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Sony develops eco-friendly battery powered by carbohydrates

by David Gutierrez

(NewsTarget) Sony Corporation has developed a type of electric cell ("battery") that uses enzymes to generate electricity from sugar in a process similar to that used by living organisms. So far, the test cells have been able to produce an output of up to 50 milliwatts, more than any other battery of the same type. Fifty milliwatts is enough energy to power a memory-type Walkman for music playback.

The voltaic cells that are used to power home appliances generate electricity and commonly referred to as "batteries" work by immersing two different metals (electrodes) into electrolyte solutions. The chemical reactions between the solutions and the electrodes cause free electrons to form and flow between the electrodes. Over time, the electrodes break down and the cell loses its ability to sustain a charge.

In Sony's biological battery, [sugar](#) is added to an enzyme solution at one electrode, which causes a chemical reaction that results in free electrons. This current then flows from one electrode to the other, where other enzymes convert oxygen into water. Because the electrodes are not consumed in this process -- but the cell will no longer be able to function once its energy source (in this case, sugar) is expended -- this technically makes Sony's new "battery" a type of fuel cell.

The casing for the cell is made out of vegetable-based plastic. By constructing the cell in a more ecologically-friendly fashion and not having to use toxic materials for the electrodes or electrolyte solution the way that current voltaic cells do, [Sony](#) hopes to market the biological cell as a more environmentally-friendly battery. The company has announced its intention to continue research into ways to increase the cell's electric output and lifetime in order to make it ready for consumer use.

The research that led to the development of the cell was presented at the American Chemical Society National Meeting & Exposition in Boston.

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