SYNTHESIS OF NP AU USING MICROFLUIDICS FOR SENSOR APPLICATIONS

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With the advent of nanotechnology, the trend towards miniaturization has been eminent. In this work, the synthesis of gold nanoparticles by chemical reduction is used to vary the size and the morphology with the change of pH of the reducing agent in a microfluidic device, which was designed using the photolithography technique. The microfluidic devices offer some advantages such as portability, miniaturization, high-speed analysis, the use of low volumes of reagents and competitive prices. These microfluidic devices have channels with the function of mixing small amounts of reagent to obtain gold nanoparticles instantly. It is keeping the synthesis fresh and avoiding the aging of the solutions, where the characteristics of the reducing agents, combined with the pressure, the temperature, the reaction time and pH controlled the size of the gold nanoparticles. Additionally, UV-Vis spectroscopy and SEM techniques were used for their characterization to standardize the method. In this way, the interaction between the same gold nanoparticles and other analytes strongly influence their optical, physical and chemical properties, ideal for sensor applications, which allow us to make small-scale analytical laboratories.

**Keywords:** microfluidic devices, gold nanoparticles, sensor applications

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