

Potato Power - Yisum Introduces Potato Batteries for Use in the Developing World

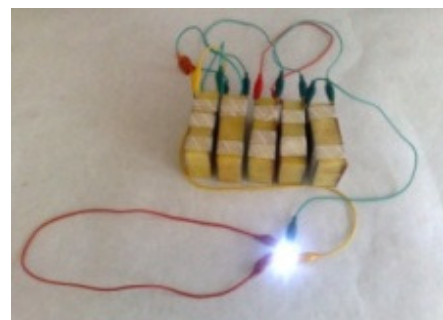
- Discovery published in the *Journal of Renewable Sustainable Energy* and Featured in *Nature's Research Highlights* -

JERUSALEM--(BUSINESS WIRE)--Yisum Research Development Company Ltd., the technology transfer arm of the Hebrew University of Jerusalem, introduces solid organic electric battery based upon treated potatoes. This simple, sustainable, robust device can potentially provide an immediate inexpensive solution to electricity needs in parts of the world lacking electrical infrastructure. The findings were published in the June issue of the *Journal of Renewable and Sustainable Energy* and are featured in this week's Research Highlights section of *Nature*.

“The ability to construct efficient vegetative batteries supplies us with a novel way of exploiting bio-energy sources, which are currently primarily used as fuel”

Researchers at the Hebrew University discovered that the enhanced salt bridge capability of treated potato tubers can generate electricity through means readily available in the developing world. This cheap, easy to use green power source could substantially improve the quality of life of 1.6 billion people, comprising 32% of the developing non-OECD populations, currently lacking access to electrical infrastructure. Such a source can provide important needs, such as lighting, telecommunication, and information transfer.

"The ability to construct efficient vegetative batteries supplies us with a novel way of exploiting bio-energy sources, which are currently primarily used as fuel," said Yaacov Michlin, CEO of Yisum. "The ability to provide electrical power with such simple and natural means could benefit millions of people in the developing world, literally bringing light and telecommunication to their life in areas currently lacking electrical infrastructure."



Potato Battery (Photo: Business Wire)

Prof. Haim D. Rabinowitch from the Robert H. Smith Faculty of Agriculture, Food and Environment and the research student Alex Golberg from the School of Computer Science and Engineering at the Hebrew University, jointly with Prof. Boris Rubinsky at the University of California at Berkeley, study the electrolytic process in living matter for use in various applications, including the generation of electric energy for self-powered implanted medical electronic devices. In their research, they discovered a new way to construct an efficient battery using zinc and copper electrodes and a slice of your everyday potato.

The scientists discovered that the simple action of boiling the potato prior to use in electrolysis, increases electric power up to 10 fold over the untreated potato and enables the battery to work for days and even weeks. The scientific basis of the finding is related to the reduction in the internal salt bridge resistance of the potato battery, which is exactly how engineers are trying to optimize the performance of conventional batteries. The ability to produce and utilize low power electricity was demonstrated by LEDs powered by treated potato batteries.

Cost analyses showed that the treated potato battery generates energy, which is five to 50 folds cheaper than commercially available 1.5 Volt D cells and Energizer E91 cells, respectively. The clean light powered by this green battery is also at least 6 times more economical than kerosene lamps often used in the developing world.

Thus, the boiled potato or other similarly treated vegetables could provide an immediate, environmental friendly and inexpensive solution to many of the low power energy needs in areas of the world lacking access to electrical infrastructure. The long-keeping humble potatoes in particular are a good energy source since they are produced in 130 countries over a wide range of climates, from temperate zones to the subtropics- more than any other crop worldwide, but corn, and thus available year round almost anywhere.

The potato is the world's number one non-grain starch food commodity, with production reaching a record 325 million tons in 2007. Potato consumption is expanding strongly in developing countries, which now account for more than half of the global harvest and where the potato's ease of cultivation and high energy content have made it a valuable cash crop for millions of farmers.

Yissum has made this technology freely available to economically disadvantaged parts of the world.

About Yissum

Yissum Research Development Company of the Hebrew University of Jerusalem Ltd. was founded in 1964 to protect and commercialize the Hebrew University's intellectual property. Ranked among the top technology transfer companies in the world, Yissum has registered over 6,100 patents covering 1,750 inventions; has licensed out 480 technologies and has spun-off 65 companies. Yissum's business partners span the globe and include companies such as Novartis, Johnson & Johnson, Roche, Merck, Teva, Intel, IBM, Phillips, Syngenta, Vilmorin, Monsanto and many more.