Investigation of Natural Dye Influence on Solar Cell

Gayrama, Alec

With growing dependence of technology in the world, the importance of finding an effective source of renewable energy to replace harmful fossil fuels has been a mission for solar researchers and engineers alike. Dye-Sensitized Solar Cells have received growing attention as they are an inexpensive means of generating clean energy. Despite their low production cost, Dye-Sensitized Solar Cells have not reached promising solar conversion efficiencies which has been a challenge in solar research. This work aims to discover the best organic dye-sensitizer to increase the solar conversion efficiency performance of Dye-Sensitized Solar Cells. After experimentation of 11 organic dye-sensitizers, challenges were faced in the experimental process. A novel approach to circumvent the challenges allowed for an improved methodology which transitioned to a 128.01% increase in output voltage and 320.56% increase in output current in comparison to traditional anthocyanin Dye-Sensitized Solar Cells.