

Disposable microfluidic sensor arrays for discrimination of antioxidants

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Colorimetric sensor array technology is a kind of chemical sensors, and a detecting method through the color changes of pigments dropped on the porous membrane. Our disposable microfluidic sensor arrays were based on this technique and designed for detection and identification of various antioxidants. Microfluidic paper-based sensors have attracted a lot of interest due to their simplicity, low cost and rapid time to analysis. For this device, microfluidic channels were fabricated by photolithography method on cellulose paper, and chemical resistance of these was enhanced by using aliphatic urethane acrylate as monomer. And also we printed oxidizer adjacent to the redox indicators. Through this concept, we obviate the need to pre-treat sample and analysis is accomplished in a single step. Our disposable microfluidic sensor arrays can discriminate 8 antioxidants and 4 types of tea within a single devices.

Keywords : Colorimetric sensor array, Disposable microfluidic paper-based sensor, Antioxidants