

Abstract Submitted  
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**Mondo Grass Berry Pigment for Visible to Near Infrared Absorption in Dye Sensitized Solar Cell<sup>1</sup>** L.A.A. DESILVA, Department of Physics, University of West Georgia, Carrollton, GA, P.K.D.D.P. PITIGALA, A.G.U. PERERA, Department of Physics and Astronomy, Georgia State University, Atlanta, GA — The development of dye sensitized solar cells (DSSC) is an exciting field in the low cost renewable energy production. Two major draw backs in the DSSCs are the narrow spectral response and the short term stability. Synthesis of artificial dyes with broad response is important in developing an efficient DSSC. Artificial dyes can add up to the cost of the device; therefore, it is important to identify natural dyes with broad absorption and required energy levels. Work presented here shows a broad spectral response with a natural dye extracted from a Mondo Grass berry (*Ophiopogon japonicus*). The dye is extracted by crushing the berries and filtering to remove the pulp. A DSSC sensitized with Mondo Grass dye, and with TiO<sub>2</sub> film screen printed on a Fluorine doped Tin Oxide (FTO) glass and baked for 30 minutes at 450 degree C as the working electrode and Iodine/triiodide red-ox electrolyte as the hole collector was tested for its performance. An open circuit photovoltage of 495 mV and a short circuit photocurrent of 0.6 mA/cm<sup>2</sup> were observed under a simulated lamp equivalent to 1 sun illumination and have a broad spectral response extending from 400 nm to 750 nm.

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