# Nova Innova and PEUGEOT stage world’s first photoshoot powered by plant energy



# A Pioneering Leap in Sustainable Energy: The World's First Photoshoot Powered by Plant Energy

In a striking fusion of art and innovation, a recent photoshoot has garnered acclaim as the world’s first to be entirely powered by nature. This groundbreaking project originated from a collaboration between the Dutch research and design studio Nova Innova and PEUGEOT, with photographer George Williams capturing stunning images that will be showcased at the prestigious Saatchi Gallery in London. Central to this initiative is the innovative use of plant energy, harnessed through the natural processes of photosynthesis—the very process that allows plants to convert sunlight into the energy needed for growth and sustenance.

The project utilises microbial fuel cells (MFCs) to tap into this eco-friendly energy source, successfully collecting electricity generated by the breakdown of organic waste from plants. As plants grow, they release biomass that feeds specific bacteria in the soil. These bacteria metabolize the organic matter, releasing electrons that can be captured and stored as electricity. The energy harnessed from this process was pivotal in powering the lighting for the photoshoot.

Ermi Van Oers, a spokesperson for Nova Innova, expressed their enthusiasm, outlining the project’s significance: "This first-of-its-kind shoot was a great way to show what's possible with our technology. In the future, we hope this method can be scaled up to power things like household appliances and even parts of vehicles." This ambitious vision aligns with global sustainability goals, as organisations seek to reduce reliance on conventional power sources.

The practical implementation of this green energy initiative involved 30 microbial fuel cells, drawing energy from an intriguing mix of natural materials. Comprising not only plant waste but also spent coffee grounds and a unique soil-water blend, the project demonstrated a creative approach to waste utilisation. Nicola Dobson from PEUGEOT emphasised the project's pioneering nature by stating, "The world's first photoshoot powered by plant energy with the new E-5008 demonstrates PEUGEOT's dedication to embracing innovation and sustainable technology."

This venture into plant-based energy isn't entirely unprecedented. It draws parallels with previous research where a fern named Pete at the Zoological Society of London successfully captured its own selfies using energy derived from a microbial fuel cell, showcasing the capacity of plants to enable autonomous energy production. These innovative approaches serve as significant reminders of the untapped potential of natural systems in energy generation, positioning them as viable alternatives to fossil fuels.

Furthermore, there has been a growing focus on integrating microbial fuel cells into various applications. Recent initiatives include the development of open-source camera traps powered by such cells, designed by multidisciplinary teams of plant biologists, engineers, and artists. These innovations aim to address the persistent challenges of battery maintenance in remote monitoring, providing a sustainable alternative that enhances conservation efforts.

As the world increasingly grapples with the climate crisis, developments in technologies that harness natural energy sources offer a beacon of hope. With advancements in phototrophic microbial fuel cells (PhMFCs), researchers are exploring how to boost efficiency through the integration of photosynthetic organisms, such as algae. These systems not only present opportunities for generating clean energy but also promise improved waste treatment, highlighting their multifaceted benefits.

As the photoshoot opens to the public at the Saatchi Gallery, it is set to inspire conversations around sustainable practices in art, technology, and everyday life. This fusion of creativity and innovation may well serve as a catalyst for further explorations into plant-powered systems, encouraging wider adoption of environmentally friendly technologies in diverse sectors.

## Reference Map:

* Paragraph 1 – [[1]](https://www.express.co.uk/news/science/2052066/photoshoot-powered-plants)
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* Paragraph 3 – [[1]](https://www.express.co.uk/news/science/2052066/photoshoot-powered-plants), [[2]](https://fuelcellsworks.com/news/microbial-fuel-cell-powered-fern-called-pete-takes-worlds-first-plant-powered-selfie), [[4]](https://www.biomaker.org/projects/development-of-open-source-camera-trap-powered-by-plant-microbial-fuel-cell)
* Paragraph 4 – [[1]](https://www.express.co.uk/news/science/2052066/photoshoot-powered-plants),[[3]](https://indianexpress.com/article/explained/microbial-fuel-cells-technology-that-enabled-a-fern-to-take-its-own-selfies-6071048/)
* Paragraph 5 – [[6]](https://pubs.rsc.org/en-us/content/articlelanding/2023/se/d3se00237c),[[7]](https://www.frontiersin.org/journals/bioengineering-and-biotechnology/articles/10.3389/fbioe.2024.1276176/full)
* Paragraph 6 – [[1]](https://www.express.co.uk/news/science/2052066/photoshoot-powered-plants), [[4]](https://www.biomaker.org/projects/development-of-open-source-camera-trap-powered-by-plant-microbial-fuel-cell)

