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Bioconjugation of gold nanoparticles for surface plasmon resonance sensor
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Abstract

Over the past few years gold nanoparticle (AuNPs) have become extremely interesting because they possess enhanced optical, electrical and chemical properties. AuNPs have the ability to form robust conjugates with biomolecules such as antibodies and can enhance optical signals making them suitable for a variety of diagnostic applications including the surface plasmon resonance (SPR) technique. SPR is a highly sensitive and label free optical technique which is widely used for detecting biological analytes and analysing the interaction between different types of biomolecules. In this study, bioconjugation was achieved by covalently attaching antibodies to AuNPs and gold coated slides were used as SPR sensor chips in Kretschmann configuration. Several UV/VIS excitation spectra were collected before and after AuNPs were conjugated to antibodies. The results showed that the sensitivity of the SPR system significantly increased because of the bioconjugation of antibodies to AuNPs and this is a promising approach for biosensing applications.