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Identification of pathogenic Gram-negative bacteria by biosensors

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Abstract

Bacteria have different types and some of them are essential for human life and others cause problems such as illness and death and financial loss. The best way to prevent illness or prevent the patient from becoming ill is to identify pathogenic bacteria in the patient's body for drug administration and precise treatment, or even before entering the body in an infected environment. There are common methods for identifying pathogenic bacteria but for some reasons such as low speed, low accuracy, low susceptibility to contamination, high cost, etc. cause problems in identifying the infection. Biosensors are one of the newest methods of identifying contaminants and diseases that don't have problems with conventional methods. The purpose of this article is to draw the attention of audiences and professionals to the high ability of biosensors to detect pathogenic bacteria. One important point in the study of the source literature is the minimal concentration required to identify the infection and the bacteria, which makes biosensors superior to traditional methods. The results of the studies show that due to the low concentration required and low identification the limit of detection by biosensors, the speed and cost are reduced. For example, for the identification of *Vibrio parahaemolyticus* by a particular type of biosensor that reported from the DNA of this biosensor the ability to detect a wide range of microbes at shorter speeds and shorter times, and the activity of this biosensor at concentrations of 10^5-10^8 CFU/ml did its best. A biosensor for the identification of *Yersinia enterocolitica* reported a suitable concentration for numerical identification between 10^4 - 10^6 CFU/ml and at the same time, the limit of detection of this bacterium by a biosensor was expressed very low and appropriate. For detection of *Pseudomonas aeruginosa* by a biosensor, the limit of detection of the bacterium was 2 CFU / ml. This study highlights the potential of biosensors for investment and further studies.

Biography:

My name is Yousef Alaee Mollabashi and I am a Molecular Cell Microbiologist BSc in Biology. I am Member of Young Researchers and elite Club and Selected in Third National Conference on Biological Sciences in Iran. I have done many researches on antibiotic resistance and alternative methods. In my studies, urinary tract infection was selected as one of the most common diseases available throughout the world resistant to antibiotics and along with rapid identification methods for this infection and therapeutic and antibacterial potential of medicinal plants, nanoparticles, stem cells for killing Bacterial agents have been studied.

Speaker Publications:

1. Ramin Mohammadi-Aloucheh, Yousef Alaee Mollabashi, Asadollah Asadi, Ozlem Baris, Somayeh Golamzadeh (2018). The role of nanobiosensors in identifying pathogens and environmental hazards. Anthropogenic Pollution Journal, Vol 2 (2), 2018: 16-25.

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