

Detection of biological analytes using surface plasmon resonance as a biosensing technique for possible development of a point of care diagnostic tool

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ABSTRACT:

Surface Plasmon Resonance (SPR) is a very powerful optical sensing technique that detects bimolecular binding interactions and it has turned out to be a suitable platform for clinical analysis. In biological and chemical sensing applications, SPR is used to monitor molecular binding real-time and it also promotes epitope mapping for determining biomolecular structures such as the interactions of proteins, DNA and viruses. This sensing technique also provides sensitive, label free and real-time monitoring of reactions. In this study we have built, characterized and optimized the SPR system for biosensing applications. Spectroscopy and scanning electron microscopy were used to characterize the surface of the SPR biosensor chip functionalized with antibodies. The home-built SPR system was successful in detecting biological analytes thereby paving a way into designing a label-free point-of-care (POC) diagnostic tool.