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TAL 797 – Seminário

Data: 03/07/19

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BIOSENSORS IN FOOD ANALYSIS AND POTENTIAL APPLICATION IN INTELLIGENT PACKAGING

Foods analytical methods are applied to monitor the physical, chemical, microbiological and sensory in the food characteristics. Some of these methods present disadvantages such as the requirement of expensive equipment, trained personnel and require more time for analysis. As an alternative to minimize the disadvantages, biosensors are being widely studied today. Biosensors are analytical devices that convert a biological response into an electrical signal, and it is possible to identify and quantify components present in a simple or complex system. They can be classified according to the type of bioreceptor, which is the biomolecule that recognizes the analyte, or by the type of transducer, which is the biosensor component that detects the physicochemical phenomenon originated by the interaction biosensor-analyte. Biosensors can be based on antibodies, enzymes, cellular systems, biomimetic molecules and bacteriophages. The phenomena of transduction may be optical phenomena, based on mass variations or electrochemical devices. The biosensors can be applied in intelligent packaging in order to monitor the storage conditions and quality of the conditioned food. Despite considering some aspects such as legislation, costs and type of interaction between the biosensor and the polymer matrix, biosensors applied in smart packaging are considered as a promising technology in the monitoring of food quality and safety.

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