Spinach protein and blackberry dye give juice to biohybrid solar cells
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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 Cliffl, 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.


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