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Combination of mathematical algorithms and laser applications, as a reliable way to control food quality

The reliable estimation of the quality of food is required not only by the consumers and the public administration, but also by the producers themselves. It is important to highlight that in most cases, in order to be determined during real-time industrial processes, it is necessary to have rapid estimation tools. For this reason, modeling and controlling food quality should be done rapidly, reliably, and as inexpensive as possible. It is known that fluorescence studies are widely applied in the determination of quality in the food sector. Sources based on laser or light emitting diodes (LEDs), are widely implemented in different fields related with food technology. If inexpensive tools are being looking for, LEDs are a good option because it is one of the most cost-effective energy sources employed for fluorescence studies. In this research, lasers and LEDs have been used as light sources with different excitation wavelengths (400 nm, and different visible ones) to perfectly classify and determine the quality of honeys with different botanical origins (eucalyptus, lemon, orange, rosemary and mixed-flower), rice syrup, extra virgin olive oils, and lower grade olive oils (refined and pomace). Although the statistical results obtained with LEDs, considering the costs, are adequate, the results when employing sources based on lasers are slightly better.

Biography

José S Torrecilla received his BSc and PhD in Chemical Engineering from the Complutense University of Madrid (UCM) and obtained his Post-doctoral studies from the Queen's University of Belfast (United Kingdom) and Spanish Science and Technology Ministry. He received his BSc in Prevention of Labor Risks. Currently, he is an Associate Professor and Researcher at the UCM. His research fields are mainly focused on developing mathematical models and designing chemometric tools in different fields (Chemical Engineering, Food, Health, etc.) He has published over 90 papers in reputed journals and has been serving as a distinguished Editorial Board Member

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