Properties of Whey Proteins. 2. Combination of Whey Proteins with Carbohydrates

S. L. Young [1], X. Sarda [1], and M. Rosenberg [1]

[1] Department of Food Science and Technology, University of California, Davis, Davis 95616-8598

Anhydrous milk fat was effectively microencapsulated by spray drying in wall systems consisting of combinations of whey protein with with carbohydrates lacking surface-active properties. Whey proteins were effective emulsifiers in the presence of these carbohydrates and enabled microencapsulation even at a concentration of 5% (wt/wt), respectively. All combinations of whey proteins and carbohydrates gave microencapsulation yields higher than 96%. The carbohydrates limited the extractability of the core by a solvent. Microencapsulation efficiencies were up to 93% when whey proteins were partially replaced by carbohydrates. The microencapsulating properties of wall solutions of whey proteins and commercial encapsulating agents consisting of carbohydrates were superior to those of only the carbohydrates. In all cases, spherical capsules were obtained in which the milk fat was physically well isolated from the environment. Combinations of whey proteins and carbohydrates were effective and functional microencapsulating agents.

Key Words: anhydrous milk fat • carbohydrates • microencapsulation • whey proteins

Submitted on August 20, 1992
Accepted on June 18, 1993

This article has been cited by other articles: