**ABSTRACT**

For the purpose of the study, dye extracts were prepared from natural sources like beetroot, pomegranate, kumkum, and separately mixed with Eosin Y dye. TiO2 nanoparticles were coated over the fluorine-doped tinoxide (FTO) by doctor blade technique, and a counter cathode was prepared by coating the graphene over FTO film. A sandwich-type solar cell was made and the photovoltaic performance measured using Keithley Electrometer 6517B with a Xenon lamp of 100 mW/cm2 as solar simulator. Among the cocktail of dyes, solar cells with beetroot and Eosin Y dye exhibited the highest efficiency of 0.3%. The conversion efficiency of solar cell with pomegranate and Eosin Y was 0.1%, while that of the cells with kumkum and Eosin Y was 0.2%.