DETERMINING TOTAL LIPID AND MOISTURE CONTENT IN POWDERED MILK, COMMERCIALIZED IN BRAZIL USING NEAR INFRARED SPECTROSCOPIC ANALYSIS COMBINED WITH THE CONSTRUCTION OF MULTIVARIATE MODELS.


The near infrared spectroscopy (NIR) is an alternative number method of analysis that can be applied to quality control performed in industries, because the methodology for obtaining spectra in the near infrared diffuse reflectance for determining the total lipid content and moisture in powdered milk, has some advantages such as, spectral analysis of 2 minutes, as well as the fact that samples are not altered during analysis and do not generates wastes. Therefore, this work proposes to determine the total lipid and moisture content in samples of powdered milk using near infrared spectroscopy (NIR) by diffuse reflectance in the region between 1145.83 to 2489.15 nm and multivariate models by partial least squares (PLS). Initially, the spectral data were subjected to multiplicative correction of light scattering (MSC) and Savitzky–Golay straightening. The 33 samples were divided into subgroups by the hierarchical clustering analysis method, Ward Linkage, and the total lipid and moisture content was determined by the Soxhlet method, and drying in an oven at 105 º C respectively. The prediction models of for determining total lipid content showed correlation R of 0.9955, RMSEP of 0.8952 and the average error between the method reference and the NIR was ± 0.70% while the forecast model of moisture presented R of 0.9184, RMSEP, 0.3778 and error of ± 0.76%. The models indicated that the NIR combined the regression techniques being useful tools for determination of total lipid and moisture levels in powdered milk.