A method for the prediction of the shrinkage in roasted and ground coffee using multivariable statistics

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Abstract

This study seeks to determine the influence of process variables: consumption percentage in the mixture, pasilla percentage in the mixture, storage time, humidity percentage in the product for consumption, humidity percentage in the pasilla, humidity percentage in roasted coffee, average humidity in finished product, average color in roasted coffee, and average color in finished product, for the shrinkage of packed coffee in a coffee processing plant of Arabica type. Using a multiple linear regression model, the study stated that the variables of humidity percentage of roasted coffee and color of roasted coffee have a statistically significant relationship with a confidence of 95% (p-value < 0.05). It was concluded that these variables explain 99.95% of the variability in the shrinkage, and the relation of the shrinkage with the humidity percentage is inversely proportional, but the relation of this variable with the color of roasted coffee is directly proportional. The tests applied to the model wastes proved that the model is suitable for predicting the shrinkage in the process.

Palabras clave

Multiple linear regression, Shrinkage in a process, Humidity, Statistical quality control.