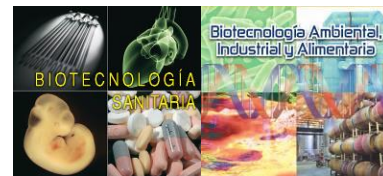

Poster

USO DE REACTIVOS COLORIMÉTRICOS COMO MARCADORES QUÍMICOS CON IMPORTANTE APLICACIÓN INDUSTRIAL



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ABSTRACT

Colorimetry is a technique used to measure and analyse colours, mainly to determine the concentration of colored compounds in solutions by the application of the Beer–Lambert law. It is applied in a variety of fields, such as chemistry, medicine, biology, and in the pharmaceutical and food industries. The basis of this technique is often the use of colorimetric reagents that provide an easily identifiable colour that depends on factors both internal and external to the samples. These reagents are usually pigments that vary in colour depending on the conditions to which they are subjected. In addition, they can interact with the packaging or the environment in which they are placed. The stimulated colour response becomes a practical tool to assess in real time the status of products in the distribution chain. This is why pigments modulated by other reagents have been applied to measure the colour change of samples applicable to products as quality markers.

Pigments and the modulator have been prepared in a hand-made device of plastic nature. The colour change reaction of the pigment has been characterised at different temperatures using water baths and the influence of movement on the sample has been measured by means of orbital shaking. The colour change of the pigment has been measured by means of an RGB device and UV-vis spectrophotometry. Subsequently, real trials will be carried out with volunteers to test the effectiveness of the colourimetric device attached to a product.

It has been observed that the reaction kinetics is temperature-dependent. The higher the temperature the shorter the reaction time. The reaction time ranged from 3 to 14 hours at temperatures of 40°C down to 5°C. Stirring does not influence the reaction time.

Compounds such as pigments, once modulated, can be an effective tool for monitoring product quality quite accurately. Once the reactants ratios are adjusted to the shelf life of the products, their reliability increases considerably, bringing benefits to the final consumer.

NOTE: This work is bound by confidentiality in the framework of a research contract.

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