The DVGroup Procedure for Making Copper-Cuprous Oxide Solar Cell

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1) Cut the filter paper into two equal semicircles
2) Cut a piece of aluminum foil to cover the paper.
3) Bind the aluminum foil and filter paper together by winding coils of copper wire. Sand the copper wire before you wrap it.
4) Leave about 20 cm of excess copper wire for connecting the terminal of the multimeter.
5) Spread ¼ teaspoon of sodium chloride salt and 2 teaspoons of copper sulfate crystal over the foil to push the paper assembly below the water surface.
6) Put the paper assembly into a Petri-dish containing water just enough to cover the foil.
7) Within couple of minutes, you will see small bubbles of Hydrogen gas evolving and reddish-brown precipitate forming on the paper.
8) After the bubbles stop, take the paper out of the water carefully without spilling the reddish-brown precipitate.
9) The paper is kept in the CD case in such a way that it covers one half of the CD case and the precipitate facing up.
10) Spread the precipitate on the paper and remove the left out aluminum foils, if any.
11) Spread glucose on top of the precipitate. You can use honey too but it makes things very sticky.
12) Wind few coils of copper wire around your hand and squeeze the bundle into the other side of the CD case.
13) Leave 20 cm of excess copper wire for connecting the terminal of the multimeter.
14) Make a solution of copper sulfate by adding 1 teaspoon of copper sulfate in 1 teaspoon of water.
15) Soak a piece of cotton wool in the copper sulfate solution.
16) Connect the two electrodes using the cotton wool.
17) Ensure the excess copper wire poke out of the CD case and close the CD case lid.
18) Secure the CD case with sticky tape.
19) Connect the electrode to the terminal of the multimeter.

Procedure worked out by Hari Venkatraman

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Cuprous oxide precipitate on a paper electrode wrapped with copper wire

copper wire counter-electrode

salt bridge made with cotton wool saturated with a copper sulphate solution

CD case with paper inserts removed

**Figure 3.** Components of the copper–cuprous oxide solar cell.