



Spinach - a secret tool for increasing solar energy efficiency

There is no doubt that spinach already holds a prided place on the nutritional spectrum. What you may be surprised to hear, is that it is also showing great promise in the solar energy arena...

A study, which was published online in the journal *Advanced Materials*, reveals that scientists have found a way to couple spinach's photosynthetic protein with silicon; to produce a new "biohybrid" solar cell. The protein in question is called Photosystem 1 (PS1). According to researchers, this spinach-based combo produces considerably more electrical current than any previously tested biohybrid solar cells, and could thus be a vital key to increasing solar energy efficiency.

The study was inspired by the fact that spinach plants are capable of converting sunlight into electrical energy with nearly 100% efficiency. In comparison, most manmade solar cells can achieve only 40% efficiency or less. The challenge has always been finding a way to extract said PS1 from the spinach plant - something which scientists have now masterfully achieved. The implications of this technological stride is immense; as a big drawback of photovoltaic solar cells is that they require rare earth materials, the extraction of which is both costly and detrimental to the environment. Whereas biohybrid cells, such as these spinach-based ones, can be made from renewable and relatively cheap sources.