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### Folic acid (B<sub>9</sub>) 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 vitamin B<sub>9</sub> that includes food folate and folic acid that is used in supplements and food fortification. In the current study, double emulsions were used for protecting the L-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 L-5-methyltetrahydrofolic-WEP or L-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 L-5-methyltetrahydrofolic acid stability was preserved, significantly (p<0.05) during storage at 25°C compared to the free L-5-methyltetrahydrofolic acid. WEP was an effective microencapsulated agent and double emulsion technique was the great condition for L-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 books 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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