INNOVATIVE BIOSENSOR TECHNOLOGY FOR REAL-TIME DETECTION OF PATHOGENIC BACTERIA IN FOOD SUPPLY CHAINS

Ioana Cristina CRIVEI[11], Roxana Nicoleta RAȚU[1], Ionuț Dumitru VELEȘCU[1], Florina STOICA[2], Florin Daniel LIPȘA[1]

e-mail: ioana.crivei@iuls.ro

Abstract

Microbiological foodborne diseases pose significant difficulties to public health and the food sector, involving prompt and precise detection techniques to avoid foodborne diseases and guarantee food safety. Traditional individual biosensing methods often have constraints regarding their sensitivity, specificity, and response time. Implementing biosensors has been recognized as an innovative method for quickly identifying foodborne diseases in food products. A biosensor is a system that combines a biological detection material with chemical or physical transducers to convert chemical, biological, or biochemical information into detectable electrically transmitted impulses. This review presents an examination of the benefits, difficulties, and future possibilities of multimodal biosensing for foodborne diseases, highlighting its revolutionary capacity for ensuring food safety and improving public health. Finally, the primary objective of this study is to make a valuable contribution to the advancement of novel approaches in addressing foodborne diseases and guaranteeing the authenticity of the food supply chain.

Key words: foodborne diseases, biosensors, food safety, food supply.