QUANTIFICATION OF CALCIUM IN SPARKLING WINES BY INFRARED SPECTROSCOPY

Joana. VESTIA[1]; Maria I. ROUXINOL[1];Helena FERREIRA[2]; Ana E. RATO[1]; M.Rosário MARTINS; Sara RODRIGUES; João M. BARROSO[1]

[1] Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Universidade de Évora, apartado 94 7002-554, Évora.
[2] Adega Cooperativa de Borba, Largo Gago Coutinho e Sacadura Cabral, 7150 Borba.

Abstract

Markets are increasingly competitive and the companies feel the urge to improve their manufacturing processes. Blending that with a larger control of quality and safety it was created a need to develop new methods of analysis each time more accurate, faster and with lower costs.

Alentejo is a region with a wide variety of soils, most of them are rich in calcium and potassium. In the production of sparkling wine many wineries use encapsulated yeast in alginate beads, instead of the traditional method, *champenoise*. The first method is faster, allowing a more versatile production, reducing the risk of contamination and features organoleptic characteristics similar to the traditional method (yeast free). However, encapsulated yeast spheres should be only used if the base wine matches a number of features, among them calcium content. In this study the calcium content in the wine was determined by atomic absorption spectroscopy (AAS) and by near-infrared spectroscopy. The AAS is a high sensitivity method clearly produces a reliable result, however it is very time consuming and produces great quantities of environmental waste, therefore the possibility of using near-infrared spectroscopy as a method was studied to be a fast, simple and clean alternative to the AAS.

It was obtained a calibration model with a variation coefficient higher than 0.80 which indicates that the near-infrared spectroscopy as an adequately alternative the ASS.

Keywords: sparkling wine, encapsulted yest, calcium, atomic absortion spectrocopy, near-infrared spectroscopy.