

# Potted-plant battery

*Design: Thomas Scarborough (South Africa)*

As incredible as it may sound, the author has recently been powering a LCD clock module from a set of potted plants. A "biological power station" of this sort may remind you of the well-known apple and lemon batteries, where two electrodes made from different metals are stuck into a piece of fruit to form a sort of simple galvanic cell. However, in this case the cells of the battery draw their energy directly from the plants, rather than from an electrochemical process. Does this mean that the plants are actually generating the electricity?

There's no question that the plant battery supplies free energy. It's not much, but it's still energy. This energy is apparently not generated by an electrochemical process, but instead directly by the plants. The plants continue to supply energy as long as they remain alive. Thomas does understand exactly how this works, but he knows from experience that it does work.



A potential difference of approximately 0.4 V can be measured between the plant and the soil it grows in. This voltage source can supply a power of approximately 0.8 microwatt, regardless of whether the plant is a small houseplant or a large bush. Of course, this is far too little power for most applications, but it is enough to operate a simple LCD clock module. Of course, this requires connecting several plants in separate pots in series to form a battery. The series connection would not work if the plants were all in the same pot, since in that case the

A relatively long metal rod stuck into the soil, also connected with an alligator clip, is sufficient for this purpose. All of this is shown quite clearly in the photos.

Five or six potted plants can be connected together in this manner to form a series circuit as shown in the schematic diagram. Now an electronic device, such as an LCD clock with very low power consumption, can be connected to the outer terminals of this battery. The positive terminal of the clock is connected to a free branch of the first plant in the series, while the negative terminal is connected to the soil of the last plant in the series.

## HOW DOES IT WORK?

The operating principle of the potted-plant battery is currently the subject of vigorous discussion in numerous forums. We don't want to get involved in these discussions here, but we can present a few facts mastered by the author to counter the arguments of his opponents:

1. The objection that this is simply an ordinary electrochemical reaction can be proven false by using gold-plated electrodes, since gold is a noble metal that does not participate in electrochemical reactions. Nevertheless, the plant battery produces electricity if gold-plated electrodes are used.
2. It has been suggested that the energy comes from the reception of radio signals. This theory can be disproved by the fact that the battery also works when it is inside a Faraday cage.
3. A plant expert has suggested that the electricity is generated by the DNA of the plant. The author regards this as the most plausible explanation.

*(Discussion closed.)*