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Optical paper-based sensor for ascorbic acid quantification using silver nanoparticles

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Abstract

In this paper, we demonstrate for the first time the use of silver nanoparticles (AgNPs) for colorimetric ascorbic acid (AA) quantification in a paper-based sensor. This device is constituted by spot tests modified with AgNPs and silver ions bordered by a hydrophobic barrier which provides quantitative and fast analysis of AA. In addition, this device is employed as point-of-care monitoring using a unique drop of the sample. AgNPs paper-based sensor changed from light yellow to grey color after the addition of AA due to nanoparticle growth and clusters formation. The color intensities were altered as a function of AA concentration

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