SPR-BASED IMMUNOSENSOR FOR THE DETECTION OF *SALMONELLA SPP* IN AQUEOUS SAMPLE

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An immunosensor for highly sensitive detection of *Salmonella spp* has been developed using Surface Plasmon Resonance (SPR) as transducing technique. *S.enteritidis* spp, of various serotypes are major pathogens present in foodstuff and one of the causes of enteric diseases in humans. Most of the severe foodborne diseases are caused by nontyphoidal Salmonella serovars, with nearly 1.4 million cases of illnesses. The conventional methods of detecting foodborne pathogens require time-consuming preparation procedures including pre-enrichment, selective enrichment and colony isolation, and biochemical testing before the organism can be identified. To overcome these problems, label-free biosensors for this pathogen are highly desirable.
SPR technique is a widely used optical technique for biosensing purposes. The reason of such interest is that it allows real-time monitoring of chemical and bio-chemical interactions occurring at the interface between a thin gold film and a dielectric interface, without the need for labeling the reagents. In this work, a high performance SPR device provided with a miniaturised microfluidics system, has been realized for the proposed application. A self-assembled layer of protein A was realized onto a typical SPR transductor via 11-MUA cross linker to achieve uniform, stable, and sterically accessible antibodies coating. The subsequent binding of polyclonal anti-Salmonella spp antibodies (Pab) Pabs have been characterized by Elisa assay to determine the specificity inter species and cross reactions against other pathogens such as *E. coli* and *P. aeruginosa.* The presented data showed that SPR allowed to attain a good and remarkable detection of bacteria, with improvement of sensibility. Exploitation of the proposed application for food safety is envisaged.

[1] Y. S. Fung, Y. Y. Wong, Anal. Chem. 73 (2001) 5302-5309.