

# Solar cells ... from cranberry juice !!

## A. Main topics

- Students can learn about alternative semiconducting materials to convert light into electricity
- Students can handle no dangerous and/or toxic compounds/components to easily fabricate a working solar cell.

## B. Targeted audience

- 14-x18 years old students

## C. Key concepts

- Use of organic semiconductors as a possible replacement of conventional inorganic materials
- Active learning of the advantages and potentialities of a new class of materials/devices: easy processing, lower environmental impact and reduced costs

## D. Experimental activity

- The toolkit allows the fabrication, starting from few components and materials, of a working solar cell, which consists of an active layer (based on a natural organic semiconductor contained in cranberry juice), two electrodes for the collection of the (photo)generated charges and few other things. Once completed the experience, the students can evaluate the quality of their work, measuring the photovoltaic response (under illumination) of the device.

## E. Toolkit material

- Cranberry juice
- Two glass coated with a transparent conductive oxide (e.g. FTO or ITO)
- Titanium dioxide
- solution of an electrolyte: redox couple I<sup>-</sup>/I<sub>3</sub><sup>-</sup>
- Hot-plate (T > 250° C)
- multimeter

## F. RM Tutors

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