

Spinach protein and blackberry dye give juice to biohybrid solar cells

February 26 2018

Berries really do pack extra punch – increasing the voltage of spinach-derived biohybrid solar cells developed by Vanderbilt researchers by up to a factor of 20.

The interdisciplinary team discovered that combining a natural dye from blackberries with photosynthetic proteins extracted from spinach leaves creates a device that can produce vastly more voltage than a solar cell made from spinach protein alone.

Biohybrid solar cells that incorporate natural materials can become a cost-effective source of electricity if their photovoltage potential is increased. At this point, the performance of these devices is nowhere near that of today's [silicon solar cells](#). Biohybrid technology is at an early stage, comparable to silicon [solar cells](#) of 30 to 40 years ago that were limited to powering electronic watches and calculators.

The team, led by Professor of Chemical and Biomolecular Engineering Kane Jennings and Professor of Chemistry David Cliffel, reported its discovery in the journal *ACS Applied Energy Materials*. Their article, "Photosystem I Multilayer Films for Photovoltage Enhancement in Natural Dye-Sensitized Solar Cells," was published online Jan. 31.

More information: Maxwell T. Robinson et al. Photosystem I Multilayer Films for Photovoltage Enhancement in Natural Dye-Sensitized Solar Cells, *ACS Applied Energy Materials* (2018). [DOI: 10.1021/acsaem.7b00230](https://doi.org/10.1021/acsaem.7b00230)

Provided by Vanderbilt University

Citation: Spinach protein and blackberry dye give juice to biohybrid solar cells (2018, February 26) retrieved 26 June 2024 from <https://phys.org/news/2018-02-spinach-protein-blackberry-dye-juice.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.