

Simulation Model of Biosensor Based on Gold Nanoparticles

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Abstract : In this study COMSOL Multiphysics was used to design lateral flow biosensors (LFBs) which provide advantages in low cost, simplicity, rapidity, stability and portability thus making LFBs popular in biomedical, agriculture, food and environmental sciences. This study was focused on simulation model of biosensor based on gold nanoparticles (GNPs) designed using software package (COMSOL Multiphysics), the magnitude of the laminar velocity field in the flow cell, concentration distribution in the analyte stream and surface coverage of adsorbed species and average fractional surface coverage of adsorbed analyte were discussed from the model and couples of suggestion was given in order to functionalize GNPs and to increase the accuracy of the biosensor design, all above were obtained acceptable results.

Keywords : model, gold nanoparticles, biosensor, COMSOL Multiphysics

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