Folic acid (B9) fortification strategies by innovative microencapsulation

Folic acid is essential for a healthy fetal development, aids in periods of rapid cell division and growth during pregnancy and throughout infancy. Folic acid is a general term for vitamine B9 that includes food folate and folic acid that is used in supplements and food fortification. In the current study, double emulsions was used for protecting the 1-5-methyltetrahydrofolic acid (L-5-MTHF) with or without sodium ascorbate (ASC) from degradation throughout the baking and storage of a fortified wheat bread using microencapsulation using white egg powder (WEP) as the coating agent; there is no research in literature on two-step homogenization method for preparation of double emulsions. In the system, prehomogenization and following ultrasonication applications were used. With the fortification of 1-5-methyltetrahydrofolic-WEP or 1-5-methyltetrahydrofolic-WEP-ASC into wheat bread, the recoveries were found as 89.6±2.1% and 92.2±1.5% (n=6) respectively based on the HPLC. Two-step homogenization and WEP coated 1-5-methyltetrahydrofolic acid stability was preserved, significantly (p<0.05) during storage at 25°C compared to the free 1-5-methyltetrahydrofolic acid. WEP was an effective microencapsulated agent and double emulsion technique was the great condition for 1-5-methyltetrahydrofolic acid stability in baked wheat bread.

Biography

Ozlem Tokusoglu is currently working as Associate Professor Faculty member in Celal Bayar University Engineering Faculty Department of Food Engineering. She performed a visiting scholar at the Food Science and Nutrition Department/University of Florida, Gainesville-Florida-USA, during 1999-2000, and as visiting Professor at the School of Food Science, Washington State University, and Pullman, Washington, USA during April-May 2010. She organized and directed as Conference Chair the International Congress entitled ANPFT2012 (Advanced Non-thermal Processing in Food Technology: Effects on Quality and Shelf-Life of Food and Beverages in May, 2012 at Turkey. She has published many papers in peer reviewed journals and serving as an Editorial Board Member of International Journal of Food Science and Technology by Wiley Publisher, USA and Polish Journal of Food and Nutrition Sciences (PJFNS) in Thomson Reuters. She published the scientific edited two book entitled Fruit and Cereal Bio-actives: Chemistry, Sources and Applications by CRC Press, Taylor & Francis, USA Publisher and entitled Improved Food Quality with Novel Food Processing by CRC Press, third book Food By-Product Based Functional Food Powders is also in progress.

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