Abstract

Sugar blood test plays critical roles in people with diabetes life. This test leans on the bioelectronics process, while a little stab in the finger is needed to get the blood to the electrodes that make the biological process possible. To overcome the suffering of the sugar blood test, we found a way to create flexible electrodes, and be possible to detect sugar from sweat-sticker device on the hand. The biological process occurs due to the Pyrene-conjugated enzyme. Pyrene is a molecule that sticks to the electrode and allows the wiring of the enzyme to the electrode. The enzyme is responsible to take the electrons from the sugar molecule to our electrodes. And that’s how current measurement possible with a correlation to glucose concentrations. The technique to use is printing technology, our specific one is inkjet printing. This technique doesn’t have to be in a lab environment, unlike many other printing techniques. We are using Dimatix Printing Material – 2800 (DMP-2800) for the fabrication of our electrodes, which are made at room temperature. To measure glucose in sweat, a potentiostat is needed, a very low current measurement circuit (less than nano-ampere). The potentiostat applies voltage using 3 electrodes to detect the sugar level. Eventually, plot a graph that tells us if we succeed measure the sugar level. The results are studied to create a better flexible electrode-a better sensor.