Abstract

The sensorial and commercial quality of hazelnuts is affected by two main parameters: acidity and water content. NIR technology combined with appropriate chemiometric methodology is widely diffused for quality feature detection in several fruit species. To date, no papers have been published on the application of this technology for hazelnut. In this paper we present data from experimental research carried out on hazelnuts of various different origins ('Romana', 'Ackakoca', 'Mortarella', 'Azerbaijan') with the aim of applying this technique to measure water content and acidity using efficient regression models. Hazelnuts were sorted on the basis of their geographic origin, variety, size, water content, acidity and peroxide number. After this initial classification, unshelled hazelnuts were used whole or ground to obtain the typical flour. Hazelnuts and flour were then successively screened under different NIR. Spectral and chemical data were used for the PLS regression model. For hazelnut flour, R^2 values were respectively equal to 0.901 and 0.904 for water content and acidity. For whole hazelnuts, values were lower: $R^2 = 0.895$ and 0.880, respectively.