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## Bibliography

1. <https://www.express.co.uk/news/science/2052066/photoshoot-powered-plants> - Please view link - unable to able to access data
2. <https://fuelcellsworks.com/news/microbial-fuel-cell-powered-fern-called-pete-takes-worlds-first-plant-powered-selfie> - In October 2019, the Zoological Society of London announced that a fern named Pete had taken its own selfies using energy harvested from a microbial fuel cell powered by the plant's photosynthesis. This innovative approach demonstrated the potential of using plants to power devices, marking a significant advancement in sustainable energy research. The microbial fuel cell utilized bacteria to oxidize organic matter produced by the plant, generating a small electrical current sufficient to power a camera capable of capturing images autonomously.
3. <https://indianexpress.com/article/explained/microbial-fuel-cells-technology-that-enabled-a-fern-to-take-its-own-selfies-6071048/> - The Indian Express article explains microbial fuel cells (MFCs), devices that use bacteria to oxidize organic and inorganic matter, generating electricity. It highlights the case of Pete, a fern at the London Zoo, which took selfies powered by an MFC. The article discusses how plants naturally deposit biomatter as they grow, feeding bacteria in the soil, creating energy that can be harnessed by fuel cells to power devices like sensors and camera traps, offering a sustainable energy solution for remote monitoring.
4. <https://www.biomaker.org/projects/development-of-open-source-camera-trap-powered-by-plant-microbial-fuel-cell> - Biomaker.org discusses a project aimed at developing an open-source camera trap powered by plant microbial fuel cells (pMFCs). The initiative involved teams of plant biologists, designers, and electrical engineers to design, build, and test prototypes of pMFCs. The goal was to create environmentally friendly power supplies for sensors and camera traps in remote field locations, addressing challenges associated with battery maintenance in conservation technology and enhancing the monitoring of natural resources.
5. <https://beyondconference.org/archive/b22/posters/power-of-the-mud-designing-an-open-source-microbial-fuel-cell-for-art-and-design.html> - The Beyond Conference article presents the 'Power of the Mud' project, which designed an open-source microbial fuel cell (MFC) for art and design applications. The installation allowed visitors to power robots using hand-cranked dynamos, illustrating the collaboration between electronics, microorganisms, and humans in a sustainable manner. The project aimed to make microbial fuel cells more durable and stable using everyday materials, with potential applications in robotic artworks and other frugal applications.
6. <https://pubs.rsc.org/en-us/content/articlelanding/2023/se/d3se00237c> - This article from Sustainable Energy & Fuels discusses phototrophic microbial fuel cells (PhMFCs), a greener approach to sustainable power generation and wastewater treatment. PhMFCs utilize photosynthetic organisms like plants and algae to enhance power output in microbial fuel cells. The review emphasizes the potential of PhMFCs in achieving carbon neutrality, producing bioelectricity, and detecting toxic substances in wastewater sources, highlighting their promising future prospects in sustainable energy and environmental applications.
7. <https://www.frontiersin.org/journals/bioengineering-and-biotechnology/articles/10.3389/fbioe.2024.1276176/full> - The Frontiers in Bioengineering and Biotechnology article explores energy harvesting from plants using hybrid microbial fuel cells (MFCs), discussing potential applications and future exploitation. It covers various MFC configurations, including sediment-based and plant-stem MFCs, and their applications in powering environmental telemetry instruments and wastewater treatment. The article also discusses the integration of photosynthetic organisms like algae to improve power output and the potential for scaling up these systems for real-world applications in sustainable energy generation.