Paper-based simple fabrication of SERS substrate using graphene oxide and gold nanoparticles for biosensor application

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Surface enhanced Raman spectroscopy (SERS) is a powerful technique for qualitative analyses of chemicals and biomolecules. There are many studies to develop the SERS substrates with high sensitivity and reproducibility, however, recently the studies on the fabrication of SERS substrates are more focused on low cost and simple fabrication methods using affordable materials. In this study, we developed a simple approach for the fabrication of paper-based SERS substrate, which is decorated with graphene oxide and gold nanoparticles. In addition to introduce the fabrication method of paper-based SERS substrate, SERS efficiency was investigated using Cy3, SERS-active dye.