

P26: NOVEL RAPID APPROACH BY MIR, NIR AND RAMAN SPECTROSCOPIES AND CHEMOMETRICS TO ASSESS HONEY QUALITY

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Nowadays, according to the *Codex Alimentarius*, honey quality is evaluated by determining a number of physicochemical parameters, such as moisture, electrical conductivity, pH, free acidity, colour, sugar content and hydroxymethylfurfural content, among others, using official methods (AOAC, International Honey Commission). The compulsory use of several of these methods for assessing honey quality makes the analytical procedure for honey quality control costly, long and tedious; besides considerable amounts of solvents and reagents are consumed. To overcome these drawbacks, the use of vibrational spectroscopies combined with chemometrics is proposed in order to quantitatively determine such physicochemical parameters; allowing to obtain rapid on-line non destructive information without performing any special sample preparation, and to determine various physicochemical parameters in a single run.

The objective of the present work is to develop a novel rapid method based on NIR, MIR and/or Raman spectroscopies and chemometrics for the determination of the honey physicochemical parameters. The physicochemical data, obtained by official methods, and vibrational spectral data of 698 Argentinean honeys from four harvests (2013-2016) were analysed by multivariate data analysis. Validated Partial Least Squares regression models were achieved to determine with acceptable precisions, honey physicochemical parameters, i.e. the contents of fructose, glucose, reducing sugars, sucrose, turanose, maltose and erlose, fructose/glucose ratio, free acidity, colour, moisture, and electrical conductivity, by just recording NIR, MIR and/or Raman spectra of the honeys.