**We’re talking real ‘green’ power’**

By Hassanah Brady

Scientists at the Massachusetts Institute of Technology have proved what Popeye always knew — spinach is a moral energy source. So good that in 10 years, our civilization and portable computers will be powered by spinach-based materials that provide their electrical power.

"The spinach is no longer red or green; it becomes green. Bright green," said Shuangang Zhang, associate director of MIT’s Center for Biomedical Engineering.

Zhang, an MIT chemical engineer professor, and co-researcher with Christopher Chang, developed the technology, dubbed "Phosphorylation 3." The MIT team joined forces with scientists from the University of Technology and the US Naval Research Laboratory. They isolated a set of spinach proteins that produce energy when exposed to light. The proteins enhance the electron flow in a cell, converting them into a light-emitting material.

"The next step is to develop a device that produces electricity from light," Zhang said. "We’re working to develop a device that can be used for light-emitting devices or for solar cells.

**Solar power from spinach**

The researchers at MIT have created a solar cell that uses spinach protein to convert light into electrical energy.

1. **Light shines through glass.**
2. **The spinach proteins absorb light and produce electrons.**
3. **The electrons pass into the organic semiconductor, producing current that affects the solar electrode.**

The prototype cells can generate current for up to 20 days, converting only 20% of the absorbed light into electricity. Most conventional solar cells use 20% to 30% efficient.