Estimate Dye Sensitized Solar Cells Performance Using Dyes Based on Green-Future and Local Wisdom with Simulation Method

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Abstract:
One of the considerations for renewable energy that can be accepted by society is energy based on nature (green future) and environmentally friendly (local wisdom). Dye-sensitized solar cells give to the world, easily and simple implemented technology for future renewable energy. This research was conducted by simulating the performance of DSSC using dye based on green future and local wisdom. Dye is one of the most important components influencing solar cell performance because dye determines the photoresponse of the DSSC. Several dyes that used in this research included Vasica nees, W. fruticose L, U. dioical L, R. arborium, Myrica nagi, Curcuma angustifiola dan Berberies aristate. The reason for this choice of dye included it is easily found in Indonesia, does not cause environmental pollution, and is thought to have good prospects to be applied to DSSC. The best performance results produced by DSSC are using dye W.fruticose L with an efficiency of 1.6%, and the lowest performance are using dye R. arborium with an efficiency of 1 %.

Keywords: Absorption Coefficient; DSSC Efficiency; Dyes Based on Green-Future; Local Wisdom; Simulation

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