Iron content and quality parameters of instant noodles produced with fortified wheat flour: an exploratory analysis

Ana Alice A. Oliveira, Juliana A. L. Pallone, Ana Paula Rebellato, Juliana C. Hashimoto, Luciula L. L. Morelli, Leticia K. Silvestre, Ronei J. Poppi. School of Food Engineering, University of Campinas - UNICAMP, Rua Monteiro Lobato 80, 13083-862 Campinas, São Paulo, Brazil

The success in fortification programs depends on nutrient ingestion in adequate amounts, as well as on the maintenance of physicochemical quality of fortified foods. This work objected to perform exploratory analysis of data referred to iron content and physicochemical attributes for instant noodles. Three brands (A, B, C), in three batches, during three months were analyzed for their moisture, acidity, peroxide index (PI) and lipid content. Iron quantification was realized by Flame Atomic Absorption Spectroscopy, after wet digestion. Data were autoscaled for Principal Component Analysis, with four principal components describing 97% of variance. PC1 (39.33%) allowed differentiation between brands A and C, according to the following variables: moisture, acidity and iron content. PC2 (32.76%) segregated samples of one batch of brand B, characterized for lower iron concentrations. PC3 (15.28%) separated samples of brand A, analyzed at the second month, due to an increase of PI and acidity. PC4 (9.62%) could not supply additional information for interpreting the differences among brands and batches of the samples. Analytical results showed wide variation in iron content, regarding to the wheat flours used. Overall, multivariate analysis evidentiated differences among samples concerning the composition and physicochemical parameters.